

CHAPTER 1: INTRODUCTION

1.1 ORIENTATION

This thesis investigates adult L2 pronunciation learning and teaching, by focusing on the questions of what learning processes are involved in second language learning, and how the teacher can facilitate them, described by Macaro (2003:21) as the ‘two most fundamental questions in SLA research’. It aims to both understand the reasons for lack of success with pronunciation and to establish general principles which explain how pronunciation can improve.

Pronunciation is an area which has received little attention from mainstream Second Language Acquisition (SLA) research (Porter 1999). Derwing and Munro (2005:379) note that the lack of empirical studies has meant that, ‘teachers are often left to rely on their own intuitions with little direction.’ Fraser (2001) also says more documentation is needed of cases of effective pronunciation teaching. Although, as will be seen in the literature review, there has been little empirical evidence as to the effectiveness of particular approaches, methods and techniques (Derwing and Munro 2005), there have been a small number of studies in the last decade showing that pronunciation teaching can be effective (e.g. Couper 2003; Derwing Munro & Wiebe 1998; Park 2000).

Pronunciation has also received little attention from teachers. There are a number of possible reasons for this. Teachers may:

- lack knowledge or confidence (Breitkreutz, Derwing and Rossiter 2002; Fraser 2000a; Macdonald 2002)
- believe pronunciation teaching does not work because they have tried it and been unsuccessful (Fraser 2000a)
- believe pronunciation teaching does not work, based on Krashen’s theory of comprehensible input and a Language Acquisition Device (LAD) (Krashen 1981, 1985).
- believe pronunciation teaching is not appropriate, based on the view that pronunciation is purely a motor-skill (Brown, H.D. 1987) and therefore

pronunciation practice is not compatible with a communicative philosophy of language (Morley 1991)

- believe it is not appropriate to teach and correct pronunciation out of consideration for issues related to identity and respect for the learner as an individual (Porter 1999).

In contrast to these views, this thesis accepts the position (e.g. Celce-Murcia, Brinton and Goodwin 1996; Derwing and Munro 2005; Fraser 2000a; Morley 1991; Pennington 1998) that pronunciation both can and should be taught, and that it is an inseparable part of communication and as such should have a significant role in Communicative Language Teaching . Pronunciation is seen as much more than a motor-skill, taking Fraser's (2000a:21) position that 'second language pronunciation is a cognitive skill...which everyone can learn to a certain degree if given appropriate opportunities' and that pronunciation is important to 'learners' experience of their new language, and to their progress in other aspects of language learning: those who can talk easily can increase their practice far more effectively than those who cannot' (ibid:33).

Further it takes the stance that rather than being improper to teach and correct pronunciation, it is a means of empowerment. This is supported by learners' views that pronunciation is important (Couper 2003; Derwing 2003; Willing 1988) and that the teacher should teach it (Barrera Pardo 2004; Couper 2003, 2002).

1.2 BACKGROUND: MOTIVATION AND GOALS

The thesis was motivated by a desire to find out how to teach pronunciation most effectively. This questioning has its origins in the classroom observation that learners in post-intermediate level classes were often unintelligible. This, also prompted by previous findings that learners needed and wanted to improve their pronunciation (Couper 2002), led to an action research project into the value of having an explicit pronunciation syllabus (Couper 2003).

The project explored a number of ideas related to pronunciation teaching, and found tentative evidence for the effectiveness of explicit pronunciation instruction and for its

validity in the eyes of learners. That project was set in the same learning and teaching context, described in section 1.4, as the studies presented in the thesis. It involved the introduction of an explicit pronunciation syllabus into a regular full-time post-intermediate level ESOL (English for Speakers of Other Languages) course. The syllabus covered a wide range of segmental and suprasegmental features, and consisted of a series of short lessons interspersed throughout the course which were accompanied by a workbook. The lessons often recycled language already presented in the course to focus on certain aspects of pronunciation. For example, sentence stress was demonstrated through a model of a short talk about a newspaper article, and key vocabulary was used to demonstrate individual phonemes or for word stress and syllable work. The teaching was explicit, and involved: awareness-raising, explanation and practice through listening and repeating followed by language laboratory work in which learners recorded themselves, replayed and compared their recordings with the model. Corrective feedback was also provided by the teacher.

Overall, the learners demonstrated a clear improvement in accuracy of pronunciation on both the reading task and the freer speaking task. The survey results showed that learners were enthusiastic about this approach to pronunciation teaching and felt strongly that teachers should teach pronunciation. They said the best ways to improve their pronunciation were: listening and repeating, teacher explanation, and speaking to other New Zealanders. After the course they showed a great deal of awareness of pronunciation and what could be done to improve it.

That study was by nature exploratory, and did not provide sufficient empirical evidence to make claims about exactly what had worked, and why it had worked. However the findings certainly provided support for the view that the explicit systematic teaching of pronunciation can be effective at a post-intermediate level.

Against the backdrop of this initial action research project, the first goal of the thesis is to establish empirically that explicit instruction works. To achieve this, further classroom based research is carried out, presented in chapter three, but this time attempting to define and control for some of the variables involved. To begin with, just one feature of pronunciation is focussed on, described in section 1.3, and there are pre-, post-, and delayed post-tests. Baseline data is also collected to provide for a

control. Some qualitative data is collected through surveys and interviews. The next study, presented in chapter four, builds on these findings, as it further explores what it is that makes pronunciation teaching work. This requires an extensive amount of ethnographic-type observation of learning processes and the role that teaching may have in them. Through this qualitative approach a number of key variables emerge. Two of these variables, Socially Constructed Metalanguage (SCM) and Critical Listening (CL), are then operationalised and tested experimentally. More will be said about these variables and their rationale later in this chapter.

In summary, the overarching goals of the thesis are to:

1. extend existing demonstrations that pronunciation can be taught effectively
2. explore the principles of successful pronunciation teaching
 - a. as a contribution to the development of theory
 - b. to provide guidance to teachers in the form of principles which
 - i. can be applied in different contexts
 - ii. can be applied to different aspects of pronunciation

1.3 EPENTHESIS AND ABSENCE

In order to discuss pronunciation teaching in general it is necessary to focus on a particular example. The example chosen here is the syllable coda, more specifically epenthesis (addition of an extra vowel sound after a consonant e.g. when an L2 speaker wants to say ‘fish’ but to the native speaker it sounds like ‘fishy’) and absence (the inappropriate omission of consonants e.g. when an L2 speaker wants to say ‘wants’ but to the native speaker it sounds like ‘want’). The term absence is preferred over deletion to make the distinction between consonants which are acceptably omitted in connected speech and those which may cause confusion through their omission, such as a plural or 3rd person ‘s’.

The rationale for this choice is based on both the widespread nature of the problem amongst the potential research participants and the impact it can have on communication. Epenthesis in particular leads to the introduction of additional syllables which can alter patterns of rhythm and stress and cause major difficulties for

the listener. A further reason for this choice is that, although broader suprasegmental areas might be of greater interest, epenthesis and absence are more easily quantified.

1.4 LEARNING AND TEACHING CONTEXT

In the same way that a particular aspect of pronunciation has been chosen for the development of generaliseable principles, the learning and teaching also occurs in a particular context. This context is similar for all the studies reported in this thesis, as well as the action research project referred to in section 1.2, and is described below. The context was chosen for the practical reason that it was the one available to the researcher. Clearly the implications of the particular context must be taken into account in considering the extent to which findings can be considered relevant to different contexts. In other words it will be necessary to observe how the principles developed in this thesis will translate to other situations, such as English as a Foreign Language, English as an International Language (Jenkins 2002), and when the teacher is a non-native speaker (Ellis, L. 2002; Mahboob 2003).

The participants in these studies are all adult, higher-intermediate level, ESOL learners attending full-time class at Auckland University of Technology, Auckland, New Zealand. They are all permanent residents and therefore have language needs relating to settlement. The students are described in more detail with each study.

These students are all enrolled in the Certificate in English Language, a competency-based programme catering for learners up to 'Post-Intermediate' level. In terms of the International English Language Testing System (IELTS), the exit level from 'Post-Intermediate' approximates a score of 5.5. The programme generally lends itself to a communicative approach to teaching, and deals with topics related to living, working and studying in New Zealand.

The teacher is also the researcher throughout the studies in this thesis. It is acknowledged that this may be seen as posing a risk to the objectivity of these studies. However, as is explained in the reporting of the particular studies, every effort is made to minimize this risk. It is also felt that being a participant observer has benefits in terms of the subjective, more ethnographic insights which are gained.

The teacher himself is a native speaker of New Zealand English and has been an English language teacher and teacher educator for more than twenty years, having taught in a range of contexts in many different countries, beginning in Mexico in 1985. He learned French at school and in the course of his travels he has become fluent in German and Spanish as well as gaining a basic knowledge of Japanese and Turkish. Since returning to New Zealand he has learned some Te Reo Maori. This linguistic background makes him somewhat different from the typical New Zealand English native speaker.

In terms of teaching, he takes a broadly communicative approach, much along the lines suggested by Morley (1991) with specific reference to pronunciation. His focus is on the different types of interaction which occur within the classroom, and understanding the cross-cultural communication this involves. He is learner-centred and sees the teacher's role as facilitating the learning process by:

- 1) providing opportunities for communicative practice
- 2) helping learners to develop the necessary tools for effective communication:
both indirectly, and directly through explanation and corrective feedback

1.5 APPROACH

Jordan (2004) suggests that attempting to explain phenomena is fundamental to theory building. This is a view which is supported in this thesis, but in SLA theory there is still a lack of agreement as to what the phenomenon of language actually is. Gregg (2001), for example, puts forward the traditional SLA view that it is a matter of linguistic competence or knowledge of language inside the brain which counts. This thesis takes a contrary position that what is of interest is the way language is used to communicate. Broadly, this may be referred to as a usage-based approach, which Taylor (2002:592) defines as:

the claim that linguistic knowledge is acquired 'bottom-up', on the basis of encounters with the language, from which schematic representations are abstracted. Also: that knowledge of language might consist very largely in knowledge of low-level generalizations, even, in knowledge of specific expressions, even if these conform with more general schemas.

There is also disagreement as to the relationship between theory and practice. Gregg (2001:153) rather provocatively suggests that those who insist on a connection should ‘get the hell out of the armchair’. He claims that there is in fact little connection between SLA theory and L2 instruction and goes on to state, ‘SLA still hasn’t shown any theoretically relevant relation between some specific type of input modification on the one hand, and some specific bit of acquisition on the other’ (ibid:169). However, this thesis aims to do precisely that. It aims both to contribute to theory and to provide practical guidance for teachers. It builds on the work of others with similar aims and an interest in language teaching and learning, such as Widdowson (2003) and Macaro (2003) who argue very strongly that it is time for SLA to make the connection between theory and practice.

Jordan (2004:114) proposes a set of guidelines for the construction of a ‘critical rationalist approach towards theory construction in SLA’. These include ideas particularly relevant to the approach taken in this thesis such as: the importance of perception and the distinction between perception and reality, the role of theory in explaining phenomena, the centrality of problem-solving to research, and the need for a multi-method approach.

In order to achieve its aims, this thesis requires a cross-disciplinary approach, collecting evidence from a wide range of sources and using a range of research methods, both quantitative and qualitative. It acknowledges the strengths and insights obtainable from both inductive and deductive approaches (Jordan 2004) in understanding learning processes and the role of teaching. The approach here, then, is one of first defining the problem, understanding the problem from as many perspectives as possible before developing possible solutions, or theories, and then going on to test those theories.

These proposals also find resonance in the discipline of social science, where a multi-method approach is encouraged (Brewer and Hunter 2006). The central argument is ‘that there is no best singular way to the truth and that a variety of methods should be considered in its pursuit’ (ibid:152). This invokes the concept of triangulation, also well known from the social sciences, i.e. ‘Triangulated measurement tries to pinpoint

the values of a phenomenon more accurately by sighting in on it from different methodological viewpoints' (ibid:4).

1.6 THEORY

There are of course many theories related to language learning and teaching, and to pronunciation. These are reviewed in the literature review in chapter two. However it is useful to provide a brief introduction to the theoretical framework used in this thesis, namely Cognitive Phonology.

Cognitive Phonology is a branch of Cognitive Grammar, which is in turn situated within Cognitive Linguistics, a usage-based approach to language stemming largely from the work of Langacker (1987) and more recently Taylor (2002). Cognitive Linguistics is based on the premise that the cognitive abilities required for language are similar to those used on other cognitive tasks and 'it argues that language is embodied and situated in the sense that it is embedded in the experiences and environments of its users' (Mompean Gonzalez 2006:vii). It may also be worth reminding readers from different disciplinary areas that the field of Cognitive Linguistics is distinct from Cognitive Psychology which focuses more on subconscious processing on inaccessible mental representations (Anderson 2000).

Cognitive Grammar defines itself in direct opposition to the better known Generative theory (e.g. Chomsky 1965, 1968) which views language as cognitive in the sense that it is in the mind and autonomous but is very different to Cognitive Grammar. To distinguish this view from that of Cognitive Grammar (and Cognitive Linguistics and Cognitive Phonology), Taylor proposes the use of a capital 'C' when referring to Cognitive Grammar.

The key characteristic of Cognitive Grammar is that it begins with what is known about cognition and uses that to build theories of language acquisition (Taylor 2002).

One well known fact about human cognition is that 'Humans excel at categorizing' (Taylor 2002:9) and 'Our ability to function in the physical and social world depends on elaborate categorizations of things, processes, social relations and other persons'

(ibid). Phonology also relies on categorisation and is therefore a cognitive phenomenon which is ‘grounded in the human ability to produce, perceive, and above all, to categorize sounds, and to form mental representations of sounds’ (ibid:79-80). This has a number of implications for pronunciation teaching.

Fraser (2004, 2006a, 2006b, 2007) has applied the theory of Cognitive Phonology to pronunciation teaching and learning. Of particular importance is the role of categories, concepts and concept formation. Learning the concepts of the L2 phonology is a prerequisite to successfully categorising the sounds of the language. The crucial implication for learning L2 pronunciation is that ‘If pronunciation is behaviour, and behaviour is driven by concepts, then the key to changing pronunciation is changing concepts’ (Fraser 2006a:87).

This approach has led to the proposal of a number of practical suggestions for pronunciation teaching (Fraser 2000a, 2000b, 2001, 2006a). These take as a starting point the observation that L2 pronunciation is a cognitive skill, and the greatest difficulties in learning it are cognitive rather than physical.

Amongst other suggestions, Fraser (2000a, 2001) discusses effective metalinguistic communication and Critical Listening. She emphasises the need to, ‘strive to communicate information about speech in a way learners can use effectively to improve their pronunciation. This is the key to good metalinguistic communication’ (Fraser 2001:35). Critical Listening is one of the central tenets of a concept formation approach as developed by Fraser (2000a, 2000b, 2001). It is based on the principle that ‘Learners need to listen often to their own speech, with guidance as to good and bad aspects’ (Fraser 2000a:27).

1.7 CRITICAL LISTENING (CL) AND SOCIALLY CONSTRUCTED METALANGUAGE (SCM)

This thesis builds on and extends these ideas in a range of ways to be discussed more fully in the coming chapters. Particular contributions arise from the exploration of these ideas through practical application, and their formal testing.

Critical Listening (CL), as proposed by Fraser (2000b), involves recording learners' speech, and comparing it with a native speaker model. By listening to the two versions together, learners can be helped to hear the difference between what they think they have said and what an English speaker would think they have said. The teacher can provide guidance by saying how it sounds to him, asking learners to describe how it sounds to them, or writing the sentence on the board and using annotations to point out the differences. However it is achieved, the aim is for learners to understand the nature of the problem in their own terms.

An important factor in CL is good metalinguistic communication (Fraser 2000b). This relies on both the teacher and learners having a common understanding of the concepts which are being discussed. In observing how this common understanding is created it becomes clear that to be successful the teacher and the learners must work together to construct ways of talking about phonological concepts. This leads to the development of the concept of 'Socially Constructed Metalanguage' (SCM) to describe this type of metalanguage. SCM sits comfortably with ideas about the social construction of meaning in discourse as found in socio-cultural theory (Lantolf & Thorne 2006) and in theories of inter-cultural communication (Lo Bianco, Liddicoat & Crozet 1999). A more detailed definition of SCM is provided in chapter four.

The choice of the word 'social' for this term has been made to highlight that this metalanguage is owned by the class as a group and once developed it can be used throughout the course for quick and effective feedback. It is also important to reiterate that the word 'Cognitive' in Cognitive Phonology implies that learning a new phonology involves cognitive skills which are developed through social interaction.

The practical applications of CL and SCM are explored and tested in this thesis, to provide evidence of concept formation. The interactions between CL and SCM and other approaches to teaching are also investigated, as are the interrelationships between instruction, perception and production. This is explained in greater detail as it is applied in the various studies in this thesis.

1.8 RESEARCH QUESTIONS AND STUDIES CARRIED OUT IN THIS THESIS

To summarize so far, the thesis starts with a very practical classroom problem of what the teacher should or can do about poor achievement in pronunciation. In the first instance it must establish that pronunciation teaching can be effective, but to provide teachers with a clear rationale for classroom actions and activities relating to pronunciation, there is a need to develop general principles. This in turn requires the application, development, and testing of theory which explains what is happening in the learning process: why some learners learn when others don't, why some teacher actions help and others don't, what the learner needs to do, and what the teacher needs to do. Through a Cognitive Phonology framework, it defines particular variables which are critical in making teaching effective.

This leads to the following questions:

1. What effect does instruction have on pronunciation?
2. Can gains be transferred to other items and different contexts?
3. Are these gains retained over time?
4. What are the learning processes involved in pronunciation acquisition?
5. How can teaching foster these learning processes?
6. How do these observations of learning processes and the role of teaching relate to Cognitive Phonology and other theoretical views?

Answers to these questions are sought through a series of research projects outlined in figure 1.1 below. They are represented schematically to indicate where they fit on the spectrum of qualitative to quantitative.

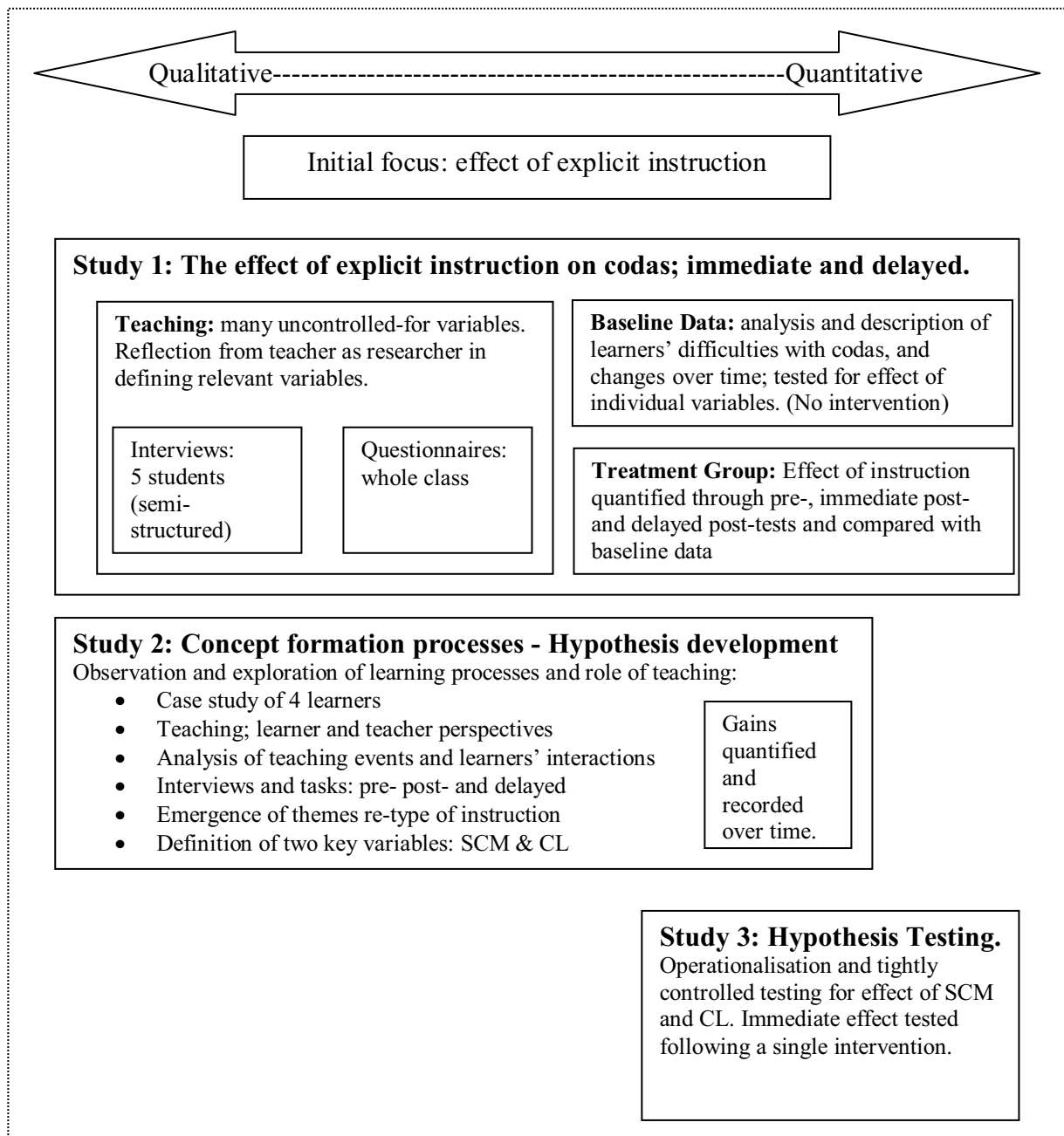


Figure 1.1 Overview of the research undertaken for this thesis

1.9 OVERVIEW OF THE THESIS

A brief overview of the remaining chapters is provided here, followed by an overview of the testing instruments used.

Chapter Two: Literature Review

Given the multi-disciplinary nature of this study, covering areas of phonology, language teaching and learning, second language acquisition, educational psychology and socio-cultural theory, L2 (second language) speech research, and Cognitive Phonology, a wide-ranging literature review is provided to help set the context for the research which follows and the related development of theory.

Chapter Three: Explicit pronunciation teaching – Study One

The main aim of this study is to provide empirical evidence that explicit pronunciation teaching can work and to set the stage for further analysis of what it is that makes it work. The approach to teaching and learning in Study One is an eclectic one, accessing what is already available in the pedagogical literature, and from the teacher's experience and intuition, rather than being based on one particular theory. It also draws on the results of the previous action research project referred to in section 1.2. The study finds not only that explicit pronunciation teaching can work but that gains can be both transferred to other contexts and retained over time. Combined with qualitative data it suggests a number of teaching techniques and approaches for further exploration: awareness raising, critical listening, metalanguage, feedback and practice, in the context of a broadly communicative framework.

The baseline data which is collected, while fulfilling the function of a control group, is also used to analyse the difficulties learners have with syllable codas. This analysis provides evidence upon which to base the choice of phonological contexts for teaching and testing. It also suggests systematic ways in which teachers might address some of these difficulties.

Chapter Four: Concept formation processes – Study Two

The second study, presented in chapter four, builds on the findings from the previous study. This is an ethnographic study allowing for an exploration of how learners interpret what is being taught and if and how this is translated into the formation of phonological concepts. This focus on concept formation is situated within the theory of Cognitive Phonology and allows a number of themes to emerge which are relevant

to the learning and teaching process. In particular, two variables are isolated and defined: Socially Constructed Metalanguage (SCM) and Critical Listening (CL). It is hypothesised that these are important elements of the learning process.

Chapter Five: Experimental testing of SCM and CL – Study Three

In contrast to the earlier studies, this study aims to provide experimental evidence for the importance of these two variables in successful teaching. This study tests for the effect of these two variables both individually and combined. Thus there are four conditions: SCM-/CL-, SCM-/CL+, SCM+/CL-, and SCM+/CL+. The focus of this study is on tight control in order to restrict the influence of other variables as much as possible. In order to achieve this tight control each group receives only one planned and scripted 45-50 minute lesson.

Chapter Six: Discussion

This chapter begins with a review of the main findings of all these studies before comparing the findings with those from other studies reported in the literature. The implications for the classroom are considered, addressing the questions of whether and how pronunciation should be taught. This is followed by a discussion of the implications for different theoretical positions within SLA theory, social and cultural theories, and educational psychology, L2 speech research, and Cognitive Phonology.

Chapter Seven: Conclusions and Future Research

Chapter seven begins with an overview of what the thesis has achieved and a brief summary of the method. It then summarizes the implications for both theory and practice before returning to the questions posed in chapter one (section 1.7). Finally areas of further research are sketched out.

1.10 OVERVIEW OF TESTING INSTRUMENTS

In addition to interviews and questionnaires, a number of testing instruments are developed and used in the three studies. These are described in the relevant chapters,

but a brief overview is provided here along with the number of the appendix where they can be found. The number in the appendix name is indicative of the study for which the test is first used, e.g. 1A refers Study One, Appendix A. In some cases names have been chosen which might help in remembering which test is which.

Appendix 1A: Citric Acid Test (A sentence reading task originally developed as a general diagnostic test)

Appendix 1B: Tough Phrases Test (A test composed of 40 phrases based on learners' specific difficulties with epenthesis and absence.)

Appendix 1C: Listening Discrimination Test: Version 1

Appendix 2A: Listening Discrimination Test: Version 2

Appendix 2B: Paragraph Reading Task

Appendix 2C: Direction Giving Task (An information gap activity aimed at simulating a communicative situation in which the learner has to provide directions)

Appendix 2D: Sounds and Spelling (Learners are presented with sentences – in written form – and say selected infrequent words explaining their choice of pronunciation)

Appendix 2E: Critical Listening: Version 1

Appendix 3B: Drunk Snail Test (A speaking test based on words and phrases taught, especially those involving comparative animal descriptions)

Appendix 3C: Listening Discrimination Test: Version 3

Appendix 3D: Critical Listening: Version 2

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

The cross-disciplinary nature of the subject of this thesis necessitates a broad ranging review of a number of related areas involving phonology, language teaching pedagogy, second language acquisition (SLA) theory, social and cultural theories, educational psychology, speech perception and Cognitive Phonology.

This literature review begins with a brief look at what is actually involved in pronunciation and the implications for both learners and teachers of the abstract nature of phonology. In the next section the role of pronunciation in language teaching is reviewed. As well as reviewing how this has changed over time and the implications for pronunciation teaching methodology, the reasons why pronunciation is so often ignored is also considered. Two factors in particular are highlighted here: age and identity.

Section 2.4 offers a brief overview of the traditional SLA view of cognitive processes, in particular the role of an innate language acquisition device (LAD) and Universal Grammar (UG), and the implications for teaching and learning L2 (second language) pronunciation. This leads to a review of a number of relevant SLA discussions: form-focused instruction (FFI), attention and noticing, corrective feedback, and type of instruction.

The relationship between the learner and the external environment is considered in section 2.5 as social and cultural theories, and educational theory and psychology are reviewed. This includes the learning processes involved in acquiring L2 pronunciation as well individual learner variables.

Having reviewed the theory and practice of L2 pronunciation teaching, Section 2.6 surveys studies into the effectiveness of pronunciation instruction and in particular of different types of instruction. The following section presents a brief overview of data

and theory from L2 speech learning research. In particular, questions of perception, production and the relationship between the two are explored.

Section 2.8 focuses on the particular feature of pronunciation which is used for the studies undertaken in this thesis, i.e. epenthesis and absence. The following and final section then summarises the implications so far before moving on to describe the framework being used in this thesis, i.e. Cognitive Phonology.

It will be seen that many theories of language learning and teaching, such as second language acquisition (SLA), social and cultural theories and educational psychology, have paid relatively little attention to pronunciation. While these theories certainly have implications for pronunciation learning, it is really only the theories coming from the field of phonetics and phonology which have focussed on and investigated what might be happening during the pronunciation learning process and whether or not there is a role for instruction. However, so far it has not been easy to integrate these theories under one theoretical framework. To this end, applying a Cognitive Phonology framework is proposed.

2.2 THEORETICAL PERSPECTIVES ON PRONUNCIATION

From the perspective of the second language teacher, there appear to be two competing views of pronunciation. One, which could be described as a narrow view, sees pronunciation as a matter of producing the right sounds in the right order (Brown, H.D. 1987). That is, it involves learning the individual vowels and consonants. The alternative view, which could be referred to as a broad view, is that pronunciation 'is an essential component of communicative competence' (Morley 1991:488). That is, it minimally encompasses all the vowels and consonants, and suprasegmental features such as word and sentence stress and intonation. It may even be extended to include facial and hand gestures involved in oral communication.

A narrow view focuses on individual sounds and the motor skills involved in producing them. For example H.D. Brown (1987:47) sees them as being separable, and separate, from the far more important, 'acquisition of the communicative and functional purposes of language'. That is, he does not perceive pronunciation as being

integral to communication. The dominance of this view at the time led Pennington and Richards (1986:208) to observe that 'For most language teachers, pronunciation is largely identified with the articulation of individual sounds and, to a lesser extent, with the stress and intonation patterns of the target language.' Yule (1990) suggests that it may appear to novice teachers that the only classroom choice available is one between teaching pronunciation as articulatory phonetics or not teaching pronunciation at all. Barrera Pardo (2004) quotes Pica (1994) as saying that, being a mechanical neurolinguistic process, pronunciation is by definition unteachable. However, it should be noted that Pica in fact refers to accurate pronunciation rather than easily intelligible pronunciation. This of course raises the question as to how important accuracy is in intelligibility.

A broad view of pronunciation, involving a focus on how pronunciation is actually used to communicate, has now gained support from many writers interested in the field of second language pronunciation learning, e.g. Celce-Murcia, Brinton and Goodwin (1996). Pennington and Richards (1986:207) provide this explanation:

Pronunciation is seen not only as part of the system for expressing referential meaning, but also as an important part of the interactional dynamics of the communication process. According to this view it is artificial to divorce pronunciation from communication and from other aspects of language use, for sounds are a fundamental part of the process by which we communicate and comprehend lexical, grammatical and sociolinguistic meaning. Pronunciation involves a complex interaction of perceptual, articulatory, and interactional factors.

This view has led to intelligibility, as opposed to accuracy with individual sounds, becoming generally accepted as the most important outcome of pronunciation instruction (Derwing and Munro 2005). Intelligibility is also a function of the attitudes brought to the listening task by the native speaker (Lindemann 2002; Perlmutter 1989), but unfortunately there is little the teacher can do here.

There has been some confusion as to what is meant by accent and intelligibility. Accent is often used in a very general sense such as, 'the phenomenon that we call a foreign accent is a complex aspect of language that affects speakers and listeners in both perception and production and consequently, in social interaction' (Derwing and Munro 2005:379). Piske, MacKay and Flege (2001) also view accent as the

overarching term and describe differences as degree of accent. Golombek and Jordan (2005:514) intentionally blur the distinction between intelligibility and accent on the basis that, 'the majority of non-scholars perceive these terms as being interchangeable.' More usefully, in line with a pedagogic focus on intelligibility Derwing, Munro and Wiebe (1997) provide definitions for: intelligibility – able to be understood, and comprehensibility – ease of understanding. Accent is then left as a variation from local native speaker (NS) norms. Fluency is also sometimes used as a measure of mastery of L2 speech and there have been attempts to define what makes speech fluent (Lennon 1990).

The relevant question for teachers is: What do learners need to be able to do to achieve intelligibility? It has often been assumed that a focus on suprasegmentals, or aspects of pronunciation above the level of the phoneme, is appropriate (Celce-Murcia, Brinton and Goodwin 1996; Morley 1991; Pennington 1998; Pennington and Richards 1986). This is supported by early evidence from Anderson-Hsieh, Johnson and Koehler (1992) who found a strong correlation between ratings for intelligibility and prosody and a weaker correlation between intelligibility and accuracy at the syllable level. They also found a significant relationship between ratings for prosody and accuracy with syllables. However in terms of the actual effect of instruction, there is not a great deal of empirical evidence to show that teaching suprasegmentals is in fact the best way to improve intelligibility (Levis 2005). That evidence which has been provided includes contributions from: Derwing, Munro and Wiebe (1997 and 1998), Derwing and Rossiter (2003), and Hahn (2004).

As well as differing views of pronunciation, there are differing views of phonology; viz. generative and usage-based views. Phonology involves abstract categories such as sets of segments (phonemes), tones, intonation and voice quality (Shockey 2003). The fact that these categories are abstract is generally acknowledged, e.g. Fromkin et al. (1996). What is not agreed upon is the nature of those categories.

Generative phonology views the categories of phonology as being determined by the presence or absence of certain distinctive features (Chomsky and Halle 1968). That is it assumes underlying phonological rules which are reflected in speech. These rules can be acquired through access to a Universal Grammar (UG) (Chomsky and Halle

1968). UG led to first language acquisition theory based on an idealised speaker/hearer's competence, an approach which has also been adopted in mainstream SLA, as is seen in section 2.4. The main implication is that the teacher should focus on the physical production of sounds, i.e. the motor skills, because:

- these rules are innate and cannot be taught (Krashen 1982, 1985) and,
- speech is 'no more than the transmission phase of language' (Cruttenden 2001:296), i.e. it is seen as the physical representation of language but is somehow separable from the underlying meaning.

However, as Chomsky and Halle (1968:3) note, pronunciation is not just a matter of phonological rules, there are 'many other factors as well – factors such as memory restrictions, inattention, distraction, nonlinguistic knowledge and beliefs, and so on.' Clearly the impact of 'other factors' on performance is much greater for the L2 learner.

By way of contrast, a usage-based view observes how speakers categorise language and how they relate the physical sounds to meaning. Taking this view, Bybee (2001) concludes that categories are based on exemplars and the development of prototypes. Pronunciation is seen as an integral part of the meaning making process rather than the transfer of a set of underlying phonological rules. Bybee (2001:34) proposes a usage-based model which 'goes beyond structuralist models to show how language use gives rise to structure.' The implications for the teacher and learner are that it is possible through cognitive skill learning processes to help learners understand the relationship between sound and meaning. These approaches are discussed in section 2.9.

Despite their differences, both theoretical positions do agree that the learner must understand the correspondence between sound and meaning and that teachers and learners must understand the gap between idealised forms of language and the actual sounds produced. To this end it is helpful to keep in mind the distinction between phonetics and phonology. Crystal (1995:160) defines phonetics as 'the study of how speech sounds are made, transmitted, and received'. Phonology on the other hand 'is the study of how we find order in the apparent chaos of speech sounds' (ibid).

Learners and teachers also have to keep in mind the difference between the canonical forms and the reduced forms especially dominant in conversational speech (Shockey 2003). Clearly one of the difficulties facing learners is that they cannot relate these reduced forms to the sounds they have been taught.

This still doesn't fully explain the difference between the physical sounds and speakers' perceptions of both what they say and what they hear. Phonologically it is easy to think of pronunciation as a sequence of one sound after the other. However, acoustically it has been demonstrated that this is not in fact the case. Warren (1982) provided experimental evidence to show that speech perception is not dependent on an ability to identify component sounds and their orders, that in fact a great deal of speech would be too fast to do this, and that we rely on holistic pattern recognition. Shockey (2003) notes that often whole sounds are omitted even though the listener still perceives them and, 'Most people speaking their native language do not notice either the sounds that they produce or the sounds that they hear' (ibid:10).

Chomsky and Halle (1968:25) also note 'there is nothing to suggest that these phonetic representations also describe a physical or acoustic reality in any detail' and 'what the hearer "hears" is what is internally generated by the rules' (ibid:24) i.e. the gap between the acoustic signal and what is heard. C. Brown (2000:6-7) also observes that, 'successful acquisition of phonological representations requires accurate perception of phonemic contrasts in the input.' Thus the area of speech perception is of particular interest to the enquiry of this thesis. This is reviewed in section 2.7.

Although not directly applicable to the approach taken in this thesis, important work has also been done by M.A.K. Halliday (2005) into the relationship between intonation and grammar, and the role of intonation in the creation of discourse.

In conclusion, work in the area of phonology and phonetics has highlighted the distinction between the physical sounds and the related phonological concepts. Understanding this relationship is the task facing both the teacher and the learner. The position taken in this thesis is that phonology arises from language use and that the categories involved are exemplar based and prototypical. This implies a broad view of

pronunciation as being an inseparable part of oral communication. It also implies a positive stance on the role of instruction in assisting the second language learner. The following sections of the literature review focus on the role of pronunciation in L2 teaching and the implications of different theoretical positions.

2.3 PRONUNCIATION TEACHING

In the previous section, the focus was on different views of pronunciation: what it includes and what the aims of teaching it might be. This section considers the role which has been assigned to pronunciation in L2 teaching. It begins with a brief look at changing views and some of the approaches, methods and techniques which are commonly recommended for the teaching of pronunciation. It then considers why pronunciation has been, and often still is, neglected by L2 teachers. Here, beliefs relating to the role of age and identity are examined.

2.3.1 Changing Views on the Role of Pronunciation

The role of pronunciation in L2 teaching has changed as different teaching methodologies have come and gone (Celce-Murcia, Brinton and Goodwin 1996). The grammar-translation method placed little value on pronunciation, while in the audio-lingual approach which followed, there was a great deal of emphasis on the accurate pronunciation of individual sounds, which was to be achieved through listen and repeat type exercises (Larsen-Freeman 1986). Situational language teaching tended to place a similar emphasis on the structure of language, and teaching techniques ‘featured articulatory explanations, imitation, and memorization of patterns through drills and dialogues, with extensive attention to correction’ (Morley 1991:485).

The advent of Communicative Language Teaching (CLT) meant a greater focus on communicative purpose (Harmer 2001). This move away from accuracy may have led to pronunciation being neglected as teachers felt that the traditional exercises were meaningless drills which were not compatible with a communicative philosophy of language (Morley 1991). Those who took a narrow view of pronunciation, such as H.D. Brown (1987), saw it as of minor significance when compared with the communicative and functional purposes of language. Of course as Dr Elizabeth Ellis

(personal correspondence, February 20, 2009) points out, pronunciation was not dropped from all teacher training programmes, and in fact it was a significant component of the very popular pre-service course offered by International House, London when she did it in 1981. The author has also had the benefit of training in both pronunciation teaching and phonetics and phonology in his early training in the mid-eighties. Nevertheless, it would seem that in some instances at least, teachers do not give pronunciation a high priority (Fraser 2000a; Macdonald 2002), which may have been a factor in Couper's (2003) findings that learners were failing to acquire pronunciation which was adequate for intelligibility.

A similar effect, on the acquisition of other aspects of the form of the language, has been observed by a number of commentators such as R. Ellis (2006), Spada, Lightbrown and White (2005), and Skehan and Foster (2001). This has also been ascribed to the focus on meaning at the expense of accuracy resulting from a narrow interpretation of CLT. For example, Canadian immersion programmes reported on by Swain and Lapkin (1982, 1995), led to learners not acquiring accuracy in their use of grammar. This question of the focus on form is taken up again in section 2.4.

While pronunciation may have been sidelined in the strong model of communicative language teaching which focused on meaning and ignored accuracy, Morley's (1991) broadly-constructed communicative approach has seen an increased interest in pronunciation (Burgess and Spencer 2000). Before this, Pennington and Richards (1986:218) had called for a top-down (here meaning holistic or global) perspective on pronunciation which 'highlights the overarching role of context in determining phonological choices at all three levels – segmental, voice-setting and prosodic features.' They also noted there could well be a mismatch between performance and competence, or between the development of motor skills and mental representations. They suggest pronunciation training may, 'assist in the development of new articulatory habits and contribute to the reorganization of higher level systems, or schemata, eventually resulting in a change in performance' (ibid:219). They also conclude that it may take time for improvements in pronunciation to become a part of spontaneous language.

Changing views of the role of pronunciation have been reflected in a change of focus on either segmentals or suprasegmentals. This dichotomy tends to have been replaced by a more balanced view which recognizes that both are important (Celce-Murcia, Brinton and Goodwin 1996; Derwing, Munro and Wiebe 1998). This is also reflected in the sorts of features writers have proposed should be included in the pronunciation syllabus (Fraser 2001; Jenkins 2002).

2.3.2 Recommendations for L2 Pronunciation Teaching

There have been a number of recommendations for L2 pronunciation teaching. Although they don't appear to have a unified theoretical basis, there is a certain convergence in their suggested approaches.

A number of studies have found that learners are often not aware of their pronunciation deficiencies (e.g., Couper 2003; Derwing and Rossiter 2002). It is also widely proposed that learners would benefit from awareness-raising (e.g., Burgess and Spencer 2000; Celce-Murcia, Brinton and Goodwin 1996; Jones 1997; Porter 1999). This may be achieved deductively through explicit explanations or inductively, possibly through the use of discovery activities aimed at raising learners' awareness.

It is also generally agreed that practice is a key factor in pronunciation learning, and that such practice needs to be variously controlled, guided, and communicative (Celce-Murcia, Brinton and Goodwin 1996; Morley 1991; Pennington and Richards 1986; Porter 1999). Burgess and Spencer (2000) propose a task-based model in a broadly communicative framework, which involves practice at all stages. Even though all tasks may not be really communicative they still aim to involve meaningful use of language which can allow for a type of drilling. Typical practice activities include those suggested by Gilbert (2005): listening discrimination, pair work, dictation, kinesthetic tasks, 'music of English' which aims to develop a feel for the sounds of English, and 'quality repetition' which focuses on choral repetition with the teacher. Other typical practice activities are found in Hewings (1993) and Hancock (2003).

One well supported suggestion (Fraser 2001; Morley 1991; Otlowski 1998; Robertson 2003) is to view the teacher's role as that of a coach. Such a view shares the

assumptions of the need for practice and guidance and implies that pronunciation is essentially a cognitive skill which can be learned. To be a successful coach requires the teacher to be aware of the learner as an individual and there have been many calls (e.g. Jones 1997; Laroy 1995) for a greater focus on the learner as an individual.

A communicative teaching approach implies that learners need to learn how to pronounce sounds rather than about the sounds (Burgess and Spencer 2000). This still leaves open the question as to how they are going to learn how to pronounce sounds. Should there be explanations, should a discovery approach be taken, or should it be done implicitly? Burgess and Spencer (2000) suggest an implicit approach, using noticing and ordering tasks to present forms. Jones (1997) suggests there is still a role for the explicit teaching of rules. A number of ways of teaching a particular form have been proposed: description and analysis of the specific feature, discrimination training, training learners to monitor their own speech, the use of visual, kinesthetic (Underhill 1994) and oral modes, communicative practice, focusing on the difference between a learner's production and the target (noticing the gap), different types of explanations and use of metalanguage, various forms of corrective feedback, and communicative games.

In the light of CLT, it is now generally acknowledged that one of the greatest challenges for teachers has been to integrate pronunciation teaching into such a communicative framework. A number of authors have attempted to encourage teachers to do this and to provide some guidelines (e.g., Brazil 1994; Burgess and Spencer 2000; Chela-Flores 2001; Morley 1991).

Guidelines as to how to approach pronunciation teaching have been put forward by, amongst others, Pennington and Richards (1986). They were early proponents of a broader focus on pronunciation, saying 'pronunciation should be taught as part of the means for creating both referential and interactional meaning, and not merely as an aspect of the oral production of words and sentences' (ibid:207). They also emphasise the role of cognition and skill recommending that, 'The goal of any explicit training in pronunciation should be to bring learners gradually from controlled, cognitively based performance to automatic, skill-based performance' (ibid:219).

Cunningham Florez (1998) supports a communicative-cognitive approach to teaching pronunciation as proposed by Celce-Murcia, Brinton and Goodwin (1996). This framework involves awareness-raising through the description and analysis of the pronunciation feature to be targeted, listening discrimination activities, controlled practice and feedback, guided practice and feedback, and communicative practice and feedback. Porter (1999) suggests a similar teaching sequence.

Jones (1997) however, is not convinced of the role of feedback. He proposes discovery activities for some formal rules to help in monitoring speech, and the need for a stronger link between pronunciation and communication with a focus not just on intelligibility but on making learners' language 'not only easier to understand but more effective' (ibid:109).

These various suggestions have been translated into a wide range of classroom techniques. Many of these are reflected in Celce-Murcia, Brinton and Goodwin (1996:290) who provide an extensive list of commonly used techniques in the teaching of pronunciation.

Reviews of how these guidelines are reflected in text books have been less than complimentary. Jones (1997:103) notes that despite a supposed move to 'more communicative aspects of connected speech', the actual techniques haven't changed, largely relying on 'imitation and discrimination skills, reading aloud and contrastive analysis of L1 and L2 sound systems.' Porter (1999) is also dissatisfied with teaching materials. He points out the confusion between learning and practice, suggesting that most materials focus on practice and make the assumption that learners already understand what it is they are practicing.

To summarize, pronunciation pedagogy provides teachers with a number of suggestions. Although there is some convergence around the need for awareness raising and practice, there is no clear agreement on the role of explicit instruction and corrective feedback. Finally, while there is a great deal of advice about practice activities, there is a lack of consensus as to the form any explicit teaching should take: rules, descriptions of articulation, explanations and/or use of metalanguage.

As will be seen in section 2.9, the implications of a Cognitive Phonology (CP) approach are in agreement with many of the suggestions put forward in this section. However CP has the added advantage of providing a unifying theoretical base.

2.3.3 Identity and Age in L2 Pronunciation Teaching

As was noted in chapter one, there are a number of reasons why pronunciation is often neglected in L2 teaching. This section examines the issues around two individual variables which are commonly cited as reasons for not teaching pronunciation, viz. identity and age.

2.3.3.1 Identity

The social and cultural contexts of language and language learning are considered in section 2.5 but a brief review of the role of identity in pronunciation learning and teaching is provided here.

Celce-Murcia, Brinton and Goodwin (1996:29) point out that learners ‘may be reluctant to lose their accent for fear of alienating themselves from their native language peers’ and they may also fear that the new ways of thinking imposed by the new language will change their personality and identity. Pennycook (2001:149) notes ‘the context of second language education raises significant issues in the construction and negotiation of identity.’ The extent to which these may impede acquisition is often related to questions of integrative motivation and the extent to which learners identify with the target culture (Pennington and Richards 1986).

Personal identity is of course not constant, but rather multiple and dynamic (Golombek and Jorden 2005). This changing and multiple nature of identity has been explored by Norton Pierce (1995) who discusses the role of relations of power between interlocutors in different contexts. Lo Bianco, Liddicoat and Crozet (1999) also focus on the processes of identity change that learners go through in developing intercultural competence. This theme is returned to later in section 2.5. Pennycook (2001:150) concludes that, ‘engagement with particular languages and cultures must be about identity formation.’ Morgan (1997) reports on the role of the classroom in

developing identity and demonstrates how identity and pronunciation can be linked to provide positive outcomes. In referring to the teaching and learning context, Pennington (1998:335) stresses the importance of ‘making the pronunciation of the second language less threatening to the ego and identity of adult learners’ so that psychologically, they feel comfortable with it as an alternative to the first language.

In the context of English as an International Language, the question of retaining one’s local or personal variation of English pronunciation has become more of a political debate (Jenkins 2002, 2006; Pennycook 1994;). This has involved questions as to what model of language should be taught. Thus the teacher may choose not to focus on pronunciation for fear of being seen as inappropriately imposing native speaker standards. Crawford (2006:71) notes, ‘The expansion of English, in other words, raises the question of what is situationally and socially acceptable and who decides this in the ever-expanding range of contexts in which English is being used as a global lingua franca.’ Jenkins (2002:86), taking a narrow view of pronunciation, also concludes that pronunciation teaching won’t work because ‘the links between accent and identity on the one hand and accent and articulatory motor skills on the other are, it seems, so ingrained’.

Pennington (1998:324) on the other hand, dismisses the argument that it is socially and politically unacceptable to be concerned about a foreign, non-native, or varietal accent. She sees it as ‘a form of “political correctness” imposed on learners which is not necessarily consistent with learner needs or desires’. Pennington and Richards (1986:215) also make the case for the importance of pronunciation to learners, ‘pronunciation is a central component of face-to-face interaction and is consequently part of the process by which speakers present an image of themselves.’

Porter (1999) suggests that an awareness of the importance of pronunciation to the individual’s personality and identity and the threat posed by any attempt to change this may have led some teachers to conclude that it would be disempowering and unethical to attempt to change this.

2.3.3.2 Age

One of the most common arguments against the explicit teaching of L2 pronunciation is based on the assumption that biological facts make the acquisition of a native-like accent impossible beyond a certain age (Jones 1997). This appears to have been a commonly held belief even before biological sciences introduced the idea of a ‘critical period’ in the 1950s (Singleton 2003). The Critical Period Hypothesis for language acquisition is generally connected with the work of Lenneberg (1967) who claimed that once the brain loses its plasticity and becomes lateralised at puberty then it is impossible to achieve native-like pronunciation of another language. While a number of researchers have found support for this idea, others have suggested that it does not hold (Singleton 2003). In particular, if there were a critical period there would be a sharp change in learners’ accents at around this age. In fact the relationship between age of learning and foreign accent has been found to be linear (Flege 1995; Piske, MacKay and Flege 2001). Others have also pointed to cases of successful adult phonological acquisition (Birdsong 1992, 1999; Bongaerts 1999; Moyer 1999), despite the overwhelming evidence that on average younger learners do better (Marinova-Todd, Marshall and Snow 2000). Flege’s (1995:239) Speech Learning Model (SLM) states ‘the mechanisms and processes used in learning the L1 sound system remain intact over the life span.’

The implications for teaching are to be found in the range of age-related factors which may affect the success of pronunciation learning. Singleton (2003:16) suggests these can be categorized as: ‘motivational factors, cross-linguistic factors, educational factors and general cognitive factors’. Marinova-Todd, Marshall and Snow (2000) suggest that it is differences in the learning environment rather than a capacity to learn which are critical. Moyer (1999) found motivational and instructional factors could mitigate the effects of age. Piske, MacKay and Flege (2001) found the amount of continued L1 use along with age of learning affected the degree of foreign accent. It has also been pointed out in relation to the CPH that the lack of access to the advantages posited for the young learner, including access to Universal Grammar, may be balanced by advances in cognitive development leading to gains from better use of the conscious, deliberate dimension of learning (Singleton 2003). In this vein,

Pennington (1995:102) argues that with age comes the advantage of being able to ‘compare and contrast and recognize patterns in speech.’

These findings lead to the conclusion that if anything, there is a stronger argument for the explicit teaching of L2 pronunciation to adults, as opposed to children, as this is most suited to the needs and strengths of adult learners.

It has been seen here that issues of age and identity do not provide a justification for not teaching pronunciation. There are many other issues which impact on the success of L2 pronunciation acquisition, including the implications of linguistic and SLA theory, L1 transfer, L2 experience, individual differences, and of course the amount and type of instruction. These will be explored in the following sections.

2.4 THE STUDY OF PRONUNCIATION WITHIN TRADITIONAL SECOND LANGUAGE ACQUISITION (SLA) THEORY

Having looked at pronunciation pedagogy, this section focuses on the traditional SLA view of cognitive processes, in particular the role of an innate language acquisition device (LAD) and Universal Grammar (UG), and the implications for teaching and learning L2 pronunciation. Section 2.5 focuses on the learner as an individual and his or her relationship with the external environment.

As has already been pointed out, SLA has paid little attention to pronunciation (Porter 1999). However, many of the discussions about SLA in general have relevance to pronunciation, e.g. form-focused instruction (FFI), attention and noticing, corrective feedback, and type of instruction. These discussions are reviewed here in order to provide a general context for discussion in section 2.6 about existing research on pronunciation. Of course the positions taken are determined by one’s views on the cognitive aspects of language learning. A summary of these views is provided first.

2.4.1 SLA Views on the Cognitive Aspects of Language Learning

As can be seen in the figure below, there is a spectrum of views on the role of cognition in language learning. These range from positions which rely on an innate language acquisition device (LAD), often referred to as a nativist or generativist

position (Ellis, R. 2007), to usage-based views, or what N. Ellis (2001: 37) refers to as a constructivist approach which denies innate linguistic universals and claims that ‘the complexity is in the language, not the learning process.’

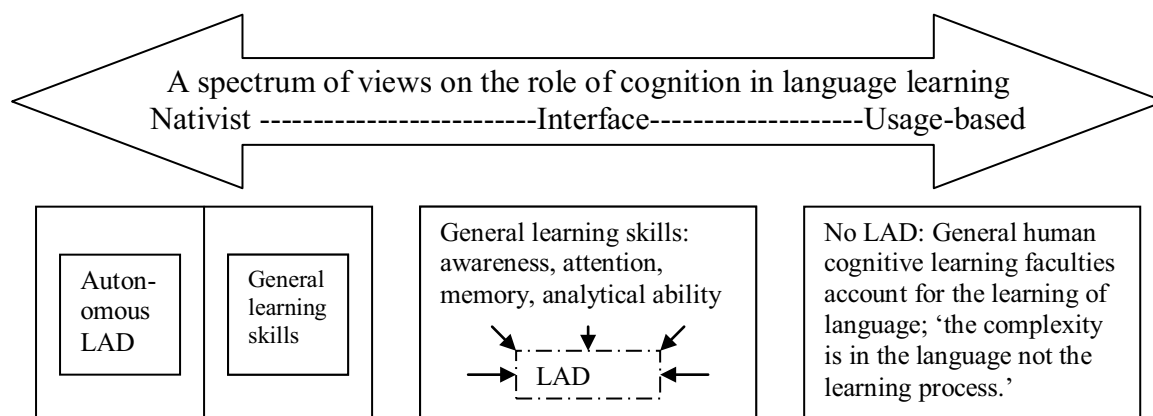


Figure 2.1: A spectrum of views on the role of cognition in language learning.

The three positions shown on the spectrum, nativist, interface, and usage-based, are now reviewed briefly before moving on to the issues relevant to pronunciation teaching.

2.4.1.1 Nativist Views

Macaro (2003) notes the nativist model was the basis of SLA up until the end of the 1980s. This model is closely tied to Chomsky’s focus on language as an innate internal system reliant on a Universal Grammar (UG), and seeks an answer to the ‘logical problem of language acquisition’ which asks how such a complex system as language can be acquired by children ‘despite their lack of cognitive sophistication and the poverty of the stimulus’ (Ellis, R. 1994:437). The solution, in the form of the LAD, which has the role of setting the parameters of the language being learned, suggests a pre-determined order of acquisition.

In relating the LAD to SLA, Krashen (1981, 1985) put forward the notions of comprehensible input and the monitor. The idea was that learners could sometimes understand input just beyond current levels of competence and that this could lead to acquisition. The monitor was intended to explain the planned use of learned language and how this could aid performance. Krashen proposed a strict distinction between

uninstructed ‘acquisition’ and instructed ‘learning’, leading to implicit and explicit knowledge respectively. This is often referred to as the non-interface position which, ‘states that learned knowledge can never become acquired knowledge’ (Doughty 2003:258). Doughty (2003:258) comments that the effect on language teaching was for teachers to focus on ‘providing opportunities for learners to process rich and comprehensible input.’ That is, there is no role for either explicit instruction or corrective feedback as acquisition is viewed as relying on positive evidence, while negative evidence, in the form of corrections, is deemed not to be of assistance to the acquisition process.

There have been investigations in the areas of principles and parameters, natural order of acquisition, and teachability and learnability theories (Pienemann 1984, 1985). Pienemann suggested that if learners were at the right level to move to the next stage, then the appropriate instruction might help. These ideas also led to the development of interlanguage theory (Selinker 1972), which states that although initially there would be transfer from the L1, as knowledge of the L2 developed learners would develop a separate linguistic system. Selinker (1992:264) twenty years later, while still very much in favour of ‘UG-based SLA accounts’, acknowledges the contributions of sociolinguistics and social psychology and calls for the interlanguage debate to be set in ‘a broad conceptual/historical framework.’

In conclusion, a UG SLA account would imply that the pressing issue is whether or not adults still have access to UG. This is because, according to such an account, instruction would not be not expected to have any effect on ‘acquisition’ (Doughty 2003; Housen and Pierrard 2005).

2.4.1.2 The Interface Position

Consideration of broader aspects of language learning has led many SLA theorists to conclude that there may indeed be some sort of interface between consciously learned knowledge and acquisition. For example, R. Ellis (1994:439) notes that, ‘In claiming that grammar is autonomous, generative theorists recognize that other domains, such as perception and memory, are involved in language acquisition and that these interact with the language module.’ Doughty (2003:258) goes further in noting that UG is

becoming less of an issue as ‘the elements of language that are governed solely by UG are limited. Much more of the L2 remains which is potentially acquired more efficiently provided instruction engages learners’ cognitive processing ability.’

The consideration of these other elements and factors outside the scope of the LAD has led to the situation where, ‘SLA is typically considered to be a process which is open to instruction’ (Housen and Pierrard 2005:2).

The interface position has focused on how explicit knowledge can become implicit, and claimed that this can be achieved through a great deal of practice. There is a range of views as to how strong this interface is. R. Ellis takes a weak interface position (Ellis, R. 1993, 2006). This proposes that, although ‘Most SLA researchers agree that competence in an L2 is primarily a matter of implicit knowledge’ (Ellis, R. 2006:95), explicit knowledge can in some way trigger the acquisition of implicit knowledge. R. Ellis (2006:97) concludes that ‘explicit knowledge of a grammatical structure makes it more likely that learners will attend to the structure of the input and carry out the cognitive comparison between what they observe in the input and their own output.’ He also, after suggesting that the ‘facts’ about language which may have been learned may not be clearly understood or may be contradictory, defines two types of explicit knowledge, ‘*Analysed knowledge* entails a conscious awareness of how a structural feature works while *metalinguistic explanation* consists of knowledge of grammatical metalanguage and the ability to understand explanations of rules’ (ibid:95). Thus, different types of explicit knowledge may have different implications for the learning process. A distinction is also often drawn between declarative knowledge, knowing “that”, and procedural knowledge, knowing “how” (e.g., Macaro 2003). These views also imply some role for explicit instruction.

2.4.1.3 Usage-based Views

Those who take a usage-based approach to language deny the role of the LAD, and as Littlewood (2004:517) notes, referring particularly to Johnson (1996), many researchers have taken this position, ‘they argue the general principles of cognitive psychology are sufficient to account also for second language learning’ Others who also view language learning as a skill which can draw on general learning faculties

include Anderson (1993) and DeKeyser (1997, 1998). Of course the approach taken in this thesis, Cognitive Phonology, does not have to explain how explicit knowledge is turned into acquisition through a LAD, but rather it must explain how explicit instruction can be understood by learners and applied in the formation of new concepts. This is explained in section 2.9.

It has been seen in this section that while some interpretations of SLA theory would suggest there is nothing to be gained from instruction, there is now a wide range of interpretations which would allow for a positive role. The debate around the nature of that role is reflected in a number of current issues in SLA. These are reviewed in the next section.

2.4.2 The Role of Instruction

This section considers a number of relevant issues currently being debated in traditional SLA: form-focused instruction (FFI), attention and noticing, corrective feedback, and type of instruction.

2.4.2.1 Form-Focused Instruction (FFI)

Spada (1997:73) defines FFI as, ‘any pedagogical effort which is used to draw the learners’ attention to language form either implicitly or explicitly.’ Within FFI, Long (1991) introduced a distinction between a Focus-on-FormS, what might be thought of as traditional explicit grammar teaching involving a pre-planned presentation of form, and a Focus-on-Form which aims to draw learners attention to form as it arises incidentally within a communicative situation. Considerations in FFI include the role of meaning and context, and how explicit or implicit the instruction should be. The importance of meaning is stressed in a number of theoretical approaches: Krashen’s (1985) Comprehensible Input Hypothesis, Swain’s (1985) Comprehensible Output Hypothesis, and Long’s (1996) Interaction Hypothesis. As has already been seen, the answer as to how explicit instruction should be depends on how one views the acquisition process.

A large meta-analytic review undertaken by Norris and Ortega (2001:157-158) found that FFI does work, that explicit is better than implicit and that Focus-on-Form and Focus-on-FormS are equally effective. However, they also note that, ‘Generalisability of these findings is limited because the L2 type-of-instruction domain has yet to engage in rigorous empirical operationalisation and replication of its central research constructs.’ This echoes earlier comments by Doughty (1991) and Spada (1997). The question as to type of instruction will be returned to in the last part of this section.

2.4.2.2 Attention and Noticing

N. Ellis (2001:35) discusses the importance of working memory in language acquisition processes, ‘The essence of the Working Memory Model is that we have specialist systems for perceiving and representing, both temporarily and in the long term, visual and auditory information, along with a limited resource attentional system.’ In particular, he (2001:63) singles out attention as ‘the most central element of the Working Memory Model.’ Schmidt (2001:3-4) supports this view with the claim that ‘the concept of attention is necessary in order to understand virtually every aspect of SLA’. He goes on to hypothesise that ‘SLA is largely driven by what learners pay attention to and notice in target language input and what they understand the significance of noticed input to be.’

Attention is often seen as the mechanism that controls awareness. Housen and Pierrard (2005) explain that, depending on the amount of attention, different levels of awareness may be achieved: perception, detection, noticing, or understanding. Schmidt defines noticing as equivalent to ‘apperception’ (Gass 1988), and as referring to attending to surface features, or instances of language, as opposed to metalinguistic awareness of abstract rules or principles. Noticing involves learners in paying attention to the gap between their production and the target. Thus it is an important step in the process of acquisition. It will be seen later how this relates to the suggested use of contrast in Critical Listening. Schmidt’s (2001) specific reference to surface features rather than underlying syntactical rules should reduce the concerns of nativists such as Truscott (1998) who see SLA of grammatical competence as being a purely subconscious process.

2.4.2.3 Corrective Feedback (CF)

‘Cognitive theories view CF as making an important contribution to L2 acquisition by assisting learners to pay attention to linguistic form and facilitating rehearsal of linguistic forms’ (Ellis, R. 2007: slide 7). Lyster and Ranta (1997) found that recasts were the most common form of CF. Other forms were: explicit correction, elicitation, metalinguistic clues, clarification requests and repetition. A number of theories propose a role for CF. In addition to Schmidt’s noticing hypothesis, Long’s (1996) interaction hypothesis suggests that the negotiation of meaning and recasts can be a useful source of CF. Swain’s (1985, 1995) output hypothesis claims a role for CF in modified output leading to language learning. The ‘focus’ part of focus on form and focus on forms also allows for a role for CF. Those taking a nativist stance would clearly not allow for CF on the basis that acquisition requires only positive evidence.

R. Ellis (2007) posits a number of conditions for CF to be effective. They are that the focus must be on meaning in a communicative context in which errors are produced and CF provided which learners recognize as corrective and consequently notice their errors and compare the CF with their own production leading to the construction of a form-function mapping and uptake followed by modification of interlanguage if they are ready to do so. Those taking a stronger interface view, or a skills based view would see CF as adding to understanding which through practice might lead to learning. Thus the degree of explicitness depends on one’s theoretical view, but R. Ellis (2007) notes that there is growing evidence that explicit CF works best. He also points to the asocial nature of CF research in general and proposes a way in which the social background and context could and should be taken into account. This is revisited in the next section.

2.4.2.4 Type of Instruction

‘Given that direct instructional intervention has been shown to be effective, at least in the case of grammar, the next obvious question is whether some kinds of direct intervention work better than others’ (Ellis, R. 2002:50). Norris and Ortega (2001) describe instruction as either explicit or implicit but note that especially within the explicit category there are many different instructional techniques. R. Ellis (2002)

describes the main options available for ‘focus-on-forms’ instruction: explicit (didactic or discovery), implicit (input may or may not be enhanced), structured input, production practice (controlled and/or functional), and negative feedback (implicit or explicit). These options are likely to be used in combination, ‘However, in researching the effects of FFI, it is desirable to try to isolate the different options in order to evaluate their contribution to learning’ (Ellis, R. 2002:52).

The difficulty has been that different studies have operationalised different variables differently, or not clearly operationalised them at all. For example, as R. Ellis has said, explicit instruction may be operationalised as either didactic or discovery, however the question as to the type of explanation is left unremarked upon. Is metalanguage to be used, and if so what particular metalanguage? If there was an explanation, what was it which enabled learners to understand it? Housen and Pierrard (2005:11) note that some features are more open to instruction than others and also that, ‘Metalinguistic rules and pedagogical descriptions can differ in clarity, intelligibility and processability so that a given target feature can be explained in both simple and elaborated terms’ Widdowson (2003:111) discusses the differences between linguistic and pedagogic descriptions and that ‘different descriptions focus on different aspects of the truth’ This raises the question of how learners perceive both the evidence they are presented with and accompanying explanations.

2.5 THE LEARNER AS INDIVIDUAL IN CONTEXT

As was seen in the previous section, mainstream SLA theory has focused on the internal workings of the mind and the acquisition of grammatical competence, encompassing phonological competence. However, pronunciation is also a key part of communicative competence and consequently one’s L2 pronunciation is a factor of a whole range of individual and social variables. This section focuses on the learner as an individual interacting with the external environment. Understanding the role of this interaction in the learning process ‘requires an appreciation of the socio-psychological aspects of learning approach, including an examination of motives, beliefs, and sense of linguistic and cultural identity.’ (Moyer 2004:3)

2.5.1 Social and Cultural Theories

SLA theory may be viewed in terms of a cognitive versus a socio-cultural perspective. Zuengler and Miller (2006:43) write in their discussion of this dichotomy, 'The SLA field in the past 15 years, has expanded from a largely cognitive orientation to include socio-cultural approaches.' This has accompanied calls from a number of writers (e.g. Block 2003; Lantolf 1996, 1999, 2000; Lantolf and Thorne 2006; Pennycook 2001) for a greater focus on the social aspects of language learning. The relevance of this debate was apparent in a recent international conference on sociocognition in SLA held in Auckland in April 2007 which acknowledged the need to take a social perspective into account when theorising about SLA.

This acceptance is echoed by Sanz (2005:4), 'All knowledge, especially but not exclusively linguistic knowledge, is the result of learners' interaction with their social context, and acquisition is thus both social and cognitive.' Swain (2000:112) has extended her output model 'to include its operation as a socially-constructed cognitive tool. As a tool, dialogue serves second language learning by mediating its own construction, and the construction of knowledge about itself.' More recently Swain (2005) has introduced the term 'languaging' to describe this. Gibbons (2006) also analyses the bridging role of talk between teachers and students as co-constructed discourse.

Socio-cultural theory takes into account the context of communication and views it as 'emergent and cumulative based on shared knowledge with an interlocutor, and that communication involves the sending and receiving-constructing of 'assumptions' (rather than stand-alone 'messages')' (Thorne 2000:228). Thus it views 'language use in real-world situations as fundamental, not ancillary, to learning' (Zuengler and Miller 2006:37).

The relevance to SLA research of Vygotsky's socio-cultural theory, with its focus on understanding the development of cognitive processes, is that learners gain control and independence when they 'appropriate mediational means, such as language, made available as they interact in socioculturally meaningful activities'. (Zuengler and Miller 2006:39)

Of particular interest to SLA is Vygotsky's (1978:86) zone of proximal development, which he defines as 'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.' Although superficially it brings to mind Krashen's input hypothesis, it is in fact quite different as it 'involves what an individual can accomplish or perform in collaboration with a more competent other's assistance' (Thorne 2000:226). Thus 'a more capable peer could provide linguistically mediated social interaction to the end of assisting someone with language-related tasks and learning' (ibid:227).

Lantolf and Thorne (2006:4) in describing the role of socio-cultural theory (SCT) in language argue that 'because SCT is a theory of mediated mental development, it is most compatible with theories of language that focus on communication, cognition and meaning rather than on formalist positions that privilege structure.' Here 'meaning' refers to conceptual meanings that mediate thinking rather than referential meaning.

Lo Bianco, Liddicoat and Crozet (1999) stress that culture is inherent in language therefore successful multiculturalism requires multilingualism. This leads them to a theory of Intercultural Language Teaching (ILT) based on the idea that successful cross-cultural communication becomes inter-cultural as it occurs in a third place between the two cultures. The third place represents a space for intercultural exploration where 'the understanding of how different worldviews operate (in one's own linguaculture and foreign linguacultures) frees the mind to explore and at the same time to create interculturality' (Crozet, Liddicoat and Lo Bianco 1999:13). Carr (1999:105) relates the key role of dialogue in developing 'a shared, pragmatic understanding of what we're talking about'. Crozet and Liddicoat (1999) suggest culture needs to be taught explicitly and the norm needs to be seen as the bilingual or multilingual speaker. They also highlight the role of conceptual and experiential learning, 'new concepts (metaknowledge) about the mechanics of human communication need to be introduced to learners using a new metalanguage which enables both teachers and learners to talk about language and culture' (ibid:121).

They stress the need for grammatical metaknowledge and extensive and intensive experience with the target language.

2.5.2 Educational Psychology

There have been a number of influences on language teaching from different approaches to educational psychology. Skinner (1957), of the behaviourist school, suggested teachers needed to be explicit, break tasks into small steps, individualise and use positive reinforcement. These are all intuitively appealing ideas but as Williams and Burden (1997:12) say ‘behaviourism denies the importance of a fundamental element in the learning process, the sense that learners themselves seek to make of their worlds, and the cognitive or mental processes that they bring to the task of learning.’ Cognitive psychologists are interested in the role this plays in concept formation and cognitive development:

Much of our experience is assimilated in the form of concepts and expressed in a symbolic form, as in verbal and mathematical modes. Thus by the processes of forming categories and discriminating between the critical attributes of objects and events, we can organize our percepts and employ symbol forms to represent these experiences. (Child 1993:175).

Williams and Burden (1997) suggest there are two extremes amongst cognitive psychologists; the information theorists and the constructivists. The information theorists have already made their presence felt in SLA through work already covered in the previous section on attention and memory. The constructivists are ‘mainly concerned with ways in which individuals come to make sense of the world’ (Williams and Burden 1997:14). Piaget focussed on the learner ‘as an individual, actively involved in constructing meaning’ (ibid:23), and being interested in learning processes proposed the terms ‘accommodation’ and ‘assimilation’ (modifying existing schemata), such that:

When we receive new input of the language, for example by listening to a conversation, we need to modify what we already know about the language (accommodation) so as to ‘fit’ the new information into our existing knowledge (assimilation). In this way our knowledge of how the system of the new language operates gradually develops. This is entirely in keeping with interlanguage theory in the field of second language acquisition, which holds that a learner’s knowledge of the language is gradually re-shaped as it more closely approximates to the target language. (ibid:23)

Child (1993), in reviewing the work of a number of educational psychologists, comments that while Piaget is particularly noted for his work on concept formation, he tended to ignore the importance of the social environment. Child (1993) says Bruner contributed ideas such as the discovery approach to learning, the education of the whole person and the need to learn how to learn. Williams and Burden (1997) suggest that as well as being a cognitive psychologist Bruner was also a social constructivist. Williams and Burden (1997:28) discuss Kelly who was also a social constructivist and suggest the implication of Kelly's Personal Construct Theory is that 'learners are involved in an active process of making sense, of creating their own understanding of the world of language that surrounds them.' And 'the teaching-learning encounter is, essentially a meeting between personal constructions, the subjective realities of teacher and pupil' (Salmon 1988:14). Thus the effectiveness of this interaction is critical in the extent to which the teacher is able to mediate learning. Mediation (the part played by significant others in enhancing learning), being a key tenet of Vygotsky's theory discussed above is also seen as essential by Feuerstein and other social interactionists. Williams and Burden (1997:39) propose social interactionism, encompassing both cognitive and humanistic perspectives as 'a much-needed theoretical underpinning to a communicative approach to language teaching, where it is maintained that we learn a language through using the language to interact meaningfully with other people.' This framework emphasises the dynamic interaction between teacher, learner, task and context. In the second language learning context the teacher and the learner must interact to establish meaning through effective cross-cultural communication.

The use of a constructivist approach for the teaching of aspect has been proposed by Macaro (2003) and Blyth (1997). Macaro (2003:58) explains:

A constructivist approach bases itself on the notion that there is no actual reality out there. Each person constructs his or her view of reality. A constructivist acquisition of the high-level rules of aspect is through the learner slowly accumulating evidence from input.

Blyth (1997:51) decries the poor nature of grammatical explanations provided by textbooks which present rules as if they were a 'direct reflection of an objective reality'. A constructivist approach has also been proposed for the teaching of L2 writing (Nelson 2003)

2.5.3 Individual Differences

Moyer (2004:14) highlights the need to understand the effect of ‘both the universal and the individual aspects of their developmental process’ in accounting for why ‘late language learners arrive at highly variable end states’ Many individual variables have been named, for example Schumann (1978) referred to neurological, affective, cognitive, instructional and social factors. Celce-Murcia, Brinton and Goodwin (1996:14) focus on the learner and ‘effects of age, exposure to the target language, amount and type of prior second language instruction, aptitude, attitude and motivation, and the role of the learner’s first language on the phonological acquisition of a second language.’ They also mention ‘the institutional and setting variables’. As one looks at individual variables more closely, there are many distinctions to be made, for example Larsen-Freeman and Long (1991) list: age, aptitude, motivation, attitude, personality (including self-esteem, extroversion, anxiety, risk-taking, sensitivity to rejection, empathy, inhibition, and tolerance of ambiguity), cognitive style (field dependence/independence, category width, reflectivity or impulsivity, aural or visual learning style, and analytic or gestalt learning style), hemisphere specialisation, memory, awareness, will, language disability, interest, sex, birth order, and prior experience.

Oxford and Anderson (1995:201) present the cross-cultural perspective and focus on the need for teachers to ‘understand their students’ learning styles and the cultural and cross-cultural influences that help shape those styles’ Reid (1987) surveyed students’ learning style preferences, while others (Wintergerst, DeCapua and Itzen 2001) have focussed on the difficulties of measuring learning styles. Another point of focus has been to try and describe the good language learner (Naiman et al. 1978) and in this way develop a list of the learning strategies used. Norton and Toohey (2001:318) have refocussed this to take account of the social context and identity, concluding that ‘understanding good language learning requires attention to social practices in the contexts in which individuals learn L2s.’ They also argue for the need to examine ‘the ways in which learners exercise their agency in forming and reforming their identities in those contexts’ (ibid).

Williams and Burden (1997:95) suggest that it is unclear as to how individual differences actually affect the learning process due to difficulties in definition and measurement which have meant that ‘In dealing with the averages and statistics we appear somehow to have lost track of the individual.’, and ‘This kind of approach does not help us to deal effectively with such issues as how individuals make their own sense of the process of learning a language, or how we as teachers can best help our learners, given that they are all different’ Therefore ‘We need an approach which will focus on the unique contribution that each individual brings to the learning situation, and on how the teacher can assist the learner in learning most effectively’ (ibid).

In conclusion, there are strong theoretical grounds for acknowledging the role of interaction between the individual and the social context in L2 learning and the relevance of a usage-based view of language. This can of course build on other SLA theoretical work especially as it relates to cognition. Before attempting to unify this under the proposed Cognitive Phonology Framework, empirical evidence as to the effectiveness of pronunciation instruction, L2 speech research, and what is known about the specific feature of epenthesis and absence, are reviewed.

2.6 STUDIES INTO THE EFFECTIVENESS OF L2 PRONUNCIATION INSTRUCTION

Having reviewed theories related to second language learning and acquisition in general, this section moves the focus more specifically to pronunciation. As will be seen many aspects of those theories do have relevance for pronunciation.

Pennington (1998:323) suggests that ‘the evidence that explicit instruction in pronunciation improves adult performance is on a par with the evidence that explicit instruction in grammar improves performance.’ She also argues that positive results from research in grammar learning may reasonably be taken to imply a case for a positive effect of instruction on pronunciation learning as well. Derwing and Munro (2005:387) agree that, ‘Evidence suggests acquiring pronunciation is no different from acquiring syntax’, in that learners ‘need help noticing what they are doing.’ However, they note that there have been few studies of pronunciation instruction.

Some studies have investigated correlations between proficiency and instruction, rather than the effect of instruction and different types of, or approaches to, instruction. For example, an early study by Suter (1976) and further analysis in Purcell and Suter (1981) showed no benefit for the amount of formal pronunciation teaching. Comments about the validity of the measurement of pronunciation proficiency aside, there was no attempt to define the type of pronunciation instruction received. Since then, others have looked at successful acquirers of pronunciation and attempted to describe the type of instruction they received. Taking this approach, Bongaerts (1999:155) concluded there were three factors which the most successful pronunciation learners had in common, 'high motivation, continued access to massive L2 input, and intensive training in the perception and production of L2 speech sounds.' Moyer (1999) also focussed on highly motivated advanced learners and looked for correlations between pronunciation proficiency and type of instruction: contrastive drills versus sentence-level work and type of feedback (segmental/suprasegmental). A positive correlation was found for those who had received both segmental and suprasegmental feedback. These studies all relied on self-reporting.

Other studies have attempted to measure the effect of different types of instruction. Macdonald, Yule and Powers (1994:77) note that despite the many different techniques available to teachers, 'remarkably little is known about the relative benefits of those various procedures in terms of perceived improvement in any individual learner's L2 pronunciation, either immediately or over the longer term.' They also stress that it is the perception of pronunciation which is relevant as opposed to any acoustic measurement. In this study they attempted to measure the short-term effects (immediate and two-day delay) of different types of instruction (drilling, self-study, and interactive activities), but found that learner differences introduced a very important variable which was hard to control for and they were not able to draw clear conclusions. It should be noted that two of the interventions involved only a ten-minute period of instruction and the third involved thirty minutes of self-study. It's possible that more time might have produced better results.

Derwing, Munro and Wiebe (1997) also focused on instructional approaches. They found a positive effect for instruction directed towards 'general speaking habits as opposed to a concentration on individual segments' (ibid:217).

In order to compare this approach with one focussing on segmental accuracy, Derwing, Munro and Wiebe (1998) undertook a study which compared three types of instruction: segmental accuracy, general speaking habits and prosodic features, and no special pronunciation instruction. Each course was taught by a different teacher and students spent 20 minutes per day on pronunciation for the duration of a 12 week course. In testing how pronunciations had changed, two types of language elicitation were used: sentences read aloud and extemporaneously produced speech (narratives). 48 native speakers rated the sentences and narratives for accentedness (variation from native speaker norms) and comprehensibility (ease of understanding) while six ESOL teachers evaluated narratives for accent, comprehensibility and fluency.

Both the segmental and the global approach led to improvements on the native speaker ratings. Only the global group showed improvement in comprehensibility and fluency of narratives. The implication is that a global approach is more effective than a focus on segmental accuracy, without suggesting segmental accuracy should be ignored. It should also be noted that reading aloud allows for more attention to pronunciation whereas extemporaneously produced speech is more difficult as attention must be divided between global patterns of prosody and meaning, and accuracy of individual sounds. Derwing and Rossiter (2003) reassessed the data from the narratives using a phonetic analysis. Although this yielded more errors it supported the previous conclusion that a global approach led to greater gains in fluency.

Park (2000) investigated the effectiveness of teaching word stress according to type of instruction: form focussed (teacher-led drills and controlled pair practice), meaning focussed (communicative activities), and forms and meaning focussed (form-focussed practice and communicative activities with feedback). She found that, unlike the meaning-focussed group, both the form focussed and the forms and meaning focussed groups made significant improvement with the latter making a significantly greater improvement than the former.

Other studies have focused on the role of different senses, in language learning. De Bot (1983) reported on the role of visual feedback on pitch change concluding that audio-visual feedback was more effective than auditory feedback alone. Warsi (2002) focussed on the effects of visual instruction on production of /r/ and /l/. She used three groups. The first group was presented with visual diagrams showing place and manner of articulation, and written instructions on how to manipulate the articulators. Feedback was given but no extra modelling. The second group was just given the written description, feedback and no modelling. The control group listened and repeated with no feedback. It was found that the visual cue made a significant difference. The second group and the control group made no progress. It was also noted that production preceded perception.

In his study on teaching Spanish pronunciation, Elliott (1995) was interested in the role of all the senses in pronunciation learning. He looked at the effect of individual factors; field independence and concern for accuracy. These were found not to be predictors for success, however the course itself was successful with those in the experimental group making significant improvement.

The course is described as ‘multimodal’ i.e., ‘Its design appeals to individual learning strategies (i.e., cognitive, metacognitive, and affective factors) and learner preferences (i.e., aural, oral, and visual)’ (ibid:532). Elliott’s instruction focused on the segmental level, explaining point, place and manner of articulation. Students were involved in discovering the articulation before being presented with descriptions and diagrams. There was also repetition and correction within a positive atmosphere. Students were involved in a variety of activities including exercises which required students to work in pairs or groups providing correction and feedback where necessary. However most error correction was provided by the instructor. The teaching methodology reflected the belief ‘that the ability to correct pronunciation errors relates to one’s level of auditory discrimination and to one’s ability to listen critically to the target language phonological system’ and that improvements in perception lead to improvements in production. (ibid:535)

There have also been a number of studies which have not used control groups or provided clear quantitative evidence of the effect of teaching. They have nevertheless provided useful qualitative insights in exploring pronunciation learning and teaching, indicating the types of factors which might be significant in teaching pronunciation.

Acton (1984) reported on a pronunciation programme focussing on the link between pronunciation, affect, personality and social context. The key aspects included raising learners' awareness through analysis of their own pronunciation, the importance of feedback, independent learning and having the right attitude. While no empirical evidence is provided the author is quite convinced of the effectiveness of the approach. Perlmutter (1989) focussed on measuring intelligibility and also reported success for a pronunciation programme. However, few details of the method of instruction are provided, and neither was there a control group.

Rajadurai (2001) reported on the pronunciation aspect of a listening and speaking course for TESL trainees. The course, which viewed pronunciation as an integral part of oral communication, provided a comprehensive syllabus covering awareness raising, suprasegmental and segmental aspects of pronunciation. The trainees were asked for their views on the course and on pronunciation teaching in general. They felt that pronunciation was extremely important, that it should be taught, and that the course had helped them. They rated the work on segmentals as the most useful, but said the best ways to improve their pronunciation 'were to speak English daily and to listen often to good English' (ibid:13). IPA exercises and language lab activities were also rated as useful.

Chang (2006) reported on an ethnographic study involving eight Mandarin speakers attending a course which focussed on prosody. In particular, Chang observed features relating to attention and noticing (areas of attention, how attention was employed when applying knowledge, and a wide range of individual differences in attending, noticing and knowledge and use of rules) and the related growth in phonological awareness. It was also reported that learners had initially not been aware of many aspects of pronunciation (e.g. how syllables are stressed, function of pitch changes) but did report a growth in awareness and indications that intonation may have improved. Chang concluded 'Results strongly suggest that explicit teaching in

conjunction with meta-linguistic discussion raise awareness of phonological form' (ibid:ii).

As was mentioned in section 1.2, Couper (2003) explored a number of ideas related to pronunciation teaching in an earlier action research project, and found tentative evidence for the effectiveness of explicit pronunciation instruction and for its validity in the eyes of students.

In conclusion, although the amount of empirical evidence provided by these studies is limited and sometimes contradictory, there is good reason to suggest that there is some benefit from explicit pronunciation instruction. They imply that there should be both a global approach and a focus on segmental accuracy, a focus on both form and meaning. There is also some evidence for the value of visual cues and also for appealing to all the senses. The role of attention and noticing, affect, personality and social context and the value learners attach to pronunciation, is also apparent. To establish what it is that can make teaching effective: a greater understanding of the effect of different ways of teaching and the processes involved in learning is required.

Work in L2 speech research, particularly speech perception (e.g. Strange 1995), has explored the role of training to help learners adjust their perception of the L2 phonology and to improve their production. The useful insights this has provided are reviewed in the next section.

2.7 STUDIES IN L2 SPEECH LEARNING AND PERCEPTION

Research in L2 speech learning has tended to be at the level of the phoneme and aimed at understanding how L2 phonetic categories are formed. Here the work of Flege (1995), especially his speech learning model (SLM) is of particular importance. The attempt to understand the process of phonological learning has led to a major focus on speech perception. As Munro & Bohn (2007:5) point out, 'Much work on L2 speech learning has focused on segmental distinctions that pose perceptual difficulties for L2 learners.' More recently, L2 speech research has branched out to include the acquisition and perception of tone (Sereno and Wang 2007), prosody (Aoyama and Guion 2007), and word recognition (Walley 2007).

The role of categories in L2 speech research is particularly relevant to the theoretical framework adopted in this thesis and is consequently a major focus of this section. As will be seen later, in the section on Cognitive Phonology, categorisation plays a key role in concept formation. Models which explain how new categories are formed are considered as are the complexities of word recognition. Studies which have tested the effect of perceptual training and investigated the processes involved in forming new phonological categories are reviewed. In particular the roles of attention and talker variability have implications for teaching and learning. Finally, the interrelationship between perception and production is explored.

There has also been a great deal of research into universals (e.g. syllable structure, markedness, and sonority) which has attempted to predict which aspects of pronunciation, learners might have difficulties with. This is reviewed in section 2.8 on epenthesis and absence

2.7.1 L2 Category Formation

L2 speech learning research has focused on how phonological categories are formed. Kuhl and Iverson (1995) suggest there is little doubt that there is an innate ability or tendency to categorise sounds as within the first six months of life it has been shown that babies have already established a set of best-fit or prototype categories for the language they have been exposed to. This has led to the proposal of a perceptual magnet effect such that sounds are perceived in terms of these categories, assimilating non-prototypical members into the prototype and shrinking the acoustic-phonetic space towards it. Leather (1999:5) notes the implications of this for L2 pronunciation. 'As prototypes are language-specific, for L2 learners there is a Native-Language Magnet (NLM) effect: L1 prototypes constrain learners' abilities to perceive contrasts in L2 by the "pulls" they exert'.

As well as a prototype for each sound category, there is also evidence for episodic effects, that is, one remembers the particular examples one has heard. Pisoni and Lively (1995) suggest that evidence of encoding of specific episodic information in memory along with details of perceptual analysis means that we remember specific

examples and details and call on these rather than generalisations or symbolic coding into particular phonemic categories. Wode (1995) suggests that we have the ability to make both categorical and continuous judgements enabling us to notice differences at certain points along a given acoustic dimension and that continuous perception acts as a monitoring device for the development of L2 categories. He posits the ‘Universal Theory of Language Acquisition’ which permits humans to learn more than one language at any time of life.

Both L1 and experience influence perception, ‘As research has undeniably shown, the way listeners perceive phonetic information depends on their linguistic experience and developmental history’ (Best and Tyler 2007:14). However, as Walley (2007:317) points out, ‘The precise nature of the changes involved in category formation remains to be specified, but one possibility is that phonetic category centers and boundaries for the L1 become better defined over time.’

Flege (1990:255), in describing what is required for the process of speech learning to be successful, notes that one must be able to ‘establish central perceptual representations for a range of physically different phones (“sounds”) which signal differences in meaning, and [develop] motoric routines for outputting sounds in speech production.’

The two models which have aimed to account for difficulties in cross-language speech perception are Best’s (1993, 1994, 1995) Perceptual Assimilation Model (PAM) and Flege’s (1995) Speech Learning Model (SLM) (Munro and Bohn 2007). While both models focus on the effect of similarity of L2 sounds to L1 sounds, Best’s model focuses on naïve listeners whereas Flege’s model focuses on language learners. In this sense, as Eckman (2004:520) states, ‘The model of speech perception and production that has been most influential for L2 pronunciation is the SLM (Flege 1995)’.

2.7.1.1 Flege’s Speech Learning Model (SLM)

The SLM ‘aims to account for age-related limits on the ability to produce vowels and consonants in a native-like fashion’ (Flege 1995:237). Flege acknowledges the important role of prosody in accent, but that is not the focus of the SLM. He also

claims that speech perception is an important explanation of errors but not that it is the only source. The SLM itself consists of a number of postulates and hypotheses. It is assumed that 'our phonetic systems remain adaptive over the life span and reorganise to allow for L2 sounds by adding new phonetic categories or modifying old ones' (ibid:233). In learning the L2, phonetic categories (formed in long-term memory) evolve to allow for L1 and L2 phones in a common phonological space in which bilinguals strive to maintain contrast between L1 and L2 phonetic categories.

The hypotheses include the suggestion that L1-L2 sounds are related to one another at a position-sensitive allophonic level, that a new phonetic category can be established if some of the phonetic differences can be discerned, and that these can be discerned more easily when the perceived differences are greater. It also hypothesises that with increased age of learning (AOL) the chance of discerning such differences decreases. Further, 'Category formation for an L2 sound may be blocked by the mechanism of equivalence classification' (ibid:239). That is, when the L1 and the L2 sound are perceived as similar the learner may classify them as the same, failing to notice subtle, but possibly significant, differences. The bilingual's phonetic categories may also be different as a result of maintaining contrast within a common phonological space and also as a result of perceiving different features as salient.

Thus, the SLM is a model which allows for the influence of the L1 and for the impact of an L2 on modifying existing categories and forming new ones. Therefore it directs our attention to the processes of category formation and the role that training may play.

2.7.2 Word Recognition

While the SLM focuses on the formation of categories, another approach is to focus on how the stream of sound can be interpreted by the listener to recognise words and the phonemes which make them up psychologically. 'Spoken word recognition represents the interface between speech perception and higher levels of cognitive processing' (Lively, Pisoni & Goldinger 1994:265). Models of spoken word recognition generally assume the mental lexicon is contacted when words are identified. The traditional linguistic view is that this lexicon stores only irregular

information which cannot be computed by phonological or syntactic rules (Chomsky and Halle 1968). Lively, Pisoni and Goldinger (1994) argue that much more information is necessary due to the complexities of spoken language processing. The difficulties are:

1) Lack of acoustic-phonetic invariance:

Each time a speaker produces a phoneme, a different acoustic form is generated. Moreover, the same word can have different acoustic realizations when it is produced by different talkers, at different speaking rates, or in different phonetic contexts' (ibid:267).

2) Lack of linearity:

'In natural speech, phonemes overlap and are coarticulated in order to achieve transmission rates of up to 10 phonemes per second. As a consequence, a simple invariant mapping between acoustic features and perceived phonemes has been difficult to find, despite intense research efforts over the last 45 years' (ibid:266).

3) The lack of segmentation means 'context-sensitive cues for phonemes, stress, and intonation contours must be used to aid in segmentation' (ibid:268).

2.7.3 Effect of Training

Some earlier studies (Strange and Dittman 1984; Tees and Werker 1984) produced mixed results for the effect of training. Since then, there has been a change of focus to the development of categories and a corresponding move from differentiation to identification tasks. These have been a viable alternative and, 'appear to be more effective than discrimination tasks in promoting generalization to novel stimuli not presented during training' (Logan and Pruitt 1995:359). Jamieson and Morosan (1986, 1989) introduced a fading technique which helped learners to establish phonemic boundaries and key acoustic differences by focussing on the full range of sounds which fall within the category rather than just the prototype. Training has also been reported as successful by McClaskey, Pisoni and Carrell (1983); Pisoni et al. (1982); Yamada (1993); Logan, Lively and Pisoni (1991); and Lively, Logan and Pisoni (1993). Wang (2002) found that perception training helped Mandarin and Cantonese speakers to perceive English vowel differences. These gains were generalised to other speakers and retained three months after training. However, they were not transferred to production tasks.

Rvachew and Jamieson (1995) identify factors crucial to successful perceptual training: identification training, acoustic context (i.e. normal syllables in normal words), and acoustic uncertainty (here the fading technique is seen as useful).

Rochet (1995) concludes that although equivalence classification can have a negative impact on adult L2 speech perception, it has been shown that appropriate laboratory training can reverse this, suggesting that it is not representative of a sensory based loss but rather of a change in selective attention. Based on a review of research, Strange (1995:40) also concludes adults can learn new phonological contrasts as they ‘retain the auditory perceptual abilities that are required for the detection and discrimination of the acoustic parameters that carry phonetically relevant information’, i.e. the right kind of training can help adult learners to improve their L2 speech perception.

2.7.4 Role of Attention

One of the major difficulties in learning a new category is to discern those aspects of the auditory signal which mark the sound as belonging to that particular category. This may lead to learners attending to a difference which is of little significance to the native speaker. Nearey and Hogan (1986:142) comment on how difficult it is ‘to direct listeners’ attention to finer phonetic detail, however salient to a speaker of another language’. Munro and Bohn (2007:7) also note that ‘considerable research suggests that L2 learners often focus on the “wrong” cues when attempting to categorize L2 sounds, a finding that implies that a redirection of attentional focus may be a prerequisite for phonetic learning’. Earlier, Bohn (1995) reported that learners of English, unlike native speakers, relied on vowel duration in the identification process possibly because the duration cue is easier to notice if the learner has been desensitised to spectral differences in the vowel space. Likewise, Flege, Munro and Skelton (1992) found that while learners noticed closure-voicing in word final consonants they did not notice the far more salient feature of vowel length.

Guion and Pederson (2007) investigated the role of attention in phonetic learning and concluded that explicit directing of attention can help adult learners to better discern novel phonetic contrasts. They report on an experiment in which one group is oriented

to the sound while another group is oriented to the meaning. The sound oriented group showed some significant improvements in discrimination. However, they point out that if they were directed to attend more narrowly to particular aspects of the acoustic input, ‘This would test whether differential allocation of attentional resources to particular aspects would aid learning’ (ibid:76).

2.7.5 Talker Variability

As referred to in reference to word recognition, ‘the core problem in speech perception is to explain how acoustically varying productions are mapped by the listener onto constant phonetic categories’ (Leather, 1999:4). This has led to the use of high variability tasks in training with the aim of exposing learners to the widest possible range of both phonetic contexts and speakers. Pisoni and Lively (1995:434) suggest that part of the problem is the ‘traditional abstractionist view of speech as an idealized sequence of discrete symbolic units.’ They propose that variability is not noise but an important source of information which can be accounted for by viewing it as a special case of the more general problems of categorization and classification. They also point to ‘a growing body of research that provides evidence for the encoding of specific episodic information in memory along with the details of perceptual analysis’ (ibid:435). Thus variability is important in the formation of new concepts.

2.7.6 Perception and Production

Although the SLM proposes that eventually perception and production will equalise, the precise nature of the relationship between the two is far from clear. Broselow and Park (1995) have proposed a split parameter setting hypothesis to explain the relationship. Strange (1995:40) notes that perception changes slowly over time in relation to input and use but these changes do ‘not necessarily mirror changes in production patterns.’ Although it tended to be assumed ‘if individuals could produce a phonetic distinction, they must be able to perceive it’ (Jenkins and Yeni-Komshian 1995:473), it has been shown that production can precede perception (Goto 1971; Sheldon and Strange 1982).

Rochet (1995) found changes to perception did lead to changes in production, as did Yamada et al. (1996) and Bradlow et al. (1997). Conversely production training has also been found to have an effect on perception (Leather 1997; Mathews 1997). Wang (2002) on the other hand found improved perception may not lead to improved production.

In conclusion, because the learner's understanding of L2 phonological categories is developing and often partial it is difficult to gain a clear picture of the relationship between perception and production.

2.7.7 Implications for Teaching

Understanding speech perception provides the teacher with insights into the processes learners are going through and how perception can be changed. The studies reported on here indicate what sort of training might be appropriate. They also conclude that changed perceptions will eventually flow through to production. Piske (2007:301) suggests there are four factors which will lead to success: 'a) an early starting age, b) intensive use of the foreign language over a period of many years, c) exposure to a substantial amount of high-quality input, and d) training in the perception and production of L2 sounds.'

2.8 EPENTHESIS AND ABSENCE: FOCUS ON ONE ASPECT OF PRONUNCIATION FOR EXEMPLIFICATION

This section briefly reviews the aspect of pronunciation chosen to exemplify the effect of pronunciation teaching, i.e. epenthesis (addition of an extra vowel sound after a consonant) and absence (the inappropriate omission of consonants). This choice was based on the findings of the study (Couper 2003) reported in section 1.2, which revealed syllable codas were an area of particular difficulty. The students observed to have these difficulties were mainly East Asian, typically speakers of Mandarin, Cantonese and Korean. This observation has also been reported by Deterding (2006) amongst Chinese speakers and Broselow and Park (1995) amongst Korean speakers.

Altenberg (2005) reports that the main focus in L2 syllable research has been on the role of transfer and universal development factors, especially markedness and sonority. Davidson (2006:106) also notes that the majority of studies have focused on how syllables which are not phonotactically permissible in the native language are modified and that these have 'tended to rely on grammatical concepts like markedness to explain their findings.' This modification may take the form of epenthesis, absence, or segment change. Davidson (2006) notes that research has demonstrated that epenthesis is the most common strategy.

Broselow and Park (1995) suggest a Korean L1 will lead to epenthesis in English L2 in an attempt to conserve the perceived moraic structure of English. Broselow and Finer (1991) proposed the Minimal Sonority Distance Parameter-Setting (MSD) model to explain the acquisition of consonant clusters according to the difference in sonority required by the L1. This also included an allowance for the effect of universals.

Phonological universals have been widely referred to as an explanation of the stages of acquisition. Here, markedness is most commonly referred to such that if something is unmarked then it conforms to these universals and is therefore most easily acquired (the Markedness Differential Hypothesis, Eckman 1977). The consonant-vowel (CV) syllable structure is seen as a key universal which learners will often revert to, thus modifying consonant clusters accordingly (Tarone 1980). Clearly then, a CVC pattern is less marked than CVCC which is in turn less marked than CVCCC. Anderson (1987) found this to be the case. It also became clear that the coda causes more problems than the onset. Another way in which a syllable may be more marked is if it breaks the Universal Canonical Syllable Structure (UCSS). This means that the nucleus is the most sonorant and that sonority of syllable segments falls continuously as they move out from the nucleus (Carlisle 1999). Evidence for the effect of this has been found by Hansen (2001, 2004) and Tropic (1987), amongst others.

Stockman and Pluut (1999) found that the type of consonant sounds can negate the effect of markedness, that is, the fact that a particular syllable is marked may be less of a problem than the difficulty of pronouncing some particular sounds. Others have examined the linguistic context. Benson (1988) found that Vietnamese speakers

dropped final consonants when the preceding vowel was a diphthong. Hansen (2001) reports that Carlisle (1994), re-examining Tarone's 1987 data, found over 50% of epenthesis after word-final consonants occurred before a pause, 40 percent before word-initial consonants and only 5% before word-initial vowels. In other words the following words play an important role in production strategies. There have also been studies into the effect of morpheme type on production of a plural 's' versus 3rd person 's'. Saunders (1987) found that the 3rd person 's' was omitted more often. Another consideration is the effect of orthography. The possibility is that the actual letters of the word may mislead the learner into trying to say each letter and therefore using more epenthesis. A study by Young-Scholten, Akita & Cross (1999) found evidence to support this.

Lin (2001) finds that the use of epenthesis increases for Chinese speakers along with the degree of formality. This is attributed to hypercorrection as greater effort is made to make the consonants audible in a formal style. Lin traces this back to the Taiwan Mandarin phonics system in which 'a schwa is automatically added to an isolated consonant to make it pronounceable and audible' (ibid:704). Young-Scholten and Archibald (2000) also make similar comments.

Major (1987) proposed an Ontogeny Model suggesting that in the initial stages of acquisition, learners will rely more on L1 and then this reliance will decrease as developmental effects become stronger. These will in turn decrease as the learner acquires more of the target language. Broselow and Finer (1991) in their MSD model attempt to explain the interaction between L1 transfer and developmental effects. Hancin-Bhatt and Bhatt (1997) argue that optimality theory accounts for the interactions between transfer and developmental effects. This proposes a universal set of constraints on well-formedness which are ranked by the individual. Clearly this ranking changes as one moves through the developmental process and as such can be used to explain individual performances. Hancin-Bhatt (2000) uses optimality to explain the acquisition of codas in Thai ESL.

Dupoux et al. (1999) focussed on perception and found that Japanese speakers may perceive an additional epenthetic vowel due to the influence of native phonotactics on speech perception. This finding concurs with what one would expect given the review

of speech perception in the previous section. Kabak and Idsardi (2007) replicated and extended this study confirming that syllable structure restrictions, in this case Korean, result in the perception of epenthetic vowels. Altenberg (2005) has also looked at perception using non-words and concluded that perception was in advance of production. However most syllable studies have focussed on production.

Davidson (2006:108) determined that in many cases the vowel epenthesis used in the L2 was often acoustically distinct from the lexical schwa and was in fact the result of ‘a failure to adequately overlap the consonant gestures’

One final factor which has been suggested is that age may be related to the rate of absence, that is younger learners are more likely to drop sounds whereas older learners are more likely to epenthesise (Riney 1990).

Hansen (2004) focused on developmental sequences and found some weak evidence to indicate possible changes in interlanguage. In an earlier study (Hansen 2001) no evidence was found for a significant change. Hansen’s studies attempted to gather a large amount of language in informal settings, but relied on only two and three subjects respectively.

In summary then, the various attempts to provide theory-based descriptions of this aspect of interlanguage phonology have looked at a number of factors. They have considered learner-related factors such as age and L1. They have examined phonological universals and markedness, looking at the effect of the length of coda, and the phonological context. This has included analyses of sonority, preceding context (vowel or diphthong), and following context (pause, consonant or vowel). They have also evaluated the effect of other factors such as orthography and morphemic influence (3rd person or plural ‘s’). In Study One, presented in chapter three, the descriptions provided by these analyses are taken into account in the development of testing and teaching materials. Finally, developmental studies have shown that learner progress in this area is either extremely slow or non-existent, which makes it a good aspect of phonology to focus on when testing the effect of instruction.

2.9 A COGNITIVE PHONOLOGY FRAMEWORK

This section begins with a brief summary of what has been established in the literature review so far. The foundations of the Cognitive Phonology framework are then mapped out through an overview of usage based approaches, especially Cognitive Linguistics and Cognitive Grammar, and the role of concepts and categories in Cognitive Phonology. This is followed by a review of the implications of Cognitive Phonology for L2 language teaching and learning.

2.9.1 Summary to Date

So far in this chapter, it has been seen that a narrow view of pronunciation as a part of grammatical competence fails to provide answers to the question of how to teach pronunciation. A broader view which sees pronunciation as being an inseparable part of communication provides better support to the generally agreed upon broad approach to communicative language teaching. However, how this should be represented in pronunciation teaching approaches, methods, techniques and materials is still far from clear. Issues of age and identity certainly have an impact on success in L2 learning and teaching but they do not make it impossible.

It was seen in the review of SLA theory that a generative grammar approach to pronunciation implies that explicit teaching does not aid acquisition. However, there is growing evidence that in fact such teaching can at least lead to learning, which can then theoretically impact on other aspects of competence. Thus a great deal of SLA debate has focussed on accounting for observed psychological phenomena in general learning processes such as the role of memory, attention and noticing, and corrective feedback. The problem has been to explain how these interact with hypothesised acquisition processes and for example how one can move from learned explicit knowledge to the implicit knowledge, or grammatical competence, required for acquisition. While generative grammar restricts the focus of study, there is a growing acceptance that cognitive and social factors cannot be ignored in the explanation of what actually happens during the process of language learning.

Studies into the effectiveness of pronunciation instruction have indicated success but also shown that there are many unanswered questions as to the effectiveness of different types of instruction and the development of a coherent theoretical framework to explain the processes involved in learning L2 pronunciation. The area of L2 speech research, and particularly speech perception, sheds significant light on some of these processes, as do educational and social psychology and sociocultural theory.

Work in the area of universals and markedness has produced a useful amount of detail in terms of describing learners' difficulties with epenthesis and absence.

Those who adhere to a Universal Grammar philosophy have developed ever more arcane amendments to theory to explain learning and acquisition, based on Krashen's (1981) distinction between 'learning' as a conscious process versus 'acquisition' as a subconscious process. However, others have suggested a much simpler approach typically described as a usage-based approach (Langacker 2000). This is the sort of approach taken by Cognitive Phonology.

2.9.2 Usage Based Approaches: Cognitive Grammar and Cognitive Linguistics

Archard and Niemeier (2004:4) define usage-based as 'primarily concerned with the characterization of language as it is spoken and understood, as well as with the dynamics of its use.' Langacker (1987:494) says that unlike a UG approach it is 'a non-reductive approach to linguistic structure that employs fully articulated schematic networks and emphasizes the importance of low level schemas' Another implication of usage-based approaches is that language learning relies on general learning faculties and consequently those who are interested in language teaching, such as Johnson (1996), have equated L2 language learning to skill learning.

Bybee (2001) promotes a usage based model for phonology and morphology (see section 2.2.2) which she aligns with the proposals of Cognitive Grammar, and by implication those of Cognitive Phonology. Linell (2005), whose particular interest is in the way written language has biased its analysis, proposes a similar view on phonology whereby pronunciation is an integral part of the meaning making process

rather than the transfer of a set of underlying phonological rules and ‘Phonology is concerned with language-specific aspects of the phonetic processes of languages. Language is not disembodied, and phonology cannot be disconnected from phonetic substance’ (ibid:60).

In attempting to define Cognitive Linguistics, Taylor (2002:9) quotes the editors of ‘Cognitive Linguistics Research’:

[Cognitive Linguistics] subsumes a variety of concerns and broadly compatible theoretical approaches that have a common outlook; that language is an integral facet of cognition which reflects the interaction of social, cultural, psychological, communicative and functional considerations, and which can only be understood in the context of a realistic view of acquisition, cognitive development and mental processing.... It seeks insofar as possible to explicate language structure in terms of the other facets of cognition on which it draws, as well as the communicative function it serves.

Thus Taylor (2002) suggests that unlike generative grammar based theories which start with a theory of language acquisition and stipulate a theory of the mind to fit, Cognitive Linguistics starts with what is known about cognition and uses that to build theories of language acquisition. Lotto (2000:189) offers a similar view, ‘one can presume that the general perceptual and cognitive processes of humans are givens and that the specific form of our communication system evolved to take advantage of the specific operating characteristics of our cognitive system.’

Taylor (2002:30) provides the following Cognitive Grammar definition of language as:

a set of resources that are available to language users for the symbolization of thought, and for the communication of these symbolizations. Acquiring a language consists of building up a repertoire of resources, through actual encounters with usage events. Using a language consists in selectively activating these resources, in accordance with the task in hand.

Taylor (2002) discusses some of the cognitive capacities which may be involved in language: categorization, figure-ground organization, mental imagery and construal, metaphor and experientialism, conceptual archetypes, inferencing, automatisisation, storage vs. computation, lists vs. rules, focus on form, social behaviour, and symbolic behaviour.

Langacker (2000) proposes five underlying psychological constructs which are particularly relevant to understanding the learning process:

- a) entrenchment; (sometimes called routinisation, automatisisation, or habit formation) ‘through repetition even a highly complex event’ can become easy i.e. it becomes a ‘unit’ (ibid:93)
- b) multiple experiences lead to abstraction and the development of schemata
- c) the ability to compare two structures and detect discrepancy
- d) composition; an ability to combine simpler structures to form more complex ones
- e) association, especially symbolization of concepts to form mental representations.

Cognitive Grammar ‘is built on the premise that language is inherently and essentially symbolic in nature’ (Taylor 2002:16) and ‘Linguistic expressions symbolize, or stand for, conceptualizations’ (ibid:20) leading to only three elements of a linguistic expression: phonological structures, semantic structures, and the symbolic relation between the two. Langacker (2004:21) defines a symbolic structure as ‘the pairing between a *form* (i.e. a phonological structure) and a meaning (a conceptualization, in the broadest sense).’ Unlike most linguistic theories which take syntax to be the central component of grammar, Cognitive Grammar views syntax and morphology as symbolic units. ‘The theory maintains that lexicon and grammar form a continuum, and that only symbolic structures – each residing in the symbolic linkage of a semantic and a phonological structure – figure in their proper characterization’ (Langacker 2000:1). The term unit ‘refers to a structure which has become entrenched, or become automated, through frequency of successful use’ (Taylor 2002:26). Thus a unit is like a chunk of language which can be used without paying attention to its internal composition. There are three kinds of relations between units: schema and instance (abstract vs. detail), part to whole, and similarity.

In conclusion, Cognitive Grammar views language not as an autonomous component of the mind, but rather as a tool which is used flexibly to co-construct meaning and achieve communication (Archard and Niemeier 2004:1). Two important ideas which Cognitive Linguistics theories hold in common are: 1) the symbolic function of

language and 2) language ability ‘represents the acute specialization of more general cognitive abilities’ (ibid).

2.9.3 Concepts, Categories, and Cognitive Phonology

As noted in section 1.6, Cognitive Phonology (CP) views phonology as a cognitive phenomenon which makes concepts and categories central to CP (Fraser 2006b).

Murphy (2002) provides a good overview of the main debates around concepts and categories. He defines concepts as being the mental representations of classes of things whereas categories are the classes themselves. The psychology of concepts aims to help understand the representations that allow us to categorize, draw inferences about novel entities and communicate about them. There are different views on categories. The classical view equated definitions with categories, however it was easily demonstrated that not all members of a category actually met the same definition which led Rosch (1975) to propose the idea of prototypes in which features are combined and schemata are used in classification. Medin and Schaffer (1978) proposed the exemplar view which suggests concepts are formed through a collection of experiences which slowly go to represent a particular category.

Nathan (2008) stresses that categorisation is essential to the Cognitive Grammar framework. He uses the concept of categorisation in putting forward the view that ‘phonology, like syntax and semantics, is a mental phenomenon’ (Nathan 1996: 107). Nathan bases his understanding of Cognitive Phonology on the tenets of Natural Phonology which views phonological representations as mental images of physical reality. Thus features, for example, ‘are not merely the abstract classification scheme for disembodied linguistic objects, but rather mental images of the physical parameters that constitute speech...[and] words are stored as mental images of sounds’ (ibid:109). This contrasts with generative phonology which sees phonological representations as ‘abstract symbols, having no physical interpretation, [which] are manipulated by abstract rules that rearrange them according to patterns found in the languages of the world’ (ibid:108). He also highlights the importance of how categories are structured. He proposes that they are radial, like spokes on a wheel,

having a prototype with less central members being related to that prototype but not necessarily to other central members.

Mompean-Gonzalez (2002) explores the nature of phoneme classification using a CP approach. He describes phonemes as ‘conceptual categories instantiated by phonetically different sounds that speakers classify as members of the same category’ (ibid:2). He also discusses the radial nature of phoneme categories, along with other views such as the network model. Fraser (2006b:59) says CP theory ‘suggests that a category can be defined in terms of a prototype, with ‘prototypical’ members at the centre of the category and more ‘peripheral’ members around an often ‘fuzzy’ boundary.’

Fraser (2000a:23) stresses that it is only through phonological categorization that it is possible to make sense of speech, ‘Speech ‘in itself’ is continuous and unsegmented’ and only becomes ‘an orderly sequence of meaningful elements’ (ibid) once it is understood how sounds are categorized.

Fraser (2004:244) notes the centrality of categorization not just to language but to human existence in general:

Categorization is one of the key processes by which human beings can apprehend and interpret the world in which they live...External “reality” is continuous and multi-faceted; it is through categorization that we are able to group like aspects with like. Categorization is thus the basis of conceptualization, our formation and use of concepts.

In conclusion, CP treats phonemes, syllables, etc, not as units of speech but as concepts of speech. Fraser (2006a:93) describes the difference as, ‘Mainstream phonology is essentially a way of describing speech, whereas cognitive phonology is essentially a way of understanding the behaviour of speakers.’ Because behaviour is driven by concepts, concepts and concept formation are the key focus of the CP framework.

2.9.4 Cognitive Phonology and Language Teaching

As was noted in chapter one, Fraser has applied the theory of Cognitive Phonology to pronunciation teaching. Here, she has drawn on the notion of concept formation as specified in educational psychology (see section 2.5). Jaeger (1986) also proposed particular concept formation experiments for the learning of phonological categories. Grundy (2004), discussing the role of figure/ground gestalt in syllabus design also notes that the relationship between figure and ground is critical to understanding concepts.

The CP approach has led to the proposal of a number of practical suggestions for pronunciation teaching (Fraser 2000a, 2001, 2006a). These take as a starting point the observation that L2 pronunciation is a cognitive skill and the greatest difficulties are cognitive rather than physical. Therefore, 'In learning a cognitive skill, practice is essential, but its value depends on students having the right concept of what it is they are practising' (Fraser 2006a:80).

The prime consideration for the teacher then is what can be done to help learners develop the 'right concept'. Fraser (2000a:21) suggests 'Learners need help in categorising or conceptualising sounds in a way appropriate to English (and very different from what they are used to doing for their native language).' And 'Since people generally think about sounds in terms of their auditory quality, rather than directly in terms of their articulation or acoustics, the key is to find ways of describing the auditory quality of sounds that makes sense to the learner' (ibid:22).

This requires teachers to 'appreciate and imaginatively explore what the sounds seem like to the learners, gradually leading them to more appropriate ways of thinking about English pronunciation' (Fraser 2000a:26) and to explain pronunciation in 'terms based on the way the learner thinks about the sounds, not the way English speakers do' (ibid:26). Thus Fraser emphasises the need to, 'strive to communicate information about speech in a way learners can use effectively to improve their pronunciation. This is the key to good metalinguistic communication' (Fraser 2001:35).

Fraser (2006a) reiterates the importance of concepts, 'What makes the difference between the reality and how we hear it is our concepts of speech.' Further, 'One common problem in understanding the concepts of speech is that our everyday phonological metalanguage (the terms we use to refer to speech) offers a very poor indication of our concepts of speech.' Clearly then, this metalanguage is not going to be very helpful for the learner. Fraser (In Press:3) discusses the challenge facing the teacher to communicate effectively with learners, 'In order to help the learner step outside the entrenched concepts of the native language, and categorise and conceptualise the sound of speech in ways appropriate to the target language, the teacher must first help the learner develop appropriate metalanguage.'

Fraser (2000a:25) stresses that, 'because pronunciation is not just a knowing-that, but also a knowing-how, it requires practice and skill development.' Thus learners need authentic conversation practice, and considerable drilling and repetition of useful phrases, accompanied by feedback in the form of the sort of expert guidance which can only be achieved through the sorts of understanding and communication described above.

Fraser (2006a:89) suggests that listen-and-repeat practice can be extremely helpful although 'it must be done in a way that encourages students to ignore existing concepts by, for example, inviting students to 'let your ears do the work'.' She also stresses the need for 'useful feedback on errors as they occur, followed by thorough practice' in the way that a coach might do this, but it is important for this feedback to influence the concepts.

Another important implication of CP arises from the role of contrast in concept formation. 'The key contrast is not the contrast between members of a minimal pair, but the contrast between what the speaker intended to say and what a listener understood them to say' (Fraser 2006a:91). This can be applied through the use of Critical Listening exercises (Fraser 2001). Fraser (in press) has tested this in a laboratory setting and found that it helped in forming the concepts of English /r/ and /l/.

One of the significant implications for language teachers is that CP views meaning as central to language. This notion is congruent with the ideas behind communicative language teaching (Fraser 2006a), and indeed Fraser (2001) sets out a communicative approach in some detail.

Finally applying a CP view to pronunciation suggests that transfer from the L1 is not so much a transfer of the sounds and rules from the L1 as is traditionally posited by SLA theory, but rather what is transferred is the L1 way of perceiving those sounds, or the ‘habits of conceptualisation’ (Fraser 2006a:93).

2.9.5 A Philosophical Aside

Although the main focus of this thesis is not philosophy, there are clear links between what is proposed by CP and phenomenology (Fraser 1992, 2006b). In particular, our experiences influence our perception so that when we hear L2 sounds we perceive certain aspects of those sounds. The native speaker of that language may well perceive different aspects of those sounds. We all perceive the world differently and learning another language involves learning another way of perceiving the world. Thus ideas from phenomenology such as presence and absence, and figure and ground, are significant in explaining why we don’t notice certain aspects of the L2. Husserl put forward the concept of a natural attitude, the point being that when things are viewed from within the natural attitude, concepts and reality are often confused. This is what is called naive realism: we confuse what we perceive as being reality when it is just our perception of it. The aim of phenomenology, and a CP approach to L2 pronunciation, is to be able to step outside the natural attitude in order distinguish between our prejudices and other possible aspects of reality.

2.9.6 Conclusion

The implications of a CP approach to teaching are quite compatible with a great deal of current practice. Those who put forward a skills based approach would be in agreement with the CP definition of pronunciation as a cognitive skill and the corresponding need for practice. This includes the need for a great deal of input to determine categories and category boundaries, the chance for output which can be

monitored and also for receiving of feedback from others. That is, learners need both positive and negative feedback. Listen-and-repeat type activities therefore find a place in a CP approach.

CP avoids the difficulties of explicit versus implicit knowledge posed by generativists. The proposal is that one must learn the concepts. The attachment of a metalinguistic label is not necessary, although of course naming can help in learning. Thus the right kind of explicit knowledge may well be beneficial in concept formation.

Awareness raising and the notion of noticing the gap are compatible with this theory as they would be seen as contributing to the establishment of more accurate categories. Meaning is central to CP and is therefore similar to many ideas put forward in communicative language teaching. The social construction of meaning also agrees with the CP understanding of the individualised nature of concepts and the critical role of the teacher in communicating with students using the appropriate form of metalanguage.

CHAPTER THREE: STUDY ONE – EXPLICIT PRONUNCIATION TEACHING

3.1 INTRODUCTION AND AIMS

As was seen in the literature review there is a lack of coherent consistent guidance, either practical or theoretical, for teachers as to whether and how pronunciation should be taught. There is certainly a lack of clear empirical evidence to help decide among the various positions taken.

This chapter presents a study which makes an initial attempt at addressing these issues. Parts of this study have already been published (Couper 2006). The study was motivated by the earlier action research project (Couper 2003) described in section 1.2, which suggested a positive role for explicit pronunciation teaching. It aims to provide both some guidance for teachers and empirical evidence that explicit pronunciation teaching can work and that gains can be maintained over time. The study fills a role of more tightly defining and investigating some of the potential features of effective pronunciation teaching. By beginning to narrow down, define and explore what makes pronunciation teaching effective, it lays the groundwork for the development of generaliseable principles which are established and tested in two further studies, one qualitative and longitudinal and the other quantitative and experimental, presented in chapters four and five respectively.

A secondary function of this study is to provide evidence upon which to base the choice of phonological contexts for teaching and testing. The detailed analysis helps to describe the difficulties learners have with epenthesis and absence, which in turn suggests systematic ways in which teachers might address them. The same evidence is used to determine learners' likely development without the benefit of explicit pronunciation instruction. This helps to substantiate claims regarding the effect of instruction both in the study in this chapter and the two further studies in chapters four and five.

The data was originally tested for a wide range of variables but in order to keep this chapter to a manageable length many which were found to have had no obvious correlation with acquisition have not been reported here.

3.2 RESEARCH QUESTIONS

Given that ‘Second language learners generally find it very difficult to pronounce the new language, even when directly repeating a native speaker’s model’ (Fraser 2006a:82), the first step is to bring learners to the point where they can listen and repeat accurately. The next step is to see if they can produce the specific items independently of the native speaker’s model. This is reflected in the first research question:

- 1) Is instruction effective in teaching specific items?

The next two questions are:

- 2) Are gains retained over time?
- 3) Can these gains be transferred to other items in controlled sentence-level contexts?

The ability to transfer learning to less controlled situations is not investigated in this study, but is addressed in chapter four.

The analysis of the errors and progress made by the baseline group addresses these questions:

- 4) How many errors do learners make with epenthesis and absence and how does this change over time without explicit instruction?
- 5) What factors affect L2 epenthesis and absence, especially in syllable codas?

Finally the collection of qualitative data attempts to gain some insights into learning and teaching processes with a view to understanding what it is that makes pronunciation teaching effective.

3.3 OVERVIEW OF CHAPTER

The method section begins with an overview of the method and a description of the subjects. This is followed by an explanation of the process of determining the teaching focus and the development of the tests used as well as the timing and administration of the tests. The procedures for the collection of qualitative data are then described before moving on to a description of the teaching programme. In the analysis section, an explanation is given of how the errors have been counted and coded to enable analysis for both the effect of teaching and the effect of individual and phonological factors. Here the reliability of these measures is also analyzed. The results section begins with the quantifiable changes in learners' performance before moving on to the results of the analysis of the effect of individual and phonological factors. This is followed by qualitative results arising from classroom observations, surveys and interviews. These results are then discussed leading to a number of conclusions and implications for learning and teaching.

3.4 METHOD

This classroom-based study, employing both a treatment group and a baseline group, draws on a combination of quantitative and qualitative methods. The treatment group received explicit pronunciation instruction as a part of the regular curriculum. It involved a series of short input and practice sessions interspersed amongst regular classroom teaching over a period of two weeks. In order to focus on the precise nature of instruction, particular activities were isolated from a broader communicative context, but it is not proposed that regular pronunciation teaching would necessarily follow this format. The focus of instruction was epenthesis and absence. Qualitative data was

collected from surveys and interviews, while quantitative data was collected from pre-tests and immediate and delayed post-tests. These results are compared with those of a baseline group which received no particular explicit pronunciation instruction. This is referred to as a baseline group rather than a control group in view of the large number of uncontrollable variables in any classroom setting.

The data for the baseline group was collected a year later than the data for the treatment group. There were a number of practical reasons for this. Firstly, it was really only known what data was needed after it had been determined what the focus of teaching was going to be. This would have made collection difficult within the desired timeframe. Secondly, the researcher simply did not have the time to do both at once. Collecting the data at a later time also meant there were no concerns regarding one group of students in some way being unfairly disadvantaged over another. Finally, in collecting data later the researcher was able to access participants from four parallel classes which meant a much larger sample (N=50) leading to greater statistical reliability.

3.4.1 Subjects

3.4.1.1 Treatment Group

The subjects come from the population described in section 1.3. They were 21 ESOL (English as an Additional Language) learners attending the researcher's regular full-time high-intermediate level English language class. They were all migrants to NZ, with L1s as follows: Chinese 14, Korean 1, Arabic 2, Farsi 2, Somali 1, and Samoan 1.

Unfortunately no distinction can be made within the Chinese category (Mandarin, Cantonese, or other) as the data relied on an open question and it became clear later that the students were often not familiar with the English terms used, i.e. Mandarin and Cantonese. This was rectified in the collection of data for the baseline group. On average, at the beginning of the study, they had been in the country for 2.5 years (ranging from 0 to 8) and were 32.5 years of age (ranging from 20 to 57). There were 11 males and 10 females. The amount of formal instruction in English prior to arriving in New Zealand

ranged from zero (2 students), to a small amount (9 students), to some (4 students) defined as 4 years or more at school, through to a lot, which was defined as several years, including university and intensive courses. A further two students provided no information here. More information around pronunciation instruction both within and outside New Zealand was gained from a post-course survey, the results of which are presented in section 3.6.7. As they were not all available for all of the tests, the comparative data is based on only those who did all the tests: Tough Phrases Test taken all three times by 17 students, Citric Acid Test taken both times by 14 students, and the listening discrimination test taken all three times by 15 students.

3.4.1.2 Baseline Group

The subjects come from the same population as the treatment group. A total of 50 learners, across four full-time High-Intermediate level classes, completed both tests at the two different times. Their L1s are: Mandarin 23 (46%); Cantonese 4 (8%); Korean 12 (24%); Farsi 4 (8%); and 1 (2%) each of Arabic, Japanese, Niuean, Sinhala, Spanish, Thai and Turkish. The average age was 34 years (ranging from 19 to 54) and they had been in the country for an average of three years (ranging from 0 to 12) at the beginning of the course.

3.4.2 Collection of Quantitative Data

3.4.2.1 Development of Tests and Teaching Focus

Initially the treatment group was given a general diagnostic test (The Citric Acid Test: Appendix 1A). This test was developed and used during the earlier action research project described in section 1.2. The test involves reading 12 sentences designed to capture as wide a range of phonological contexts as possible. The test has been dubbed the Citric Acid Test after the first sentence, 'It's good to eat oranges and lemons in winter.' Here, it was used to determine which difficulties were most pervasive, and

accordingly which would be most appropriate for instruction and testing of short term and long term gains.

The results of the Citric Acid Test were analysed for a number of different types of errors. At the phoneme level, errors were found throughout the whole spectrum of sounds. The phonemes which caused difficulties for the largest number of learners (about 80% or more) were: the nasals (alveolar versus velar), voiceless fricatives (alveolar versus dental), and the voiced alveolar stop versus the voiced dental fricative.

On the suprasegmental level there were often problems with sentence stress and rhythm. In particular the subjects' speech often sounded very disjointed. This level was where most of the learners had some difficulties. Unfortunately these sorts of errors are quite difficult to quantify. However, it is relatively easy to count up the number of times an extra sound has been inappropriately added and the number of times a sound is missing when it shouldn't be. Adding these up showed that all of the learners had at least some difficulty with this. While this may sometimes seem to affect the segmental level only, it does in fact have major repercussions on the suprasegmental level. It can change the number of syllables, cause words not to be combined fluently, and interfere with the timing and rhythm of English.

In conclusion, while the phoneme level problems are worthy of attention, they are not necessarily the most urgent in terms of intelligible pronunciation. In terms of its effect on intelligibility, a more useful problem to tackle, which was represented to at least some degree in all respondents, was epenthesis and absence of final consonants.

The errors of epenthesis and absence made on the Citric Acid test were analysed according to the segments involved and their phonological contexts. It soon became clear that the majority of difficulties centred around word boundaries. In other words it was a matter of sounds in connected speech as much as consonant clusters within a single word. The resulting test, called the Tough Phrases Test (Appendix 1B), required participants to read a series of short phrases representative of the sorts of errors observed.

Many of the phrases in the test came from the researcher's observations as a teacher. For example, apparent difficulties with past tenses are represented in the first 8 items with phrases such as 'He asked questions' and 'She waited patiently'. Observed difficulties with the pronunciation of 3rd person and plural 's' led to the inclusion of phrases such as 'She builds houses' and 'It works well' in items 9 – 16. Items 17 – 24 involve consonant clusters with /nd/, or /ld/ and particular with 'and', for example 'Now and then'. The remaining phrases cover a variety of consonant clusters. These were also often taken from language used in class at the time of constructing the test, such as 'intermediate students' and 'tourist attractions'.

Having two speaking tasks means production at the level of the isolated phrase can be compared with production at sentence level. It also enables the correlation of each individual's performance on the two task types. This acts as a confirmation of reliability and a measure of cross-task variability.

A reading task has been chosen for ease of comparison of performance between individuals and across time as the amount of speech produced is controlled. A less controlled task is not only more difficult to compare, it can also be difficult to know exactly what the learner wants to say, leading, for example, to uncertainty as to whether an error has arisen from pronunciation or from grammar. It is acknowledged that there is likely to be some variation in the rate of epenthesis and absence according to the task type. Young-Scholten & Archibald (2000) and Lin (2001) both suggest there might be more epenthesis on a reading or more formal task. This possibility should be kept in mind when considering the results here.

A listening discrimination test was also developed (See Appendix 1C). This involved 21 items which were devised to cover the same range of difficulties and phonological contexts as the Tough Phrases Test. For each item, the test sheet listed three or four similar phrases and the learners had to mark which one they heard. It attempted to use language in the distracters which could also make sense in the right context, for example

‘It’s a sport / It’s sport / It’s support’ and ‘Bake fish / Baked fish / Baked a fish’. They heard each item just once.

3.4.2.2 Administering and Timing of Tests

The treatment group sat the Citric Acid Test at the beginning of the semester. It was administered in the language laboratory. Learners were given an audio cassette and the text and asked to record it. The results of this test were explained to the learners to give them some guidance as to their areas of difficulty with pronunciation. This feedback covered all areas of pronunciation, not just difficulties with epenthesis and absence.

In the fourth week of the semester, the Tough Phrases Test was administered in the language lab. Learners were given an audio cassette and the text and asked to record it. It was anticipated that they would be familiar with all of the words so these were not practised beforehand. The listening discrimination test (Appendix 1C) was administered at the same time. It was pre-recorded on an audio cassette and learners listened to this in the language lab.

Following a number of short teaching sessions (described below in section 3.4.4.1), spread over two weeks, the Tough Phrases Test and the listening discrimination test were administered again. While it would have been appropriate to have administered the Citric Acid Test again at the same time, unfortunately this was not done due to time pressure. Twelve weeks later, at the end of the semester, the Citric Acid Test, the Tough Phrases Test, and the listening discrimination test were administered again.

The Citric Acid Test and the Tough Phrases Test were both administered to the baseline group at the beginning of the semester. Students were given written feedback after both the pre-tests and post-tests. This involved being told which phonemes they had difficulties with, but also referred to suprasegmental aspects such as stress, use of weak forms, rhythm, and connected speech. Epenthesis and absence were included, but not highlighted. The feedback was intended to provide learners with motivation to work on

their pronunciation and also to do the test again at the end of the semester to see how they had improved. During the semester these students received their normal tuition, see section 3.4.4.2 below. The Citric Acid Test and the Tough Phrases Test were both administered again at the end of the semester. The listening discrimination tests were not used with the baseline group as their value was not clear (discussed in section 3.7.1.1).

The tests used with the two groups, and their timing, are summarized in Table 3.1 below:

	Treatment Group			Baseline Group	
Test	T1: Pre-test	T2: Post-test (Immediate)	T3: Post-test (Delayed)	T1: Pre-test	T3: Post-test
Citric Acid Test	X		X	X	X
Tough Phrases Test	X	X	X	X	X
Listening Discrimination	X	X	X		

Table 3.1 Overview of timing of tests

Notes: T1 = Beginning of the semester for both groups, T2 = Immediate post-test (applies to treatment group only) T3 = Post-test at the end of the semester. For the treatment group this represents a delay of approximately 12 weeks.

3.4.3 Collection of Qualitative Data

Qualitative data has been collected from the treatment group through both surveys and interviews.

Seventeen students completed a survey at the end of the course (Appendix 1D). The aim of this survey was to collect information on the learners' language learning backgrounds both in general and relating specifically to pronunciation. It questioned learners about their awareness of pronunciation, and their attitudes towards learning it.

Five students who had significant problems with epenthesis and absence were also interviewed. The interviews were semi-structured with the aim of prompting learners to discuss:

- How they felt about the teaching and the actual practice exercises used in class.
- Their understanding of English pronunciation and any changes.

- Awareness of pronunciation difficulties, confidence in accurately producing the target sounds, and strategies used.

The questions which were prepared as a guide for the interview are attached in Appendix 1E. The transcripts were analysed for key themes which surfaced during the interviews. These have been summarised and are presented in Appendix 1F. The students' comments are presented thematically in section 3.6.8.

3.4.4 The Teaching Programme: Treatment and Baseline Groups

3.4.4.1 Treatment Group

The study employed a number of different kinds of lessons, drawing on a range of techniques, spread over 12 sessions of about 30 minutes each (See Appendix 1G for details of timing). The first session involves returning the tests and explaining them. Here the teacher compares target with non-target production by, for example, writing on the board 'asked a questions' and 'asked questions' and 'intermedia students' and 'intermediate students'. Then the learners are asked to say the two versions side by side, followed by teacher modelling and learners repeating. Individual learners say one of the items and the teacher points to the one he hears, explaining in terms of 'this is how it sounds to me'. The aim of this is to make learners aware of the difference between what they say and what the native speaker says as well as understanding the way the native speaker hears what they say. This introduces an attempt to implement Fraser's (2000b, 2001) proposed technique of Critical Listening (as defined in section 1.7). As will be seen later, a number of technical difficulties meant that it did not fully reflect what was intended with this technique. Nevertheless the term has been retained. This technique is used in three further sessions (sessions 7, 9 and 10), and involves these steps:

- Learners' recordings from the test are cut and pasted to provide examples from four or five different students for a number of items on the Tough Phrases Test. One example is correct, while the others represent different combinations of epenthesis and absence.

- The whole class listens to each item and learners say which version is the best. The item is shown on the overhead projector.
- Learners listen again and say what is wrong with the other versions.
- The teacher guides them through this, saying how the different versions sound to him and shows them on the overhead projector where he hears the epenthesis or absence.
- The teacher models the correct version and students repeat.
- Learners practise saying the phrases in pairs, and trying to get them right. The teacher provides further guidance.

There are also three sessions (4, 7, and 11) in the language laboratory during which time the learners listen to recordings of the teacher reading the items from the Tough Phrases Test and, as a separate activity, reading the items from the listening discrimination test along with the distracters. Learners have this both on tape and in written form and after listening, there is a space on the tape for them to repeat, and record themselves. The teacher listens in from the console and provides individual feedback.

Three sessions (2, 5, and 8) focus on the patterns, or rules, involved in the production of past tense endings and plural and third person endings. Here, discovery exercises and related practice from Headway Pronunciation (Bowler and Cunningham 1990:1, 84-85) are used.

An attempt is also made to explain the concept of syllables. Learners are asked ‘What is the smallest possible syllable? What must there be in every syllable? How many consonants can there be before a vowel? How many consonants can there be after a vowel?’ When they have worked this out they find examples of different patterns and are asked to say which ones are hardest for them. This is based on the approach suggested by Celce-Murcia, Brinton and Goodwin (1996:85-86).

A number of approaches are used to try to explain how to pronounce the target language correctly. These include a focus on sounds in connected speech, especially noticing weak

forms of words such as ‘and’, modelling different sounds in different contexts, modelling different codas and getting learners to listen carefully to which of the consonants in the written form are actually pronounced. Learners also provide input into these explanations and demonstrations by saying how the different pronunciations sound to them. Finally they are given the opportunity for further practice in pairs in the classroom and listening, repeating and recording in the language laboratory.

3.4.4.2 Baseline Group

The students in this group attended their regular English language classes. It was not anticipated that they would receive any particular instruction in epenthesis and absence. The teachers of these classes were made aware of the study. However, they were not advised which precise aspect of pronunciation was being focussed on. The teachers were interviewed informally as a group towards the end of the semester. They reported that they had not worked particularly on epenthesis and absence. In fact most said they had done very little systematic teaching of pronunciation. Most teaching tended to be incidental and involved correction of errors or accompanied the teaching of vocabulary items. In general, the teachers had adopted what might be typified as a communicative approach whereby ‘Activities in CLT typically involve students in real or realistic communication, where the accuracy of the language they use is less important than successful achievement of the task they are performing’ (Harmer 2001:85).

3.5 ANALYSIS

3.5.1 Coding and Counting Errors

Because the data is being analysed to compare how error rates vary according to a number of different factors such as the nature of different codas and their phonological contexts, it has been decided to convert the results to percentages. For the sake of consistency this has also been done for the listening discrimination test results. Thus the listening test results, which were scored out of 21, have been converted to a percentage

error rate. Arriving at a percentage error rate for the speaking tests has been achieved by estimating the number of syllables which could conceivably involve errors of epenthesis and or absence. This approximation arrived at the figure of 100 for the 12 sentences in the Citric Acid Test and 110 for the 40 phrases in the Tough Phrases Test.

Errors occurring in both the onset and the coda have been counted. However, for the Citric Acid Test 95.1% of errors are in the coda, and for the Tough Phrases Test, 98.4% of errors are in the coda. This has led to a particular focus on the coda. There were some cases where learners read the wrong word, for example ‘wants’ for ‘wasn’t’, or they simply omitted a phrase. These have been deleted from the count as have the corresponding phrases or words from the test at the other time or times.

The audio tapes have been transferred to a digital format on an Apple Mac, using ‘sound studio’ which provides for better listening conditions and comparisons. They have been marked by the teacher/researcher who listened to them several times. The pre-tests were marked immediately after they had been done, and the total number of errors of absence and epenthesis were tallied. The post-tests were also marked immediately after they had been done, and the total number of errors of absence and epenthesis were tallied. Tests were marked without reference to earlier test results to avoid influencing the objectivity of the marker. A selection of tapes has also been independently evaluated by a second marker. This has been done for both the treatment and the baseline groups. The details and results of this process are described in section 3.5.3

Errors have been determined by use of auditory rather than acoustic analysis. While it is acknowledged that phoneticians might prefer an acoustic analysis, it is felt that an auditory analysis is appropriate here as what is of interest is how the native speaker perceives the learner’s pronunciation, i.e. the question of perception is more important than the acoustic reality.

3.5.2 Analysis of Individual and Phonological Factors

The sample size of the baseline group (N=50) provides a large data base from which to describe the relationship between individual and phonological factors, and error rates. In the first instance the results on the Tough Phrases Test are used to compare the error rates for epenthesis and absence of learners with an East Asian L1 (Mandarin, Cantonese, Korean, Japanese, Thai) with those with a non-East Asian L1. The results are then further analysed for differences within East Asian languages. The data is also tested for correlations between error rates and age and time in the country.

An analysis of the data for the effect of phonological context requires further coding. The results on the Tough Phrases Test at both Time 1 and Time 2 have been taken for this analysis because, as will be seen later, there was no change over time and using both instances of the test helps to balance out any one-off variations in performance. Only codas, which accounted for 98.4% of errors on the Tough Phrases Test, have been included in this analysis. Each of 110 syllable codas has been coded as a separate case. This led to four groupings: zero consonants (N = 4), one consonant (N = 59), two consonants (37), and, because there was only one coda with four consonants, three and four consonants combined (N = 10). Codas have been coded for the number of consonants most likely to be enunciated in the particular context, using New Zealand English pronunciation as the standard. For example, 'and' was coded as having one consonant because it is typically reduced to 'an' in fluent speech.

The consonants have also been coded according to whether they are stops, fricatives, nasals, or liquids. There are no affricates. They have been further coded as to whether or not they are marked in terms of sonority. To be unmarked, the level of sonority must decrease as one moves out to the margins, i.e. it follows this pattern; vowel – glide – liquid – nasal – fricative – stop. If this pattern is not followed they are considered marked, and therefore potentially more difficult for learners to pronounce. Finally, to measure the effect of the following segment, codas have been recorded as being followed by a pause, consonant, or vowel.

For this part of the analysis, results are presented in terms of the percentage of the whole group who made errors in particular syllable types in particular contexts. Thus the performance for each of the 50 subjects has been coded as a separate variable. For each case, responses have been recorded as: correct, epenthesis, absence, or both. It is then possible to calculate a percentage error rate for each syllable coda. This has been adjusted to allow for cases where there is no response. No allowance has been made for cases where a subject uses epenthesis twice in the same coda.

3.5.3 Reliability of Tests

The Citric Acid Test and the Tough Phrases Test are both measures of the rate of epenthesis and absence in speech. As they are both reading tasks one would expect the performance of individuals on the two tasks to be broadly similar. If they were not, one would be concerned about the reliability of the tests and/or their evaluation. A Pearson correlation has been run for both the treatment group and the baseline group on the pre-test results for the two tests. This shows a significant correlation between the two tests for the treatment group of; $r(17) = .891, p < .001$. The correlation on the results for the baseline group pre-tests is also significant at; $r(48) = .844, p < .001$. Confirming this, a Pearson correlation of the baseline group post-tests is also significant at; $r(48) = .902, p < .001$. These results suggest one can be confident both instruments are testing the same things and that performance variability is not a significant issue.

3.5.4 Reliability of Evaluation of Tests

As already mentioned, to check for reliability of marking, a second marker has evaluated a selection of the tests for both the treatment group and the baseline group.

A sample of the treatment group's pre-tests, immediate post-tests and delayed post-tests were transferred from tape to computer, to make it easier for a colleague to listen to them and mark them. This was done for all three Tough Phrases Tests for 8 of the subjects,

ones ranging from average to worst, and the colleague was asked to choose at random the sound files for five of the eight students. A Pearson correlation shows a significant correlation between the two raters' total scores on each of the tests of; $r(13) = .981, p < .001$. Thus one can be reasonably confident in the uniformity of marking, even though there is an inherent subjectivity in relying on an auditory analysis.

A similar process was employed in second marking the results for the baseline group. Ten subjects were chosen at random, and from these ten, five were chosen so that there was a student with only a few mistakes, two with an average number of mistakes and two with an above average number of mistakes. One had a large number of mistakes of epenthesis and the other had a large number of mistakes of absence. A colleague then marked both the pre- and post-tests for these five subjects independently.

As these test results are also being analysed for the effect of the nature and context of individual codas, correlations have been tested for at the level of performance on each individual coda. A Pearson correlation between the two raters' scores was significant; $r(1098) = .963, p < .001$. A discussion of the few differences which arose suggests a grey area in which a final consonant may appear to have been inappropriately omitted but on closer listening it is in fact just audible. Similarly, in the case of epenthesis, there are instances in which the final consonant is produced with more than normal force, making it unclear whether to equate this to a careful reading style or an additional syllable.

3.6 RESULTS

3.6.1 Quantifiable Changes in Performance

As can be seen in Figure 3.1 below, the mean error rate on the Tough Phrases Test dropped from 19.9% to 5.5% immediately after instruction. A paired samples t-test shows this to be a significant decrease; $t(16) = 8.069, p < .001$. The error rate had increased again to 7.5% by the end of the semester, three months later. However, at less than half the pre-instruction rate, this was still a significant decrease in the error rate over the pre-

test results; $t(16) = 7.631, p < .001$. The increase in errors between the immediate post-test and the delayed post-test was also significant; $t(16) = -3.082, p = .007$.

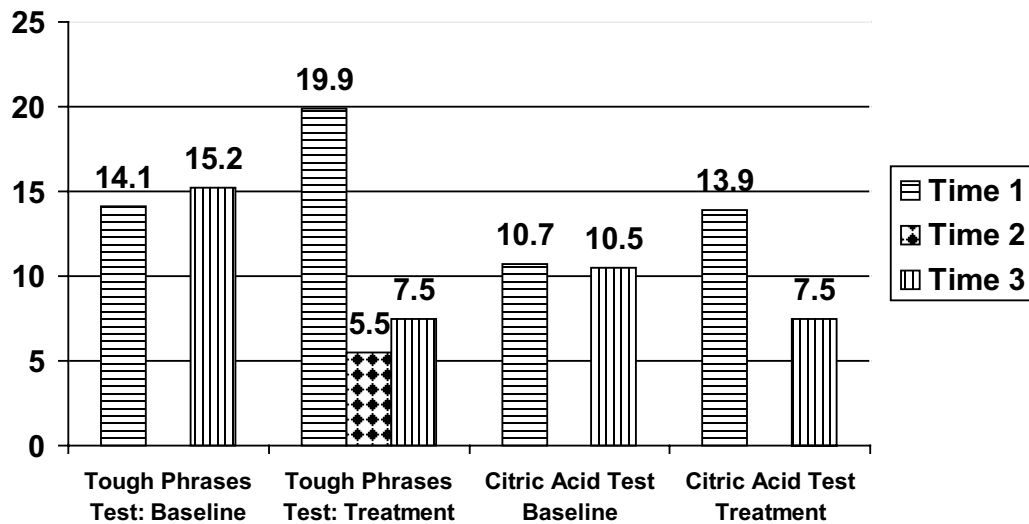


Figure 3.1 Comparison of error rate (percentages) of the treatment group with baseline data on the Citric Acid Test and the Tough Phrases Test

Notes: Time 1 = Pre-test, Time 2 = Immediate Post-test (Applies only to Tough Phrases Test, Treatment Group), Time 3 = Delayed Post-test (12 weeks after treatment, 14-15 weeks after pre-test).

To determine just how meaningful these changes are, an effect size has been calculated. This has been done by using a d statistic which is arrived at by dividing the mean difference found on the paired samples test by the standard deviation. An effect of .2 is considered small, .5 and above is considered medium and .8 and above is considered large (Green & Salking, 2005). The effect size, $d = 1.95$ was greatest between the pre-test and the immediate post-test. Also, comparing the pre-test with the delayed post-test produced $d = 1.85$. Clearly both of these results imply extremely large effect sizes. The increase in the error rate between the immediate and delayed post-tests at $d = .74$ was also quite large.

By way of comparison, there was a slight increase in the rate of epenthesis and absence over a one-semester period for the baseline group, from 14.1% to 15.2%. A paired samples t-test found this was significant; $t(49) = -2.510, p = .015$, but a further test for the effect size at $d = .35$ also suggests that for all practical purposes this was not meaningful.

The results of the Citric Acid Test found a similar improvement for the treatment group with the error rate almost halving, from 13.9% to 7.5%. This was also significantly different on a paired samples t-test; $t(13) = 4.643, p < .001$. The effect size was also very large at $d = 1.24$. By way of comparison the error rate for the baseline group on the General Diagnostic went from 10.7% at the beginning of the semester to 10.5% at the end of the semester, which was not significantly different.

A further test was carried out on a subset of the data, that is, on those who had error rates above the median (14.5%) for the baseline group on the Tough Phrases pre-test. Here, it was found those in the treatment group with major difficulties (i.e. above the median) made and retained significant improvements as the error rate dropped from 24.6% before instruction to only 10.2% at the end of the semester, three months after instruction; $t(12) = 8.192, p < .001, d = 2.27$. The L1s of this group were as follows: Chinese 10, Korean 1, Somali 1, Arabic 1 (N = 13). By comparison, the baseline data showed only a slight and insignificant change, moving from an error rate of 22.3% at the beginning of the semester to 23% at the end. The L1s of this group were as follows: Chinese 11, Korean 6, Thai 1, Japanese 1 (N = 19). It is clear that those from East Asian L1s have the greatest difficulty with this aspect of pronunciation.

As can be seen in Table 3.2 below, all learners made substantially fewer speaking errors after instruction, and even though the error rate increased slightly again over time, it was still well below the rate prior to instruction.

Tough Phrases Test: Speaking.																	
Error rate (percentages) by student(S) at Time 1(T1), Time 2(T2), and Time 3(T3).																	
S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
L1*	C	C	C	C	C	C	C	K	S	C	C	C	A	F	Sa	C	A
G**	F	M	F	M	F	M	F	M	M	F	M	F	M	F	F	M	M
T1	45	29	27	26	25	23	22	22	18	18	16	16	15	10	10	8	7
T2	11	9	3	5	12	5	7	4	9	6	6	5	4	5	1	1	0
T3	17	8	8	11	9	8	8	4	15	6	8	5	5	6	3	1	3

Table 3.2 Effect of instruction on speaking for each student, as measured by Tough Phrases Test

Notes: *L1: C = Chinese, K = Korean, S = Somali, A = Arabic, F = Farsi, Sa = Samoan

**G : Gender, F = Female, M = Male

In considering whether or not there might be some connection between the effect of instruction and L1 and gender, it is difficult to draw any conclusions as all students made progress and apart from the Chinese grouping, the other samples are too small. There is no evidence to suggest there is any correlation.

Results for the Treatment Group on the listening discrimination test are presented in figure 3.2 below. It will be remembered that baseline data was not collected for this task.

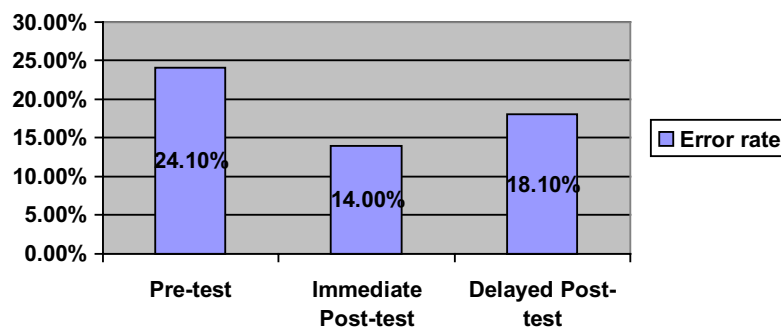


Figure 3.2 Results on listening discrimination test, percentage error rate

It can be seen that directly after instruction learners made fewer mistakes in listening, with the mean error rate dropping from 24.1% to 14.0% in the immediate post-test. A paired samples t-test shows that this was significant; $t(14) = 3.872, p = .002$. However, much of this improvement was lost by the end of the semester when the error rate increased again to 18.1%. Compared with the pre-test, this only just reaches significance at the .05 level; $t(14) = 2.179, p = .047$.

In contrast to speaking, improvement in listening was not consistent on the individual level (Table 3.3) with three of the 15 learners making no progress between the pre-test and immediate post-test and five learners making no progress between the pre-test and the delayed post-test.

Error rate for listening by student at Time 1, 2, and 3 (percentages)															
Student	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Time 1	38	14	33	29	38	29	29	14	19	33	24	29	14	10	10
Time 2	14	14	38	24	19	14	19	19	5	0	14	19	5	5	0
Time 3	14	19	19	29	0	19	19	10	10	29	33	29	10	5	19

Table 3.3 Effect of instruction on listening, for each student

3.6.2 Effect of Individual Factors: L1, Age, Time in Country

As can be seen in Table 3.4 below there are quite large differences in mean error rates according to L1. There are also large standard deviations, impacting on the significance of these differences and suggesting that individual differences are at least as important as the L1.

Language N in brackets	% errors: epenthesis		% errors: absence		% errors: total	
	Mean	S. D.	Mean	S.D	Mean	S.D.
Mandarin (22)	6.4	5.4	7.9	3.9	14.4	6.4
Korean (13)	12.3	9.4	4.0	2.2	16.3	9.4
Cantonese (4)	3.6	6.7	17.7	6.6	21.4	4.4
Other East Asian (2)	9.1	9.0	10.9	2.6	20.0	6.4
Non-East Asian (9)	2.1	1.8	3.9	3.4	6.1	3.6

Table 3.4 Mean error rates (percentages) and standard deviations for epenthesis and absence on the Tough Phrases test at Time 1.

Notes: Other East Asian (Thailand: 1, Japan: 1)

Non-East Asian (Farsi: 4, Arabic: 1, Niuean: 1, Sinhala: 1, Spanish: 1, Turkish: 1)

As can be seen the most obvious difference is between the Non-East Asian group and the four East Asian groups. Using a t-test, and not assuming equal variances, a significant difference is found; $t(25.36) = 5.859, p < .001$.

It is apparent that Korean L1 speakers have the highest error rate for epenthesis. An ANOVA finds a significant effect for language on epenthesis; $F(4, 45) = 3.785, p = .01$. Post hoc tests not assuming equal variances show the significant differences are between Korean and Non-East Asian and Mandarin and Non-East Asian..

An ANOVA finds there is a significant effect for language on absence; $F(4, 45) = 13.198$, $p < .001$. Although it is clear that Cantonese has the highest rate, there are only four learners in this group and this difference is not found to be significant on Post hoc tests. In fact, when not assuming equal variances, the only significant difference is between Mandarin and Korean ($p = .006$).

The data has been tested for correlations between error rates and age. The mean age is 34, ranging from 19 to 54. Pearson correlations find a significant negative correlation between age and absence; $r(46) = -.358$, $p = .012$, but no significant correlation for epenthesis.

The data was also tested for the effect of the amount of time in NZ. A Pearson correlation of $r(46) = .113$, $p = .446$ suggests that the length of time in the country bears little relationship to the rate of epenthesis and absence in a learner's speech.

3.6.3 Effect of Phonological Factors

As can be seen in Table 3.5 below, the error rate appears to increase with the length of the coda. This is particularly so for epenthesis. ANOVA tests of the relationship between coda length and the error rate find a significant effect for errors of absence and epenthesis combined; $F(3, 216) = 26.736$, $p < .001$, for epenthesis; $F(3, 216) = 16.642$, $p < .001$, and for absence; $F(3, 216) = 13.198$, $p < .001$. Post hoc tests not assuming equal variance find all differences for epenthesis and absence combined are significant and the only difference not significant for epenthesis is between zero and one consonant. For absence, the only difference which is not significant is between two and three consonants.

Number of Consonants in coda	0 (N = 8)	1 (N = 118)	2 (N = 74)	3 or 4 (N = 20)
Epenthesis: % error	1.5%	4.3%	8.7%	20.2%
Absence: % error	1.0%	4.1%	10.9%	16.8%
Total: % error	2.8%	8.5%	19.6%	36.9%

Table 3.5 Error rate and type according to length of coda

Notes: N = 220 because these results are taken for the Tough Phrases Test at both Time 1 and Time 2

Where the syllable has been judged to conform to the unmarked sonority structure the error rate is an average of 11.5 % whereas when this is broken the error rate is 28.6%, see Table 3.6 below. The relationship between sonority and error rate is similar for both errors of epenthesis (sonorous, 5.7%; not sonorous, 13.7%) and absence (sonorous, 5.8%; not sonorous, 14.9%). Independent t-tests, not assuming equal variances, show these differences are significant for epenthesis; $t(48.48) = -3.604, p = .001$, absence; $t(44.94) = -3.525, p = .001$, and epenthesis and absence combined; $t(46.28) = -4.687, p < .001$.

	Sonorous (Unmarked) N = 180		Not Sonorous (Marked) N = 40	
Error Rate	Mean	S.D.	Mean	S.D.
Epenthesis	5.7%	9.6	13.7%	13.3
Absence	5.8%	9.2	14.9%	15.9
Total	11.5%	14.1	28.6%	22.1

Table 3.6 Rate of epenthesis and absence according to sonority

Notes: N = 220 because these results are taken for the Tough Phrases Test at both Time 1 and Time 2

As can be seen in Table 3.7 below, the error rate appears to be greatest when the segment following a syllable with a final consonant is a consonant. It is noteworthy that the effect is mainly on the rate of epenthesis. The following segment does not significantly affect the rate of absence. An ANOVA test finds the effect of the following segment on the rate of epenthesis is significant; $F(2, 213) = 33.128, p < .001$. Post hoc tests, not assuming equal variances, show the significant differences are between consonant and vowel and consonant and pause.

Error rate on syllable final consonant followed by:	Pause (N = 70)		Vowel (N = 50)		Consonant (N = 96)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Epenthesis	2.7%	5.4	2.3%	5.2	13.1%	13.0
Absence	8.9%	13.6	5.6%	7.7	7.6%	10.9

Table 3.7 Rate of epenthesis and absence according to following segment

3.6.4 Classroom Observations

Before moving on to report on feedback obtained from learners through surveys and interviews, this section reports on a number of observations made during the teaching process.

Firstly it was observed during the Critical Listening activities that the poor quality of the recordings being used as a model exacerbated the difficulties the learners were already having in hearing the contrasted differences. A number of learners made it clear that they were still very unsure as to whether or not they could really hear the difference.

During teacher explanations a number of learners expressed their understandings of how they thought particular words were meant to be pronounced and they also tried to convey how some of these syllable codas sounded to them. Some items such as ‘and’ appeared to be very easy to explain. Many learners felt they had to say ‘and’ in its strong form and subsequently added epenthesis. With the teacher modelling ‘and’ in different contexts they were able to hear that they didn’t have to say the final ‘d’ and that it was then much easier to say the following word too. Also, after listening to models of final consonants, especially when the coda consisted of two or three consonants, learners were able to start to hear the difference between what they said and what the native speaker said. They would often refer to making the consonant shorter or lighter. Those who appeared to be dropping the final consonant often felt they weren’t doing this and referred to making the final consonant stronger or longer.

After listening, repeating and recording in the language laboratory, some learners still said they couldn’t hear the difference between some of the items such as ‘baked fish’ and ‘baked a fish’.

During the syllable explanation session, it became clear that many of the learners did not understand the English syllable. For example when asked how many syllables there were in the word ‘strengths’, answers ranged from one to five.

Explicitly isolating these items from an authentic context, and getting learners to examine them at length, felt particularly artificial for a teacher trained in communicative language teaching. This was to some extent balanced by both the communication with the learners about this aspect of communication, as well as their focus and interest in working on it.

3.6.5 Class Survey

Seventeen students completed a survey at the end of the course (Appendix 1D). It reveals that pronunciation has generally been neglected in English classes both prior to and since arriving in New Zealand. Of the 13 students who had attended classes before coming to NZ, only two say they have received regular pronunciation instruction, six report some or a small amount, while five report having received no pronunciation teaching. Since they have been in NZ, and prior to attending this particular class, thirteen students had been to other English classes for an average of 1.5 years. Eight report having had no pronunciation instruction, one reports having been taught pronunciation twice, one says 'a little, listen and repeat', one 'listen and repeat', one 'pronunciation books and tapes', and one does not specify the type of instruction. This certainly supports the notion that pronunciation teaching is often neglected.

The students themselves however, clearly think pronunciation is important. Of the 17 respondents, only two had felt OK about their pronunciation upon arrival in NZ. Having completed the pronunciation training in this study, pronunciation is rated as 'very important' by 10 learners, 'important' by six, and 'a little important' by one. When asked about their progress, four feel they have improved during the semester by 'a lot', eleven say 'some' and two report 'a little' improvement. However, many learners are still not sure what they should work on to improve their pronunciation with eight respondents not attempting to answer this and one saying 'don't know'. Three refer to 'linking', three refer to suprasegmentals: fluency, conversation, and adopting a Kiwi accent, while two refer to particular phonemes.

Learners were asked ‘What is the best way to improve your pronunciation?’ and given a number of examples. The 16 responses to this question reveal a range of views as seen in Table 3.8:

Best way to improve pronunciation (N = 16)	Number	%
Teacher explanations and rules	4	25
Listening, repeating, and recording in the language lab	4	25
Listening to interesting stories: authentic texts	3	18.75
Comparing your pronunciation with a model	2	12.5
Listening and repeating in class	2	12.5
Listening in the language lab	1	6.25

Table 3.8 Class survey – The best way to improve pronunciation

The wide range of responses is of particular relevance to teachers in their choices of classroom behaviour suggesting that all these approaches will be popular with some students but less popular with others. The last choice, listening to special pronunciation tapes, is clearly less popular, but this may be because they have not had access to such tapes. Similar sentiments are echoed in the interviews reported below.

3.6.6 Interviews

Five students were interviewed at the end of the course with the aim of prompting them to discuss:

- How they felt about the teaching and the actual practice exercises used in class.
- Their understanding of English pronunciation and any changes.
- Awareness of pronunciation difficulties, confidence in accurately producing the target sounds, and strategies used.

The interviews themselves were semi-structured allowing learners to discuss what they felt was most relevant (See Appendix 1E for questions). A number of key themes surfaced during the interviews and are presented through learners’ comments in the following sections on: learner awareness (before and after teaching) and perception of improvement, response to different classroom activities, individual strategies, and recommendations for the teacher. These themes are summarised in Appendix 1F.

The students have been assigned numbers one to five to preserve anonymity. The English in their quotes has also been 'polished up' for ease of understanding.

In talking about their levels of awareness of pronunciation prior to instruction it quickly becomes clear that while there is some variation, there had been a general lack of awareness.

Student Four had had almost no awareness, "I didn't know that I had a problem with my pronunciation before. No one had ever told me. I also didn't know I had a particular problem with these consonant sounds". Student One's awareness had been minimal, "I had an idea that I had some problems in this area but I wasn't really sure. This is the first time that anyone has told me about this but I've only been in NZ for two months".

Student Three, whose difficulties were with omitting consonants, had also been only vaguely aware that there might have been a problem, "I think I knew before that I didn't say these sounds but people seemed to understand me so I didn't worry about it.I have noticed that sometimes people say 'yes, yes' and then I find out later they didn't understand me". Student Five on the other hand says, "I have always known that I have a problem with pronunciation because when I speak to other people sometimes they don't understand me. I also knew that I was adding extra sounds".

There is a feeling of increased awareness as a result of teaching, as expressed by student Two who focuses on two examples where he now feels he has new knowledge: how to pronounce past tense 'ed' and 'and', saying: "This was new to me because when we studied English I thought we had to pronounce everything". He also says, "If I had to explain this to someone else I would tell them when saying 'and' in 'now and then' to drop the 'd', or when saying 'thanked him' to just join the two sounds together, just like that...[demonstrating accurately]. I think this teaching helped me to improve my pronunciation but it's not a priority for me at the moment because my weaknesses are writing and vocabulary".

Student One also comments, “This teaching has changed the way I think about these sounds. Listening to the tapes now I can hear the difference between the sounds. It’s still quite hard though” and “I think I have difficulty with this because I can’t connect the two words. I just read the words separately. In China the teacher told us the pronunciation of ‘d’ was ‘da’ (i.e. with a schwa) also we didn’t have much speaking practice”. In explaining this to a fellow Chinese learner he says he would draw parallels with a Chinese sound for ‘d’ which is often followed by a schwa but doesn’t have to be, and so it could be understood that in English a schwa is not added, “Most Chinese speakers have this problem, and in English they have to learn to leave the extra vowel off”.

While student Four says she has definitely improved as a result of the teaching, student Five is more circumspect, “I know I say ‘ass’ or ‘ask’ when I want to say ‘asked’...I did better on the test but that was because we had practised it a lot. I still can’t really hear if it is right. Every time you corrected me when I said ‘fine job’ instead of ‘find a job’ so now I can do that one because we practised it...I don’t know if I can hear my own mistakes because I hardly ever have real conversations, I just go to the library”.

Student Three also shows an increased awareness, “I think I have trouble pronouncing final consonants because I want to speak quickly and get on to the next word so I don’t finish properly. Sometimes I think I have said it but maybe others don’t hear it. It’s weird....I can hear the difference when I do and don’t pronounce the final consonant”.

Others also say they can often hear their mistakes, but the lack of processing time means they can’t do anything about them. For example, student Two, “After we practised I know how to pronounce this but sometimes I still make mistakes. I still need time to think about it. I know how to pronounce it but it still sounds funny... can’t do it exactly...in the test I could hear myself making some mistakes”. Student One also comments, “Sometimes when I’m speaking I can hear that I haven’t said it right, but of course then it’s too late to change it”. Student Five also says, “Sometimes when I’m speaking I can hear myself and know it isn’t right”.

From this, it is seen that learners have become more aware of this aspect of their speech and that they feel they have made some progress.

In talking about Critical Listening, four students can see the benefit of it, “a good way to show us the correct pronunciation” (Student Three), “a good way to study. I had never studied like this before. I could more or less hear the difference, but not always. It was very useful because I could hear how I had done it wrong” (Student One). Students Four and Five comment that although it was difficult they had some success and therefore it was a good way to practise. Student Two feels it was too hard and therefore not useful.

The teaching of rules received a range of responses. Student One says he already knew the rules but forgets to use them while speaking so this wasn't of much value. Student Five also comments that she forgets the rules while speaking but still thinks it is useful to know them. On the other hand Student Four doesn't think the rules for past tenses were useful but, “The rules and practice with 3rd person ‘s’ were good. I understood that”. Student Three also comments on the value of practice, “The rules are very important but what was good was the way we worked in pairs to practise and test each other”. At the other end of the spectrum, student Two feels there is no need for practice, all he needs is the rule.

All the students comment that listening and repeating is valuable practice. Student Two notes however that “it's not the same as speaking English naturally”. Students Four and Five comment on the need for a model “When I am listening and repeating I can follow the teacher, but if the teacher doesn't say it first I can't do it” (Student Five). They also express a lack of confidence in recording themselves, “I'm not sure when I record myself if I can hear if it's right” (Student Five) and “It was good to listen and record myself but I don't really know if it helps or not” (Student Four).

Student Three also thinks listening and repeating is particularly useful, “It's hard to change the way you speak and it's much better for the teacher to say it and the students copy” and that, “the language lab is a good way to practise, like a machine. Maybe some

people say it's too mechanical, but that's the way to learn. By listening and repeating many times over you can train your mind to do things in the right way. It's like trying to brainwash yourself, but it's good to do that".

Four students say syllable explanations are not useful. They clearly don't understand the connection between syllables and correctly pronouncing consonant clusters. Comments include, "I don't see how it will help me with my pronunciation" (Student Four). "It might be useful to learn why the syllables are like this but I don't know how you make the syllables so I don't know how you find them" (Student Two). Student Five says it was easy, "I understood this before and can do it" but goes on to say she doesn't understand how sounds change in connected speech.

Students mention a range of different strategies. Student One thinks the best way for him to improve is to listen to pronunciation tapes and imitate the sounds. Student Five has a similar notion, "To keep on improving I will keep on practising more. The best way for me is to have a model to listen to and repeat and maybe record myself". Student Four focuses on the need for practice. Student Two emphasises the need to practise in real situations as does Student Three who is focused on the need for fluency, "speaking fluently is most important and that means not stopping to correct yourself in the middle".

In response to 'What is the most important thing for the teacher to do?' the five students give five different answers. Two involve correction: "correct my pronunciation all the time. Every time I make a mistake, the teacher should correct it" (Student Five). "Correct students' mistakes straight away. Maybe they can't always do that, but if it is a common mistake for all the students then they should tell the whole class. Otherwise they could explain it to the student individually" (Student One).

Student Four focuses on input, "get us to listen to tapes, tapes of interesting stories. I think listening is definitely the best thing, but explanations from the teacher are good too". Student Two also mentions authentic listening but focuses on rules, "give us the

rules and tell us how to do it. We can practise on our own and I'd rather listen to something which is more authentic and has interesting content".

Finally student Three says that listening and repeating, and recording, are most useful but he also adds, "I think it would be more useful to teach people how to react when they don't understand".

3.7 DISCUSSION

This section begins with a discussion of the findings relating to the effectiveness of pronunciation teaching. This considers first the progress made by the treatment group on the listening discrimination and speaking tests before moving on to the comparative findings for the baseline group. Secondly, the correlations between error rates and individual and phonological factors are discussed. Finally the qualitative data is discussed with a particular focus on types of activities and approaches and what it is about them which might make them effective.

3.7.1 The Effectiveness of Pronunciation Teaching

The listening discrimination test found a significant improvement between the pre-test and the immediate post-test, with the error rate dropping from 24.1% to 14.0%. By the time of the delayed post-tests some of these gains had been lost with the error rate rising to 18.1%. A further analysis of the results revealed a great deal of variability in performance on the individual level (Table 3.3). These changes, which were not as significant as those achieved on the speaking tests, may be related to the nature of the test itself. It may be that 21 items was too small a number to confidently establish significant changes, especially because only a small number of items posed major difficulties. Those that were difficult, such as 'baked fish' and 'asked a question', were difficult for many learners. The listening task was also more challenging due to each item being heard only once and the transitory nature of listening. This makes it difficult to draw conclusions about the effect of instruction on perception, and contributed to the decision not to use

this test with the baseline group. It may be that it is more difficult to change perception than production, or as Strange (1995:40) suggests, changes in perception do ‘not necessarily mirror changes in production patterns’. It may also be that perception is not the only cause of pronunciation errors. In other words, learners may learn to apply some patterns or knowledge about pronunciation to their speaking if they have some time to plan or rehearse, but still not be able to apply it to their listening. As was seen in section 2.7.6 the relationship between production and perception is far from clear, and these results support that view.

The results on the speaking tests are much more definitive. Beginning with the results at the individual level (Table 3.2) for the Tough Phrases Test, it is notable that all learners in the treatment group made remarkable progress and, to varying degrees, this progress was retained over time. By way of comparison, it has been seen that there was no change in the results for the baseline group on either the Tough Phrases Test or the Citric Acid Test. This provides strong support for the view that the improvement shown by the treatment group was as a result of the instruction received.

These results provide empirical evidence that this instruction was effective and that these gains were retained over time. It is particularly noteworthy that the improvement was also translated to the Citric Acid Test as these items were not taught and involved complete sentences. This suggests that the learning has been integrated into their linguistic competence, at least within a careful style.

One could question whether or not the improvements at T2 were a factor of task familiarity. The point however, as was made in section 3.2, is that even accurately listening and repeating can be a major challenge. So the first step is to demonstrate that short term gains can be made. Remembering that the items in the speaking test were the same as those that were taught, an improvement in the test would indicate that they are now able to pronounce these items more accurately, as the task is the pronunciation of those items. As it transpired, learners made significant progress at T2 and had retained

the majority of those gains at T3. Of course, it is the long term gains which are the most important result.

The treatment group did have a greater average number of errors at the beginning than the baseline group. This was probably because of the way the sample was chosen. As has already been explained, epenthesis and absence were chosen specifically because the treatment group was found to have major problems in this area. Although the average for the group is above that for the entire population, it is still not significantly different. Thus it may still be said to be part of the same population. Of course the baseline data was collected a year later and there may well have been some shift in some of the characteristics of the population, therefore changes for those whose error rate was above the median (14.5%) in the Specific pre-test were compared. This was because the main concern is with those who have major difficulties with this aspect of pronunciation. These are speakers who drop so many consonants, or use so much epenthesis that it seriously affects their intelligibility. The treatment group did have a relatively high number of learners with major difficulties, with 13 in that category. The far larger baseline group had only 19 learners in that category. At the end of the semester this had changed markedly with only two learners from the treatment group still in the above-median group while the baseline group had 31.

The analysis of this subset provides further evidence for the significance of the improvement made, as it was made by those who most needed to improve. In conclusion then, one can say that this course of instruction led to significant gains.

3.7.2 Correlations between Error Rates and Individual and Phonological Factors

3.7.2.1 Effect of Individual Factors

Some evidence has been found to suggest that L1 transfer does impact on the rate of epenthesis and absence. In particular, East Asians had significantly more difficulties in

this area than non-East Asians. Further, it was seen that the Cantonese speakers omitted the most final consonants, although there were only four students in this category. Mandarin speakers were found to add sounds as often as they dropped them while Koreans tend to use a lot of epenthesis. These results are hardly surprising for teachers who are familiar with learners from these backgrounds. They also support findings in the literature that there are differences according to L1, as summarised by Hansen (2004) and commented on for Chinese (Deterding 2006) and Korean (Broselow and Park 1995). The results for Mandarin speakers (epenthesis, mean error rates = 6.5%; absence, mean error rates = 7.9%) are also broadly in line with Hansen (2001) whose three Mandarin speakers had error rates for epenthesis of 5 to 6 percent and error rates for absence of 7 to 9 percent.

However, individual differences are large as indicated by the standard deviations in Table 3.4. So that, while many learners from East Asian countries have difficulties with epenthesis and absence, there are others who are able to overcome them. The success of some individuals should give teachers confidence that there are ways in which all learners can be helped to improve.

While L1 does appear to influence the amount of epenthesis and absence, the effect for age is less clear. It may be that the data does not include enough younger people to be able to draw any clear conclusions.

It was also seen that the length of the time in the country bore little correlation with error rates. This suggests again that without explicit instruction there is little reason to suppose that this feature will be acquired. Of course, others (e.g. Piske 2007) have also reported that time in the country is of itself not a good indicator of likely pronunciation ability.

Although there is some effect for certain individual factors, most notably L1, it may be that the over-riding factor is that each individual learner is different. It seems to be the case that some individuals quickly notice the important features of the L2 pronunciation and are able to produce them, while others never notice them, i.e. it may be a question of

aptitude. It is for those who don't notice the important features that explicit instruction may be of greatest assistance.

3.7.2.2 Effect of Phonological Factors

The analysis of the correlations between error rates and phonological factors suggests which particular syllable codas, and in which phonological context, are most difficult for learners to produce. This has particular relevance for the development of both teaching and testing materials.

These results confirm the generally accepted notion that difficulty increases with degree of markedness. In this case, the longer the coda, the more marked it is (Anderson 1987; Hansen 2001, 2004). However, the rates for absence and epenthesis appear to be at odds with findings by Hansen (2001). She found that absence was more common amongst three consonant codas and epenthesis amongst two consonant codas. Clearly individual differences and differences in L1 have an effect on whether complex syllables are simplified through epenthesis or absence and Hancin-Bhatt (2000) and Hansen (2004) have reported higher rates of absence in complex codas for Thai and Vietnamese speakers respectively.

These results clearly support the canonical structure hypothesis (Carlisle 1999). This claims that there is a universal unmarked syllable structure based on sonority, and that such syllables will be easier for learners to produce accurately. To meet the requirements of sonority, the level of sonority must decrease as one moves out to the margins, i.e. it follows this pattern; vowel – glide – liquid – nasal – fricative – stop.

It is also clear, that when such syllables break this, learners are equally likely to use either epenthesis or absence. The particular kinds of cases in the data here are: a stop followed by either a stop or a fricative, and a fricative followed by a fricative.

One important implication of this is that many third-person 's' and plural endings are difficult to say, as are many regular past tenses. Thus any analysis of the acquisition of these morphemes must also take the phonological context into account.

The high rate of epenthesis when there is a following consonant is in line with Carlisle's results reported in Hansen (2001). However, Carlisle also found a high rate of epenthesis for a following pause. This is at odds with the findings here, but may be accounted for by the choice of items whereby quite a few of the more difficult ones appear to be in the middle of the phrase rather than the end (Refer to Appendix 1B). The low rate reported for epenthesis when there is a following vowel is in accordance with the results here.

These findings suggest that learners tend to be unaware that a final consonant will often merge with a consonant onset. Native speakers do this, often modifying consonants, to improve the flow of speech. If learners don't do this they are more likely to epenthesise the final consonant as they try to give it a full value before embarking on the following segment, as described by Lin (2001). Therefore teachers should focus on ways to get learners not to use epenthesis when one word ends in a consonant and the following word begins with a consonant i.e., focus on sounds in connected speech.

3.7.2.3 Other Factors

The question of the effect of orthography on pronunciation also requires further investigation. Although no attempt was made to establish this here, when analysing the results there appeared to be an influence such as 'discovered' being said as 'discover – red'. Young-Scholten, Akita & Cross (1999) have also suggested that the spelling of the word held in memory influences pronunciation.

One final issue which needs to be considered is the effect of the task types in this study. Related to the effect of orthography, is the effect of reading. It has been suggested that this may lead to more epenthesis (Young-Scholten & Archibald 2000; Lin 2000). There may be some effect for this, however, as has already been mentioned, epenthesis has

often been observed as a problem in the casual speech of these students. Further, the words chosen were actual words which had been noted as being difficult to pronounce in instances of learners' casual speech.

3.7.3 Qualitative Findings

Having established that pronunciation teaching can be effective, this section aims to take the discussion further by considering what it is that makes it effective. Observations of what took place during teaching and insights from learners as expressed through survey results and interviews highlight a number of factors which may shed light on this. This lays the groundwork for the development of some general principles.

In general terms it was found that pronunciation teaching has face validity for learners. This was made clear in the survey results in which the majority of learners suggested that pronunciation was important and although they expressed a wide range of views as to the teacher's role, they saw it as something which the teacher should attend to. These views were elaborated on in the interviews where the role of the teacher in providing corrections, explanations, rules, and practice in listening, repeating and recording, as well as authentic listening, was discussed. However, the wide range of views held by learners as to what would help them with their pronunciation also suggests that it is not an easy task for the teacher to fill their diverse needs and wants. Of course learners do not necessarily know what all their needs are so the teacher must help to determine those needs, in consultation with the learners.

The survey results also suggest that pronunciation is often neglected by teachers. This may in turn be partly to blame for the lack of awareness of difficulties which was also reflected in the interviews.

Some of the learners said they had not been aware of their pronunciation difficulties prior to this course of instruction, but that they had become more aware and felt they had made progress. In particular they had become more aware of the precise nature of this difficulty

with syllable codas, even though they may acknowledge they still have difficulties in hearing their mistakes, or they may not have time when speaking to avoid making them. Student One commented, “This teaching has changed the way I think about these sounds.” This suggests the importance of helping learners to think about sounds differently, of helping them to understand how the native speaker thinks about the sounds of English. To do this they have to be aware of the difference between what they say and what native speakers say.

During the interviews, the learners provided a number of insights into the classroom activities.

The students could see the potential benefits of the Critical Listening activities, but some of them did comment that it was too difficult and they could not always hear the differences. This is in line with the teacher’s observations that learners were having difficulty hearing the difference and that the poor quality of the recordings being used as a model exacerbated these difficulties. The realisation that the teacher could hear the difference and they couldn’t must have further added to their frustrations. Although the teacher attempted to offer guidance, learners needed still more guidance to be able to hear the difference and they also needed much more guided practice. Clearly, to implement Critical Listening successfully as intended by Fraser (2000a, 2000b, 2001) there is a need for much more guidance and better metalinguistic communication.

The teaching of rules received a mixed reception with some seeing them as indispensable and others not liking them or noting that knowing the rule doesn’t help because they forget it when they are speaking. The other difficulty with rules is that learners don’t always interpret them in the way they are intended.

During the interviews learners commented on the value of listening and repeating in the classroom and listening, repeating and recording themselves in the language laboratory. They focused on the need for a model and that although the practice is not authentic; they note the value of training to make speech automatic. As student Three says, ‘By listening

and repeating many times over you can train your mind to do things in the right way.’ Of course this assumes that learners correctly perceive the model, and it was noted that some of the learners commented afterwards that they still couldn’t hear the difference in some of the cases. This is something which should not be underestimated and is an issue which is taken up later when examining what happens during the concept formation process.

During teaching it was observed that learners hadn’t really understood what the explanation of syllables was all about. This was perhaps a classic case of teaching about the language rather than teaching how to pronounce it. Either way, it was clear that the concept which was the focus of instruction remained misunderstood as did its relevance to the course of instruction. This observation was supported in the interviews with four of the five learners saying this session was not useful. In conclusion a better way needs to be found to explain syllables and what they are all about. This would involve starting with the learners own perceptions of syllables.

During the teaching it was observed that interaction between learners and the teacher helped in establishing how sounds changed in different contexts, and that guidance in how the native speaker heard those sounds helped in understanding them. Learners used their own words to say how they interpreted the sounds both in their own speech and that of native speakers, for example, referring to making the consonant shorter or lighter when trying to avoid epenthesis, and talking about making the final consonant stronger or longer when trying not to omit it. The role of learners’ perceptions is seen to be important in successful communication.

3.8 CONCLUSIONS AND IMPLICATIONS FOR LEARNING AND TEACHING

In returning to the research questions, these results have shown that this particular type of teaching was effective, that a significant proportion of the gains made were retained over time, and that these gains can be transferred to other contexts.

Evidence has also shown that epenthesis and absence represent a significant pronunciation difficulty for a large number of learners in this particular context and that without explicit instruction these learners do not make progress in this area. This suggests it is an aspect of English phonology which is not easily acquired and consequently learners might benefit from explicit instruction.

Exploring the factors which affect L2 epenthesis and absence has found that L1 transfer has some influence, and it is useful for the teacher to be aware of this, but it is possibly more important to be aware of the range of individual differences as shown in both the quantitative and qualitative data. This wide individual variation between learners such that at the time of the pre-test some had already acquired syllable codas quite well, regardless of L1 and markedness, should give both teachers and learners encouragement in the search for ways to master this aspect of pronunciation. This might involve both the teacher and learners in finding individualised ways of communicating about pronunciation, and in the teacher providing activities which are appropriate to learners' needs and wants.

Teachers could begin by helping learners to focus on those syllable codas which are most marked, i.e. the cause of the greatest difficulties. These areas are longer syllable codas, and in particular those which break the rules of sonority. As has been noted these issues become particularly obvious in areas of third person 's' and regular past tenses, i.e. teachers need to recognise that many difficulties which are often ascribed to poor grammar are equally as likely to involve pronunciation. A focal point which may be easier for teachers to concentrate on is the significance of the following segment in epenthesis. This suggests the teacher should focus on sounds in connected speech. To summarise, the description of learner difficulties suggests teaching, and testing, should use these sorts of examples: 1) codas followed by a consonant in the following word (sounds in connected speech), 2) marked codas followed by a pause to focus on the more difficult complex codas, 3) practical examples of how meaning, and grammar, changes due to incorrect pronunciation e.g. past tense and 3rd person and plurals.

While the quantitative results show this course of instruction was effective, one must consider the qualitative data for insights into which aspects of that instruction led to learning and how the various activities interacted with the learning process. This suggests that effective pronunciation teaching involves:

- Making learners aware that there is a difference between what they say and what native speakers say.
- Helping learners to hear the difference and practise it.
- Finding the right metalanguage.
- Helping learners to discover useful patterns and rules.
- Giving feedback and providing opportunities for further practice.

There were at least two deficiencies in this teaching approach which were observed during teaching and confirmed by learner feedback. One was that the explanation of syllables was clearly not understood. This was a clear case of the metalanguage used not being understood by learners and consequently leading to a breakdown in communication. The cause of this breakdown can be traced back to the differences between L1 and L2 phonological concepts. The learners' concept of a syllable was not the same as the teacher's therefore describing the features of a syllable does not help the learner to understand that his/her pronunciation of a consonant with an extra vowel on the end, is heard as an extra syllable in English. The understanding gained here is important in directing the focus of the next study, presented in chapter four.

The second difficulty was that the practice activities were not exactly communicative, except that they did involve genuine cross-cultural communication about pronunciation. The learners' interest and motivation to know about pronunciation overcame the repetitive nature of the teaching. However, it would be better to integrate the instruction more into regular communicative teaching. The aim would be to make activities more interesting, and increase the focus on meaning while still maintaining the focus on form. This conclusion is compatible with an applied Cognitive Phonology framework which also views meaning as central to pronunciation.

The conclusion that Critical Listening had a positive effect, despite the technical difficulties encountered in implementing it, demonstrates that contrast is important in establishing category boundaries and consequently forming new concepts. Critical listening and other awareness raising activities help learners to notice the gap. To do this they must understand not just that there is a gap, but precisely where the difference is. They also need to understand the essential difference, i.e., learn what it is that is salient to the native speaker in categorizing sounds. The role of practice and feedback are also important in concept formation processes.

Some learners want to know the rules. Rules as such imply a level of linguistic generalisability which is somewhat at odds with a usage-based approach to language. However, there are patterns which learners often find useful. Therefore if a 'rule' appeals to a learner's analytic side it can be both motivating and confidence building and may well help to understand the language system. The main difficulty with rules, as with metalanguage, is that they are often specified in terms of the concepts of the TL and it is precisely these concepts which the learner does not understand.

The findings from this chapter provide necessary background description and evidence for the effectiveness of pronunciation teaching. The studies presented in chapters 4 and 5 go further in isolating and testing what makes pronunciation teaching effective. This chapter has revealed that a number of things are needed in order to understand how to make teaching more effective and to evaluate what it is that makes it more effective. Firstly more information is needed about the processes learners are going through and in particular how they perceive what it is that they are being taught. This should lead to better teacher-student communication, which is seen as a very important, yet difficult, part of the concept formation process. Secondly, there is a need to further isolate variables relating to different instructional methods, and re-test for the effect of each one. This needs to be combined with more on-going feedback from learners and re-evaluated after a longer period. Thirdly the tests need to be extended to more closely resemble less formal communicative speech. The results for listening were not clear so these tests also need to be extended in order to better measure the effect on speech perception. Finally,

there are different kinds of knowing about pronunciation, such as knowledge of spelling - sound relations, which have an impact on the accuracy of pronunciation. These could also be explored.

CHAPTER FOUR: STUDY TWO - CONCEPT FORMATION PROCESSES

4.1 INTRODUCTION

In the previous chapter it was concluded that certain approaches to instruction might be involved in effective pronunciation teaching, viz. awareness raising, critical listening, the right kind of metalanguage, helping learners to find rules and patterns, giving feedback and providing opportunities for further practice. It was also concluded that this instruction should be presented within a broadly communicative framework (Morley 1991).

While Study One tended to focus more on the analysis of the students' speech output, the focus of this chapter is more qualitative as it explores learners' perceptions of L2 speech, and learning and teaching processes. Here the word 'processes' is not being used in a Cognitive Psychology sense but in the more general meaning of describing a series of things that happen, or actions that are undertaken, leading to a particular result. Given the lack of guidance from SLA theory, as noted in the literature review (e.g. Norris and Ortega 2001), a great deal of qualitative work is required to be able to isolate, define and operationalise variables in ways which are relevant to teaching and learning. This must happen before testing for the effect of different variables and providing evidence in support of general principles relating to what makes pronunciation teaching effective. The approach taken in this chapter then, is to blend qualitative and quantitative methods in the exploration of how learners interact with the types of teaching proposed. Thus there is a particular focus on how learners interpret what is being taught and if and how this is translated into the formation of phonological concepts.

This chapter builds on observations in the previous chapter that students actually had a poor understanding of what a syllable was. Since this is closely related to the issues of epenthesis and absence, it has been decided to investigate students' concepts of the syllable more closely. More specifically, the focus is on the syllable coda, which in the case of epenthesis leads to the native speaker perceiving an extra syllable and in

the case of absence leads to misunderstandings in matters such as time and number. In order to be able to correctly perceive and produce syllable codas the learner must first have the phonological concept of how consonants should be pronounced in syllable codas. This is the main focus of both this study and the study presented in chapter five. Full acquisition of the concept involves knowing all the various aspects of the concept including the various realizations of individual codas in different contexts and the relationship between orthography and pronunciation.

The themes which emerge as a result of this study, and are later tested experimentally in the following study, are presented through the narrative of the classroom and interviews. Thus a significant amount of detail has been included to demonstrate the processes which learners are going through.

4.1.1 Aims

The aim of this study is to observe the learning processes a small group of learners go through in forming phonological concepts during a short course of instruction. It explores learners' phonological perceptions and their perceptions of pronunciation teaching. Thus it attempts to further isolate and define some of the variables which may be crucial to the success of pronunciation teaching. It also tests the effect of instruction on perception and production both immediately and over time.

4.1.2 Overview of Chapter

Section 4.2 provides a brief overview of the method, followed by a description of how the four participants were selected. Background information on the participants, which was gained during the pre-interviews, is then presented. The role of the teacher as researcher is described, as is the method of recording and transcribing lessons. The method and approach to testing and interviewing is then explained before presenting the lesson aims, materials and methods.

Section 4.3 presents the results, beginning with a profile of the learners' awareness of their pronunciation and attitudes towards learning it. Then the process of each lesson is reported on. This is recorded in table form to highlight key interactions between the

teacher and learners, and is followed by the learners' comments and finally the teacher's reflections. The aim here is to provide a sense of the progression of each lesson and how the students interacted with the various teaching techniques and methods employed. An overview of the quantifiable results achieved by the whole group is then presented, followed by individual summaries of performance on the interview tasks and views and comments expressed in the immediate and delayed post-interviews.

Section 4.4 presents a discussion of quantifiable changes before moving on to discuss the qualitative evidence of concept formation processes. This is obtained from the observation of classes, and related learner and teacher comments, and interviews with individual learners.

Section 4.5 concludes the chapter with a summary of the ways in which instruction can assist in concept formation and, based on the findings here, two key variables are defined: Socially Constructed Metalanguage and Critical Listening. These are subjected to experimental testing in chapter five.

4.2 METHOD

This study has an overall qualitative framework but with a number of quantitative components.

The method involves pre-tests of the difficulties learners have with epenthesis and absence and interviews to establish some of their language learning background and perception of pronunciation and pronunciation teaching.

These are followed by a series of six lessons which attempt to explicitly instruct and provide practice with these difficulties. At various stages during this series of lessons, after completion of the series and some time later, learners are tested and interviewed again.

4.2.1 Participants

4.2.1.1 Selection of Participants

The participants in this study come from the same student population drawn on in the previous study and described in section 1.4. An initial test, the Tough Phrases Test described in chapter three, was given to volunteers from two classes of full-time high-intermediate level adult ESOL learners to determine which students had major problems with epenthesis and absence, using the same definition established in chapter three of ‘those with the greatest difficulties’ as having 16 or more errors. From this, there were four volunteers who were able to attend free extra pronunciation classes once a week for six weeks. As there were only four volunteers, it was not possible to control for L1, and neither was this of particular concern as the aim was to develop methods applicable to all learners. Their total number of errors on the test ranged from 16 to 27. The main difficulty for three of them: Ay, Bea, and Cee, was with epenthesis, for the fourth the difficulties involved epenthesis and absence equally. More detailed information, based on initial interviews, is provided below.

4.2.1.2 Background of Subjects

Ay

At the time of the initial interview Ay, aged 47, had been in NZ for 10 years. She had been a volunteer in the Korean community for four years. She had also completed a one year certificate in applied fabric design but had found the course extremely difficult. She had then done a six month course in graphic design which she had found very difficult because of both a lack of computer skills and English. In Korea she had been an art teacher for 14 years both at high school and university. Her main interest was textile design. In NZ she had been doing print making.

English learning prior to coming to NZ included middle school, high school and one year at university. She had attended part-time community college classes where according to her, she had struggled. This was her first full-time English language course.

Bea

Bea, aged 42, had been in NZ for 10 months at the time of the initial interview. She is from Shanghai, China and speaks Mandarin. She had learned English from middle school to university in China, where the main focus had always been on grammar and writing. She said her English was poor because of a lack of listening and speaking in these lessons, combined with not having used it for a long time. One of her high school teachers had taught them the IPA symbols although Bea didn't explain what they had done with them. Bea had been a teacher in China and thought the most important thing was for the teacher's pronunciation to be good. She felt this was what had helped her most in the English classes she had attended in NZ. The full-time class she was attending at the time was her second semester at AUT.

Cee

At the time of the initial interview, Cee was 37 and had been in NZ for nearly three years. She is from northeast China and speaks Mandarin. This was her first English class, and up until then she had worked in a factory [It was not clear, but it sounded like this included cutting, sewing, and bonding.]. She had got the job through a friend. She said she sometimes had problems with English when she couldn't remember a word. Cee had come to class now because she had pre-paid for her tuition as part of the deal in being allowed to migrate to NZ and wanted to spend it. She said listening had been her main problem with English before she came to NZ.

Dee

Dee is from northern China and speaks Mandarin. In China she was a dentist for seven years before coming to NZ. At the time of the interview she had been in NZ for three years and was 36 years old. She said she had come to NZ for the sake of her children. She had learned some English at school but was not very happy with this so she had attended a private English school for six months prior to coming to NZ. At school she had learned reading and writing but no speaking. It seemed there was some focus on speaking in the private school. This was Dee's third semester of full-time English language classes at AUT.

4.2.2 The Teacher as Researcher

As with all the studies in this thesis, the teacher here is also the researcher (see section 1.4). Given the ethnographic nature of this study, the reflections of the teacher play an important role in the emergence of themes. To retain the chronological sense of the themes which emerge through this series of lessons the results section includes the teacher's reflections after each lesson.

4.2.3 Recording and Transcribing Lessons

To make these observations as objective as possible the lessons were video recorded with a JVC Everio HD camcorder. From here they were transcribed orthographically. The quality was generally satisfactory with the exception of lesson six where some difficulties with the microphone meant some parts were not recorded. Also, during the first lesson not all of the students were in view. It would have been more satisfactory to have had an independent person look after the recording but this was simply not possible in the circumstances. Thus the teacher also looked after the recording equipment. The transcriptions have not been included in full as they run for many pages but they have been used to provide descriptions of the classes and to demonstrate various observations. They can be made available by the author on request.

4.2.4 Tests and Interviews

The Tough Phrases Test from chapter three (involving 40 short phrases, refer to Appendix 1B) and an extended version of the listening discrimination test (involving 40 items, refer to Appendix 2A) were given at six different points in time as shown in Table 4.1 below.

The listening discrimination test was based on the one used in Study One but modified to make it more sensitive to any changes in speech perception by replacing those items which had caused very few difficulties with items which might be more difficult. The total number of items was increased from 21 to 40 (see Appendix 2A).

A range of qualitative and quantitative data was derived from interviews held at three points in time: pre-teaching, post-teaching, and 8-18 months after teaching. A number of tasks were developed and used as part of the interview procedure, as shown in Table 4.1 below. These tasks and the interview procedure are described in the following sections.

	pre-test	post lesson 2	post lesson 4	Mid lesson 6	Post-test	Delayed test
Tough Phrases Test	X	X	X	X	X	X
Listening discrimination	X	X	X	X	X	X
Paragraph reading task	X				X	X
Giving directions	X				X	X
Sounds and spelling	X				X	
Critical Listening					X	

Table 4.1 Overview of timing of tests and tasks

Notes: The delayed tests and interviews were held eight months after teaching, although in one case this was 18 months later.

4.2.4.1 Paragraph Reading Task

Here the same paragraph (Appendix 2B), similar to the paragraphs in the lessons, was read before and after the period of instruction and then again later during the delayed interviews. Although the learners were given time to read through the paragraph beforehand, they usually didn't do it. In the interview reports it has been commented on when they did take the time to do this.

4.2.4.2 Giving Directions

A direction giving task was designed to simulate a more communicative, less formal situation (Appendix 2C). Because learners produced different amounts of language the number of errors has been converted to a percentage of the number of words spoken. This task was also used at all three interview times: pre-, immediate post, and delayed post.

4.2.4.3 Sounds and Spelling

This task (Appendix 2D) was carried out during the pre- and post interviews. For practical reasons (time constraints and other priorities), it was decided not to do this again during the delayed interview. The idea was to explore the learners' concepts of

how spellings might be pronounced by asking them to read words out loud and explain why they thought they were pronounced that way. Words were chosen which it was thought the learners would not be very familiar with, and were presented in the context of sentences. The findings are largely qualitative. However, it is possible to provide a quantitative overview by comparing the number of items which were pronounced correctly on the first attempt, at the two times the test was given: pre- and post-instruction.

4.2.4.4 Critical Listening

For the post interview, a listening task was devised to test learners' perception of when epenthesis had, and had not, been used (Appendix 2E). This was based on the sort of Critical Listening tasks used during the classes. Recordings produced by the participants during the course were used. Each participant did a slightly different task as it was customised to represent the difficulties of the individual student. The first three items were the same for all, while the other items were taken from the recordings of the particular participants for whom the task was designed. Participants were asked to listen and note any errors. If they were not sure, they were allowed to listen again. In particular they listened to the first item three or four times as they came to understand what the task required of them. Clearly, it was not possible to do this task in the pre-test as the speech samples were not available. The aim of this task was to provide insights into their concepts and speech perception following instruction. Therefore, these results are qualitative and will be described in the interview reports which provide evidence of a considerable level of understanding of epenthesis and absence on the part of the participants.

4.2.4.5 Interview Procedure

The interviews were semi-structured (Appendix 2F). As well as background and general discussion about pronunciation difficulties and ideas about pronunciation learning and teaching, there were also a number of tasks which the learners were asked to complete. In the pre-interviews, held in the week before the first lesson, learners did the direction giving task, the paragraph reading task and the spelling and pronunciation task. The Tough Phrases Test and the listening discrimination test had

already been done during the selection process. They were also done at the end of lesson six and so were not repeated during the post-interviews.

During the post-interviews, held during the week following lesson six, learners did the direction giving task, the paragraph reading task, the spelling and pronunciation task, and the critical listening task.

During the delayed interviews learners did the Tough Phrases Test and the listening discrimination test. They also did the direction giving task and the paragraph reading task. For three of the learners these were held eight months after the post interviews. The fourth learner, Bea, was unavailable for family reasons at the time the delayed interviews were carried out. However, a further ten months later (18 months after the post interviews) she had returned to study at AUT again and volunteered to participate in the study presented in chapter five. She did not make enough errors of epenthesis to be chosen for that study but she was happy to be interviewed and do the tasks for this one. The only exception was that she didn't do the listening discrimination test.

The interviews were audio recorded using a Califone 5265AV cassette recorder and a condenser microphone. These were transferred to digital format on an Apple iMac computer for ease of transcription, and later for second marking of tasks. Information from the pre-interviews provided the background presented in 4.2.1.2 above. The main themes which emerged and the discussions around the various tasks are presented in the results section.

4.2.5 Lessons: Aims, Materials and Methods

The six 90-minute lessons, once a week over six weeks, for this study were designed around the conclusions in the previous chapter, which were that instruction should be integrated into a more meaningful communicative context and cover these three areas:

- 1) Codas followed by a consonant in the onset of the following syllable. In most cases this was actually the following word (i.e. sounds in connected speech become important): reflected in the first two lessons.
- 2) Marked codas followed by a pause (i.e. at the end of a phrase) to focus on the more difficult complex codas: reflected in lessons three and four.

3) Practical examples of how meaning, and grammar, changes due to incorrect pronunciation e.g. comparative, past tense and 3rd person 's' and plural 's': represented in lessons five and six.

The aims of the lessons are described below. Outline lesson plans, materials used and related explanations are provided in appendices **2G – 2L**.

4.2.5.1 Lesson Aims

Lesson 1: C + C in context of 'books and computers': explanation and practice

[The context for the lesson is provided by the textbook 'Understanding English Pronunciation'. Unit 6, 'Books and Computers' (Boyer 2001) was chosen as the text as it contains a number of C+C contexts. See Appendix 2G for materials.]

- focus learners' attention on the sound of syllable codas, especially when they are followed by a consonant in the onset of the following syllable.
- elicit how these codas sound to the learners and explain how they sound to the native speaker.
- provide visual representation on the whiteboard to make it clear to the learners exactly where the difference is between what they were saying, for example with epenthesis, and what the native speaker would say.
- make it clear to learners what the salient differences are for the native speaker and train learners to produce these codas more accurately.
- On the board, a schwa symbol is used to show an extra vowel and lines are used to show how sounds are joined, and also elided.
- Provide feedback through:
 - controlled listen and repeat practice,
 - learners recording themselves.
- These recordings are used for Critical Listening (as described in section 1.7 and 1.8) with the whole group to help learners understand where the phonological boundaries are.

Lesson 2: C + C continued; revision plus game for further practice

[See Appendix 2H for materials used.]

- Review both:
 - the learning of the previous week and,
 - the metalanguage which has been established.
- Provide learners with more opportunity for practice and feedback through an information gap type game.

Lesson 3: C + pause; context of 'health and happiness': explanation and practice

['C + pause' refers to situations when the consonant or consonants in the coda are at the end of a phrase, i.e. followed by a pause. This also involves practice with isolated words. The context for the lesson is provided by the textbook 'Understanding English Pronunciation'. Unit 7, 'Health and Happiness' (Boyer 2001) was chosen as the text because it contains a number of complex codas. See Appendix 2I for materials used.]

- focus learners' attention on the sound of complex syllable codas when they occur at the end of a phrase.
- As in the first two lessons gain insights into how these codas sound to the learners and explain how they sound to the native speaker.
- Provide visual representation on the whiteboard in the same way to:
 - make it clear exactly what is salient to the native speaker and,
 - train learners to produce these codas more accurately.
- As in lesson one there is controlled listen and repeat practice and learners record themselves for Critical Listening with the whole group.

Lesson 4: C + pause continued; revision plus game for further practice

[See Appendix 2J for materials used.]

- review the learning of the previous week

- provide learners with more opportunity for practice and feedback through an information gap type game.

Lesson 5: past tenses and 3rd person 's': pattern discovery and practice

[See Appendix 2K for materials used.]

- provide further practice
- give learners the opportunity to discover rules and further explore the effect of pronunciation on meaning and grammar.
- The initial focus is on the pronunciation of regular past tenses presented through a discovery activity in which the learners listen and group past tenses according to the pronunciation of 'ed'.
- This is followed by a practice activity.
- The same process is followed for the third person 's' up until the point where they discover the pronunciation patterns.

(The original plan had been to finish the practice with the 3rd person 's' but there was insufficient time. Therefore, not having reached the point at which it had been planned to re-test the learners this was also postponed until the following week.)

Lesson 6: further practice with past, 3rd person and plural s and revision, practice with test items.

[See Appendix 2L for materials used.]

- review and extend what has been covered in the previous lesson providing extra practice using an activity with cards for 3rd person 's'. This is set up in the same way as the activity for past tenses.
- do the speaking and listening tests again,
- give explicit practice with the pronunciation of the actual items used in the speaking and listening tests.
 - Take a Critical Listening approach as students listen to each other's tapes and comment on differences.
 - students listen and repeat in the language lab

- do the speaking and listening tests again

4.3 RESULTS

This section begins with a profile of learners' awareness of pronunciation problems and attitudes to pronunciation, based on the initial interviews. The second part presents a description of the lessons themselves as they unfold, including a description of how the learners respond to each lesson, both through observations and their comments after the lesson, and reflections of the teacher. An overview of the quantifiable results achieved by the whole group is then presented before providing individual summaries of performance on the interview tasks, and views and comments expressed in the immediate and delayed post-interviews.

The nature of this study makes it necessary to present a great deal of data to demonstrate how the themes emerge through these lessons and related discussions and interviews. To help the reader retain an overview, large amounts of this data have been summarised and presented in table form.

In reporting on learner speech the following notation has been used: Epenthesis is shown through the use of this symbol: @. Absence is shown through the use of this symbol: #, followed by the missing sound in brackets e.g. if the final 's' were absent on the word, 'stories' it would be recorded as: storie#(s). Because the focus is restricted to epenthesis and absence it is thought to be easier to read as these symbols stand out more in the text than phonemic transcription would.

4.3.1 Pre-interviews

4.3.1.1 Ay

Ay provides an example of the difficulties she has with pronunciation, 'One day I asked someone, "Where is Takapuna?" [a place in Auckland] but she didn't understand my pronunciation and told me very clearly so I realised I had to talk more and do more about my accent.' She says her major problems are with word stress, but

note the use of epenthesis in this passage and the lack of any effect from modeling:
(@ = epenthesis)

Interviewer: word stress
Ay: Oh the word@ stress
Interviewer: Yeah
Ay: Word@ stress?
Interviewer: Right, word stress
Ay: Word@ stress [said very slowly and clearly with a very long /u/ after the /d/]
Interviewer: Word stress.
Ay: stress@, yeah OK.
Interviewer: Word stress.
Ay: I have to try.

She mentions some of the problems she has with individual words and sounds (such as /p/ and /b/) and feels that listening is the most difficult thing for her. During a discussion of the listening discrimination test she asks about the grammar rather than the pronunciation.

4.3.1.2 Bea

Bea says her main difficulty with pronunciation is word stress. A number of difficulties are also observed at the segmental level, for example, it takes five turns to establish that what the interviewer heard as 'source' was in fact intended as 'south'. Bea likes to practise by listening to tapes in the library and reading along with them. She also records herself sometimes and compares herself with the model but can't always hear the difference. While she can usually understand the teacher, she finds it very difficult to understand the young people she meets at church. She finds older people are easier to understand.

4.3.1.3 Cee

Cee recognises that she has problems with pronunciation and particularly with epenthesis and the need to join sounds in connected speech. She describes this as

making it too ‘strong, heavy, the accent.’ She says she knows to join words when speaking but doesn’t do it, and has trouble when listening because she can’t identify the words. She feels the need to say each word clearly as this is a reflection of the way she understands when listening. Cee points out the dilemma of not knowing if misunderstandings are caused through the wrong word or poor pronunciation, ‘the teacher when speaking I didn’t know the meaning, maybe my pronunciation is not correct so I don’t know the teacher’s meaning.’ Cee also notes that even when the teacher corrects her she still gets it wrong and that when she tries to listen and repeat it’s also wrong, ‘It’s a puzzle. You tell me the correct one but I repeat, it’s not correct.’ She concludes that the teacher should just give her a rule.

4.3.1.4 Dee

Dee says she tries to gain as much practice as possible by imitating the local accent, and listening to anything that’s available: teachers, people in the street, and cassette tapes. She likes to read the newspaper out loud and get her husband to correct her. Her teachers in NZ have mainly taught her pronunciation through correction. She does use quite a lot of epenthesis, but good stress patterns make her relatively easy to understand.

4.3.2 Lessons

(Refer to aims in 4.2.5 and appendices 2G – 2L)

In reporting on the lessons, the key events have been noted in terms of the procedures and student interaction with them. In the left hand column the procedures are noted, including the actions taken by the teacher and the teacher’s responses to input from learners. In the right hand column interactions with and between the learners have been recorded. Utterances attributed to learners either individually or as a group response are paraphrased unless shown in inverted commas. The same conventions have been used to record epenthesis and absence in reporting on oral interaction (@ = epenthesis, #() = absence). After this description the learners’ comments about the lesson (usually made afterwards) have been summarised, again paraphrasing where

this makes it easier to follow. This is followed by the teacher's reflections on the lesson.

4.3.2.1 Lesson 1

In which:

- Learners have difficulty with the listening text.
- The teacher uses visual representation on the whiteboard to make learners aware of epenthesis
- Learners describe their perceptions
- The teacher starts to establish ways of talking about syllable codas
- There is a lot of listen and repeat practice and feedback
- Learners practise critical listening

Description of lesson one events

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Setting the Context – Listening Text (15 minutes)	
- Picture and title ‘Books and Computers’ - Ideas elicited & recorded on board - Examples of epenthesis in separate area - Text played - Questions set for 2nd listening (appendix 2G). All answers include potentially difficult codas. - Parts of the tape are replayed several times - e.g. ‘childhood memories’ was played 3 times then written on the board and played again. - T shows contrast ‘childəhood’ and ‘childhood’ - T points and models the two. - Listen and repeat, ‘Childhood’ (several times) - T gives feedback by pointing to what they say.	- Ss say what is good about ‘Books and Computers’ and discuss advantages and disadvantages. - Ss listen for ideas: They find this difficult, hearing individual words only. - Ss listen and have difficulty answering, - Ss find it hard to recognise some of the words. - Ss hear ‘child memories’ - Ss accept it is ‘childhood memories’ after a number of repetitions. - Ss all say ‘child@hood’ - Finally, they are able to say it correctly.
Part Two: Explicit Instruction – using examples already recorded on board (6 minutes)	
- T draws attention to schwa symbol used to signify epenthesis and reads two versions pointing to the difference. This one, ‘text ə’, correct is ‘text’ - ‘childə’ ‘child’ - ‘looked’: multiple repetitions - Listen: ‘looked’ ‘lookedə’ pointing. - How does ‘looked’ sound to you? - To me it sounds like /k/ and /t/ together. - How does this sound? ‘loo#(k)ed’ Listen and repeat	- Ss repeat accurately - Ss repeat accurately - Ss find this difficult, practise many times with mixed success: looked@, look@ed, look@ed@ - Ss: ‘t@’ - ‘No, just ‘t’ ‘k is a no sound’ - ‘/lut/’ - Bea: ‘but I think k is leave a place, don’t nothing, don’t no sounds, but sounds t’ - Cee: ignore the k. The k might be very quiet - Ss repeat - Ss: Yes, it’s a little k - 3 confer in Chinese, say ‘looked’ accurately, yes the t sound is stronger than the k.
Part Three: Guided practice, feedback and further explanation. (30 minutes)	
- Students given a copy of the listening text. - T shows on board how the ‘d’ in ‘books and computers’ is deleted. - T models key phrases - Feedback and explanation as necessary: on the board drawing lines between codas and onsets to show how sounds are joined, and crossing out letters (e.g. the ‘d’ in ‘and’) to show deletion. - Explanation of weak vowel is ‘and’, ‘of’ etc. - T: stress on ‘child’, uses hand gestures to show ‘child’ on one level and ‘hood’ on a lower level. - ‘Would look’ repeated many times - ‘It’s difficult’ required multiple repetitions - Feedback used: that’s too strong, say it shorter, it becomes quiet, make it smaller. - The board constantly referred to, comparing students’ productions with the target and making a point of focusing on the extra schwa / missing consonant.	- Ss listen for the sounds when one word ends in a consonant and one starts in a consonant. - Repeat - Repeat - Repeat - Repeat - Repeat - Ss: a soft sound (they may have been referring to the distinction between /f/ and /v/ as one student had said ‘off’ instead of ‘of’ in trying to produce the weak form.) - Ss imitate this well. - Repeat: mixed success - After a great deal of practice 3 Ss are successful. They try unsuccessfully to show Ay the shape of the mouth and position of the tongue. - Mostly correct in the end. - Most of the other phrases mastered after listening and repeating.
Part Four: Recording and Critical Listening (15 minutes plus recording time)	
- After the students had recorded the passage in the language lab booths, extracts from each student’s recordings are played to the group. - First tape: ten examples of errors played - Second tape: five examples of errors played - Third tape: four examples of errors played - Fourth tape: five examples of errors played	- Ss listen and work constructively with the teacher to discuss how they sounded to the teacher and the students, using the metalanguage from before. - Four are not heard by at least some of the students despite listening several times. - Only one error is not identified. - All errors identified. - Only one error is difficult for learners to hear.

Table 4.2 Description of lesson one events

Learner Comment (at the end of the class)

The students begin by saying that they made a lot of mistakes. Bea explains that she now understands how to ‘miss the last letter’ in ‘and’. Cee thinks the best thing is to record themselves and for the teacher to correct them. Ay also likes recording, ‘It is after I recorded the sentence and then I have to hear it and then you can correct it.’ Dee thinks the use of linking words was most useful. Bea supports this saying ‘today I learned this: I know the first words and the last letter and the second words maybe join together.’

Teacher Reflection

The learners found the listening surprisingly difficult. Nevertheless it provided a meaningful context within which to focus on form. The learners responded well to being asked how different syllable codas sounded to them. Apart from the fact that they obviously found them difficult to produce, even when listening and repeating, it was interesting to note how they initially insisted that some sounds were not said at all but with further explanation and practice they accepted that in fact there was something there. It was then a matter of working out what that ‘something’ was. So it was not just enough to ask how it sounded to them, the teacher also had to mediate to get them to understand how it sounded to a native speaker. In these exchanges it became clear that while the learners generally had a reasonably accurate prototype of a /k/, for example, they had still not established the peripheral members of the category. Through this discussion they came to understand that there were allophones which sounded quite different and thus constructed a way of talking about these variations which helped them to develop their phonological knowledge.

Once this explanation had been understood the learners appeared to become much better at imitating the model. One area of potential miscommunication was noted when the teacher used hand gestures to indicate different levels of stress. These were sometimes interpreted as references to intonation. This lack of clarity was resolved through visual representation on the whiteboard.

During the Critical Listening exercises students got better with practice so it seems that this method does help learners to learn phonological category boundaries and improve their speech perception. The method itself involved the participants listening as a group to their individual recordings, which they had made in the language lab, and trying to ascertain whether or not they had got it right. The teacher provided guidance and modeling as necessary to help them understand where the salient differences were. This guidance included the sorts of dialogue discussed above in which learners explained their perceptions and the teacher explained his, supported through visual representation on the whiteboard to help them understand precisely where the salient differences were. Of course one does have to be careful to foster the right sort of atmosphere to make this as unthreatening as possible. The learners' comments after the lesson about the number of mistakes they made show that they are becoming more aware of the problem but they also remind one of the risk of creating an atmosphere of hopelessness.

4.3.2.2 Lesson 2

In which:

- Learners revise phrases in the C+C context
- Learners further develop ways of talking about codas
- The teacher introduces, practices and explains phrases needed for a game
- Learners record themselves and listen critically
- Learners enjoy playing a game which highlights the importance of pronunciation in negotiating meaning.

Description of lesson two events

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Warm up and revision (9 minutes)	
- 'first@ word' and 'first word' on the board (a difficult contrast from the end of the previous session). - T drills just and think - T: How does it sound to you?	- Students spontaneously produce this correctly. - Students give more examples of problem words: fish, church, fresh, catch, touch, touched, just, think. - They can say 'just' and 'think' on their own, but 'just think' is very difficult. - Bea: 'short' - Bea and Dee: 'yes shorter' (maybe short@?), (showing an open mouth with the hand cupped in front to indicate stopping the sound) - Ay: it is weak. - Bea and Dee: 'pronunciation low' showing a downward movement with the hand. - Bea 'yeah low and quickly, short time and quickly.' - Cee said nothing: the others repeated spontaneously a number of times.
Part Two: phrases needed for game (30 minutes)	
- T: checks Ss understand effect of extra schwa in changing meaning and forming a comparative 'This is a drunk snail (pointing to the picture). It drank too much beer. It was in my garden. The snails like my lettuces so I give them beer. They drink the beer and drown. This snail didn't drown. It got drunk. Drunk snail.' - T: pointing to the next picture, 'This snail drank even more beer. This one is a drunker snail'. - T works through the other pictures and phrases on OHT checking meaning and pronunciation.	- Ss repeat 'drunk snail' a number of times. - Ss listen and repeat the two: drunk snail, drunker snail. - Ss: listen and repeat - 'Flat fish' and 'Flutter fish' is difficult. - Cee is putting greater stress on the 'fish' in 'flutter fish'. - Bea changes the tone slightly to achieve the distinction, lowering her jaw to say 'flutter'.
Part Three recording and critical listening (8 minutes plus recording time)	
- T plays extracts of each student's recordings to the group. - T encourages Ss in discussion and use of metalanguage.	- The students record themselves in the language lab repeating the phrases. - Ss work constructively with the teacher to discuss how they sounded to the teacher and the students, Ss use the metalanguage from before. (Recordings show Ss avoid epenthesis but sometimes overcorrect, omitting the schwa when they shouldn't. Ss notice this now when listening.)
Part Four the game (30 minutes)	
- The teacher explains how to play the game and demonstrates with a number of examples. - On a few occasions the teacher has to intervene and correct them. (The game creates an information gap as students have to read what is on one of their cards and if another student has the same card they have to read it back to them. They then show the cards to check. Of course if one of them has said the word incorrectly by adding an extra syllable or omitting a syllable then this is found out when the cards are shown.)	- The students are generally good at listening to what is said and using the cards to check that they match. - The students also negotiate as they check back with each other that they have heard correctly. - Sometimes this involves a number of turns until they are sure they have understood. - They find the game enjoyable and motivating.

Table 4.3 Description of lesson two events

Learners' Comments (after class)

The learners discuss how they feel about the speaking and listening tests which they have just done. Dee is quite definite that it was better than the first time. She goes on to say that through these two classes her pronunciation has improved and that she knows how to link. Bea says she agrees with Dee and thinks the class was good because she now knows how to say /d/ and /t/ and 'and'. Ay says the class was useful for her saying that now she can say 'black and fast' and before she said 'black and@ fast' with a /u/ on the 'and'. She also gives the example of 'tough' and 'tougher' saying that she understands more and can hear the difference.

Cee says she thinks they just need more practice and the rules. She says she knows how to pronounce it but when she listens to the tape it's wrong, perhaps her ears are not working properly. Ay says she also needs her glasses. She is joking but may also have been suggesting she needs to see and hear it. Cee thinks she can pronounce it better if she's reading it than if she is listening and repeating. Dee says she needs more listening practice. Bea says they should take turns reading while the others correct (This approach is adopted in lesson three.).

Teacher's Reflections

They seem to be focusing more on the salient differences and exploring ways to produce them. There is still some concern though that they are focusing on tone. They are also focusing on physical aspects of production, such as lowering the jaw. This is not a problem as long as they don't lose sight of the differences in the sounds. Cee appears to be a little reluctant, not participating as fully as the others.

The overcorrection observed during the critical listening exercise may be a normal function of re-setting category boundaries. This is a common consequence of error correction.

The game was very successful and it seemed that it really gave them the opportunity to experiment with getting the coda right and to get feedback and practice. What is more, they enjoyed it and would have kept playing for longer if they had had the time.

4.3.2.3 Lesson 3

In which:

- Learners are better at understanding the listening text
- Difficult complex codas are introduced
- Feedback and explicit instruction are combined as students respond to visual prompts on the board
- Learners are active in correcting themselves and each other
- The importance of providing a visual representation on the board in focusing attention is seen again
- Learners continue to improve, and increase awareness and critical listening skills

Description of lesson three events

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Introduction (4 minutes)	
- T reviews pronunciation of 'lives' (the noun) from the previous week's speaking test. - T writes contrast on the board: live, liveə, liveəs, lives, five, fiver, fivers, fives. - T models and gives feedback	- Ss: practise and discuss whether to pronounce 'lives' with one or two syllables. - Ss listen and repeat have difficulty with /vz/. - Bea: /v/ not sounded out, 'short time'. - Ss able to produce these words accurately most, but certainly not all, of the time (by the end).
Part Two: Setting the Context – Listening Text (9 minutes)	
- Pictures and title 'health and happiness'. - Ideas elicited & recorded on board - Examples of epenthesis in separate area - Text played	- Ss say what they think are the keys to health and happiness. - Students listen to compare the ideas in the text with their ideas. - Unlike the listening in lesson one, the students are able to identify the ideas which are the same as theirs and appear to understand much of the text.
Part Three: 2nd listening, explicit instruction & corrective feedback. (23 minutes)	
- Questions set for 2nd listening (appendix 2I). All answers include potentially difficult codas - T records students' answers on the board including examples of epenthesis and absence. - T provides further feedback, explanation, and a model where necessary. (Thus the corrective feedback and explicit instruction were combined with the answers to the questions.) - The teacher tries to explain that they have to make the sound together. - T: Can you hear the /d/ in 'thousands'? - T: I can't hear it either (a cross through it on board). - T: notice change in meaning if you don't say the plural 's'. The teacher continues eliciting the rest of the answers.	- Ss listen for answers - Ss provide answers - Ss spontaneously attempt to correct examples written on the board (this did not happen in lesson 1) - Ss play an active role in correcting their peers: - Ay is still having difficulty with 'lives', alternatively omitting the /v/ or using epenthesis, - Bea tries to help by saying 'quickly' and showing her finger on closed lips. - Ay imitates this by closing her lips on the /v/, then opening them and continuing with an /s/. - Cee also tries to help Ay, telling her to close her mouth (not rudely!) indicating with her fingers. - Ay appears to be able to produce it correctly. - Ss: tend to omit the /z/ in 'thousands' in favour of retaining a prototypical /d/. - Ss: No (Clearly spelling interfering with pronunciation.) - Ss: listen and repeat successfully after several turns. - Ss: Provide answers, but also focus on pronunciation. Listen and repeat when necessary.
Part Four: Guided practice, feedback and further explanation (9 minutes)	
T: models phrases on OHT T: No, experts (repeated several times) T realises Ay is focusing on the wrong thing so writes the two words on the board underlining the vowel. T: models further phrases T writes 'dead lines' and 'deader lines' on the board. Models the difference.	- Ss: Listen and repeat - Ay repeats 'exports' for 'experts' - Ay continues to say 'exports'. - Bea explains to Ay: /p/ changes to /b/ - Ay: when I say my name everyone thinks it's a 'p' but it's a 'b'. - Ay now sees that the vowel is the problem but she still finds it difficult to say. - Ss: able to repeat most of the other phrases accurately, although 'deadlines' causes problems. - seems to help although when Ss focus on the /dl/ they tended to omit the /n/ or the /z/.
Part Five: Recording and Critical Listening (18 minutes plus language lab time)	
- T gives learners tapes with phrases from the text, with gaps for learners to record themselves. - T: Can you hear if your voice is different from the model? - T reviews some of the phrases they had difficulty with. - T gets Ss to take turns reading parts of the passage while the others listened and corrected. - T prompts, corrects where necessary.	- Ss: listen, repeat and record themselves in the language lab, and playback to compare with the model. - Ay and Cee: Yes - Bee and Dee: Maybe - Ss: repeat - Bea self-corrects her errors with a prompt, only one error which requires teacher correction. - Ay self-corrects (nearly correctly) after prompts. - Cee has great difficulty in self-correcting 'deadlines' but is able to manage other phrases. - Dee reads with no mistakes.

Table 4.4 Description of lesson three events

Learners' Comments (after class)

Bea says she would like more practice with sentences.

Dee stresses how important it is to make sure you learn the correct pronunciation of a word when you first learn the word. Bea adds to this that it's very difficult to correct old pronunciation.

Ay mentions particular sounds and words which she has had difficulty with and has learned during the lesson (e.g. fresh, lives). Bea feels if she says the word after the teacher she can now say it correctly. Cee says her difficulty is just with new words she doesn't know how to pronounce and with complicated words.

Teacher's Reflections

It is clear that the learners are still having difficulty with a number of particular clusters such as /vz/, /dz/, and /dl/, and need more practice with them.

They handled this listening much better than the one in the first lesson. Either they have already developed some skills and strategies or it was easier.

It was seen again just how important it is to use the board, to clarify with a visual representation, to make sure that everyone is talking about the same thing. This was seen when drawing contrasts and also with the deletion of 'd' in thousands. It was seen more dramatically in its absence when Ay thought the difficulty involved the 'p' in exports when in fact it was the vowel which was the problem. This misunderstanding was a classic case of failed cross-cultural, or cross-phonological, communication. The case of the deleted 'd' in 'thousands' also pointed to the effect spelling can have on pronunciation.

Overall they appear to be gaining in confidence, although Bea still feels she needs a model before she can get it right and Cee does not appear to be fully recognizing the difficulties she has. It is as if she is not noticing the gap between what she says and what native speakers say.

4.3.2.4 Lesson 4

In which:

- Learners review difficult codas
- The teacher provides further controlled practice and feedback
- The learners play another game

Description of Lesson Four Events

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Revision (6 minutes)	
- T: 'When you were talking, I heard you say this.' pointing to 'churchy'. ('church' and 'churchy' written on the board) - T: reviews and practices a number of other items from the previous week (written on board), stressing the effect on meaning.	- Ay: an adverb? (Surprised to find it is wrong.)
Part Two: Introduction of game: listening and repeating words to be used. (45 minutes)	
- T: Introduces phrases for game - T: Models words (with pictures) on the OHT, and in sentences. - T provides explanations about the length of the vowel in e.g. bin and bean. - T works through the other pictures and phrases on OHT checking meaning and pronunciation.	- Cee: I've been playing the animal game with my daughter. It's good. - Listen and repeat (mostly correct) - 'waste' 'wastes' 'waster' and 'wasters' proves to be very difficult: - Ay: 'Is it wasters@ or wasters?' - Bea: change from /s/ to /z/ in wastes / wasters. - 'asks' difficult: Ay: the 'k' is very fast and asks if the intonation on 'asker' goes down. - Bea: 'saved' is 'very tight'.
Part Three: Further practice (un-timed) The learners work on their own in the language lab booths listening, repeating and recording themselves. There is no group critical listening, or feedback from the teacher, with this due to time constraints.	
Part Four: the game (21 minutes) The rules for this are similar to ones for the animal game in lesson 2. The game works well with students showing an awareness of the differences and checking and negotiating carefully.	

Table 4.5 Description of lesson four events

Learners' Comments (After lesson)

Bea says that she has 'learned how to say /ts/ together and how to do 'ted' and 'ters'.' She adds that, 'before it was very hard to compare but during this class I have learned where the difference is and now can compare how it is different.'

Ay is also positive about her progress saying she has 'become a new pronunciation' and demonstrating what she has learned 'like asks, fax, asked, ts is very difficult'.

Bea reflects that if she had been taught how to pronounce 'ts' when she first started learning English it would be easier. Dee follows up this proposing, 'the teacher in every class at every level should spend two or three weeks just teaching and practicing 'ts' and 'td'.'

Cee says that all she needs is 'the base for pronunciation' and she can do the rest herself.

Teacher's Reflections

Unfortunately too long was spent going through the words and phrases for the game. This made the pace of the class too slow and interfered with development of the lesson. It also meant there was insufficient time for critical listening and the card game.

It was interesting that Ay suggested 'churchy' might be a real word, and it would be an adverb. It could conceivably be used as an adjective. There appears to be some confusion between grammar and pronunciation. Perhaps she perceives 'churchy' when people say 'church' and therefore has assigned it a grammatical class.

The focus on intonation came up again, suggesting that learners are assigning too much salience to it.

When it came to asking the learners to take the tests again at the end of the class, they were in the mood to pack up and go. They agreed to stay, but this may have affected how conscientiously they did the tests.

4.3.2.5 Lesson 5

This lesson began with a discussion to gain some insight into how the students were feeling about the classes, especially as the discussion had been rather hurried at the end of the previous week. Cee was absent from this lesson.

See Appendix 2K for materials used.

Learners' Comments (18 minutes)

The learners provide their views on pronunciation learning.

Dee says she reads out loud from the newspaper everyday and her husband, whose English she says is very good, corrects her pronunciation. This gives her confidence. She hasn't been recording her pronunciation at home but thinks it's good to record and listen and discover your mistakes.

Bea says she usually reads in silence but her husband had asked her to read out loud so he could correct her. She doesn't like the idea as she might make mistakes.

Ay and Bea complain that it is difficult to improve their pronunciation because the locals speak too fast and use a lot of slang

Bea suggests to improve, 'we need to spend a lot of time practising and training our mouths and tongues because we've been using the wrong pronunciation for a long time.' and 'We must use both the head and the tongue. My head has the rules, the pronunciation, the rules, and use the rules and the tongue.'

Bea also has some advice for teachers suggesting that, 'if students want good pronunciation the teacher should teach me just like your class how to say 'ts' and 'ds' and use short time everyday, use a short time everyday to teach me pronunciation...use a short time and put in the reading class, and reading the newspaper, maybe the teacher tell me where my pronunciation have problem and on time and correct.' Ay agrees with this saying, 'it should be done daily in Elementary, at a basic level.'

Bea says she understands now when listening to the cassette and can link and say 'asked' in all its variations: 'asked, asked@, ask@ed, and ask@ed@.' 'If I attend your class I know 'asked', but outside 'ask@ed'' Bea says laughing. 'The teacher needs to correct my pronunciation but it's very difficult to change it. I now pay attention to those sounds and to linking and would like to come to another pronunciation course next year.'

Description of Lesson Five Events

In which:

- Learners discover patterns for past tenses and final ‘s’
- Learners practise these patterns
- Learners seem to understand but sometimes they still focus on the wrong cues

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Discovery of past tense pronunciation patterns (30 minutes)	
- T: on the board: rule, ruler, rules, rulers, ruled. - T: models, drills. - T: introduces worksheet, checking the pronunciation of the example words. - T: models other words - T: gazed (gestures downward movement) – repeated many times - T: checks and corrects worksheets	- Ss: What’s the rule@? - Ss: listen and repeat - Ss: Listen and repeat these and the other words assigning them to the correct columns. - Ss: rage@d and rave@d (hard to correct) - Ss: gazed@ (focusing on the teacher’s gestures and then releasing with a rising intonation which becomes a schwa.) - Ay: moves her hand down on the syllable and moves it up as she adds the schwa, ‘gazed@’. - Ss: appear to be focusing on the wrong cues. - Ss: complete worksheet (with some help) and establish patterns.
Part Two: Practice exercise: past tenses (20 minutes)	
- T: explains activity and gives out cards, each with one verb in the past tense on it. (see appendix 2K)	- Ss: work in pairs (one with teacher) taking turns saying the words while their partner writes: t, d, or id on the back. - Ss: put cards into 3 piles, practice saying words in each pile (They are accurate and correct each other well)
Part Three: Introduction of 3rd person ‘s’ (15 minutes).	
- T: introduces the worksheet in the same way as the worksheet for past tenses - T: models words, some require multiple repetitions, especially ‘rages’ - T: write down extra words for homework.	- Ss: start on worksheet - Ss: repeat and complete worksheet, tend to say ‘rag#(e)s’ - Ay: sob@s (many times, still not correct) - Ss: describe the pattern and in checking answers say most words accurately.

Table 4.6 Description of lesson five events

Teacher’s Reflections

During the classroom discussion, the learners showed that they had become much more aware of epenthesis and were able to produce contrasting examples. It was seen yet again, with the pronunciation of gazed@ that learners tended to focus on intonation more than the additional schwa. Although the students really liked having the rules for the past tense, and they seemed to help in some ways, there were still

words which were extremely difficult. It was unfortunate that Cee was absent from this session as she was the one who seemed to be the keenest to have the rules. The timing for this lesson was a bit out. The class started with the discussion, which went on for some time and encroached a little on the planning for the rest of the class. It had been hoped to do the practice exercise with the 3rd person 's'. This meant there was no time to do a re-test, this re-test now being postponed until the middle of the next lesson.

4.3.2.6 Lesson 6

In which:

- Learners revise past tenses and final 's'
- Learners practise final 's' and become more accurate
- Learners practise critical listening with the actual test items

Description of Lesson Six Events

Procedures: Teacher action & response	Observations: Learner action & response
Part One: Revision of past tenses (11 minutes)	
- T: Reviews past tenses - T: stresses differences, on the board - T: Extra drilling of 'raged' / 'rag@ed'	- Ss: listen and repeat - Ss: listen and repeat - Ss: practice many times: rage@d and raged (appear to understand and produce the difference)
Part Two: Revision of final 's' (15 minutes)	
- T: elicits (from previous lesson's worksheet) - T: using board corrects and models as needed	- Ss: provide words orally - Ss: listen and repeat (rages & sobs are difficult) - Ay: says 'sobs' correctly but not confident
Part Three: Practice exercise - 3rd person 's' (15 minutes).	
- T: explains activity and gives out cards with a different verb in the 3 rd person on each one. - T: monitors, providing feedback where needed.	- Ss: work in pairs, taking turns to say the words while the partner writes: s, z, or iz, on the back - Ss: put cards into 3 piles, practice saying words in each pile (They are accurate and correct each other well)
Students now do the speaking and listening tests	
Part Four: Critical Listening – test examples (14 minutes followed by language lab practice)	
- T: plays examples of test items said correctly and incorrectly - T: highlights differences on board and models, explains using established metalanguage.	- Ss: listen critically - Ss: generally (though not always) able to hear and repeat differences, especially after further listening and explanation.

Table 4.7 Description of lesson six events

The students then do the speaking and listening tests again. There is no group discussion after class.

Teacher's Reflections

This class was a little rushed, as there was not enough time to go through and check the pronunciation of all the test items. Nevertheless, the most difficult cases were reviewed, and even though they were still far from perfect, they do appear to have made considerable progress both in terms perception and production.

4.3.3 Overview of Quantifiable Results

4.3.3.1 Tough Phrases Test: Speaking

	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
Ay	27(25+2)	13(12+1)	14(11+3)	12(8+4)	No record*	12(8+4)
Bea	24(20+4)	14(6+8)	17(11+6)	13(7+6)	9(4+5)	9(5+4)
Cee	26(22+4)	11(8+3)	21(16+5)	18(14+4)	18(16+2)	21(18+3)
Dee	16(8+8)	6(1+5)	3(1+2)	6(3+3)	3(1+2)	7(3+4)

Table 4.8 Number of errors on the Tough Phrases Test

Notes: 1) The numbers in brackets represent 'epenthesis + absence'.

2) Time 1 = pre-test, Time 2 = post lesson 2, Time 3 = post lesson 4, Time 4 = mid lesson six, Time 5 = end lesson 6, Time 6 = delayed test (8-18 months)

* There are no results for Ay at time 5 as her tape did not record.

As seen in Table 4.8 above and Figure 4.1 below, three of the four participants made and retained gains on this controlled speaking task. The fourth participant, Cee, made good initial gains but regressed between times 2 and 3 and then made little further progress as measured by this test. It is interesting to note that, aside from Cee, the other students were in the same rank order at the end of the study as at the beginning. This could be a factor of aptitude, but given the small sample no conclusion can be drawn here.

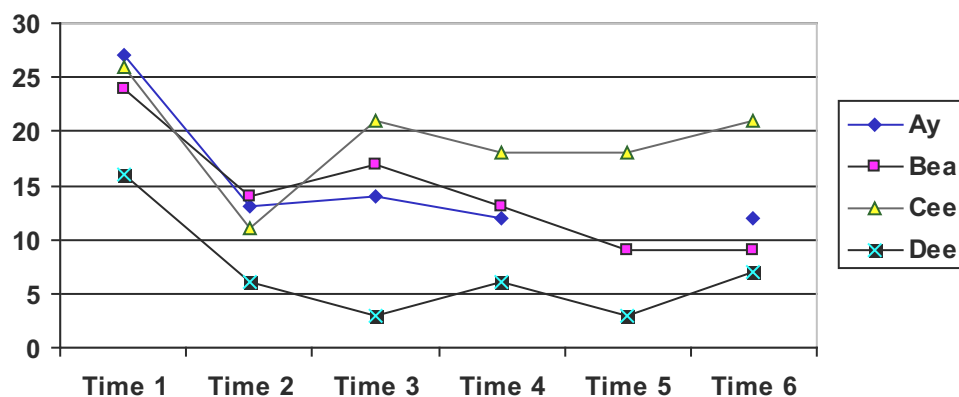


Figure 4.1 Total number of errors on the Tough Phrases Test

4.3.3.2 Listening Discrimination Test

Listening	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6
Ay	16	20	15	15	16	14
Bea	14	10	12	11	12	*
Cee	15	15	14	15	13	12
Dee	18	19	9	17	12	10

Table 4.9 Number of errors on listening discrimination test (out of 40)

*Bea did not do this test during the delayed interview.

The results on the listening discrimination test do not show the same sort of improvement as seen on the speaking test. Dee appears to have made some progress while the other three have made at best very slight improvements.

4.3.3.3 Paragraph Reading

Paragraph reading	Time 1	Time 2	Time 3
Ay	35(33+2)	14(14+0)	16(15+1)
Bea	37(32+5)	23(21+2)	14(10+4)
Cee	30(17+13)	20(13+7)	13(13+0)
Dee	34(27+7)	18(14+4)	19(14+5)

Table 4.10 Number of errors on paragraph reading task (epenthesis + absence in brackets)

The overall trend for each learner is evident from Table 4.10 above and Figure 4.2 below. On this reading task, all four learners had improved considerably by the end of the course and had retained, and in some cases extended, those improvements at the time of the delayed post-test.

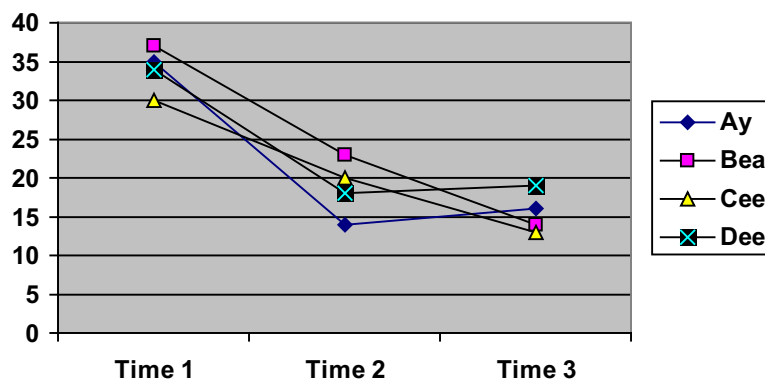


Figure 4.2 Number of errors on paragraph reading task over time

4.3.3.4 Giving Directions

Giving directions	Time 1	Time 2	Time 3
Ay	42(41+1) 28%	12(12+0) 10%	9(9+0) 11%
Bea	55(53+2) 37%	32(32+0) 22%	26(25+1) 17%*
Cee	28(28+0) 29%	12(12+0) 12%	25(25+0) 25%
Dee	36(36+0) 23%	9(9+0) 9%	7(7+0) 8%

Table 4.11 Number of errors on directions task (epenthesis + absence in brackets) and % error rate

*On a second attempt she made just 11 errors on 125 words = 9%

On this task, which was the least formal and most open-ended, all four participants made considerable progress between the pre- and post-tests. As is clear from Table 4.11 above and Figure 4.3 below, three of them retained, and in two cases extended, these gains over time. The fourth one, again Cee, had lost most of these gains by the time of the delayed test.

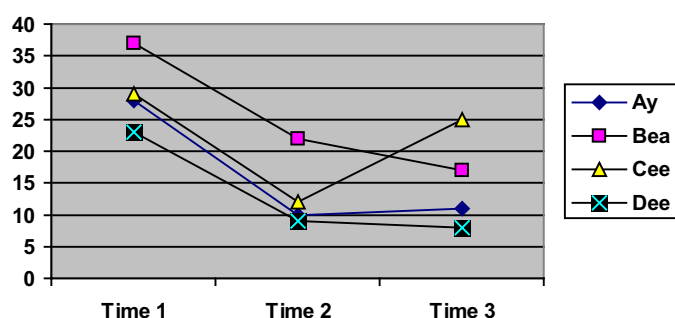


Figure 4.3 Percentage error rates on directions task

4.3.3.5 Test of Spelling and Pronunciation

As can be seen in table 4.12, three of the participants made considerable improvements on this task between the pre- and post-tests. The fourth participant, Cee, achieved a similar score to the others on the post-test, but this was no improvement over the pre-test at which time she had been twice as good as the others.

Correct on 1 st attempt	Time 1	Time 2
Ay	8/25	15/25
Bea	8/25	15/25
Cee	16/25	15/25
Dee	8/25	19/25

Table 4.12 Number of items (out of 25) which were pronounced correctly on the 1st attempt

4.3.3.6 Testing for Rater Reliability

To check for rater reliability Ay's Tough Phrases Test, Paragraph Reading and Direction Giving tasks at pre- post- and delayed times have been blind second marked. Ay was chosen as her results show clear improvement being retained over time across all three tasks. The Tough Phrases Test at Time 4 was taken as being representative of a post-test, as no data was collected at Time 5.

A significant Pearson correlation of $r(7) = .987, p < .001$ was found. There was a difference in the mean scores of the two raters, with rater 1 finding a mean of 19.9 errors and rater 2 finding a mean of 16.3 errors. Upon further discussion with rater two, the questions of difference revolved around how to interpret the unscripted speech in the direction giving task (i.e. was that meant to be an extra word or was it epenthesis), and whether or not the additional vowel sometimes perceived by rater 1 was an acceptable example of a careful reading style. Despite these slight differences in interpretation, what is important is that they have been applied consistently. The evidence that this did in fact occur is provided by the high level of correlation.

4.3.4 Interview Tasks and Post Interviews – by Learner

4.3.4.1 Ay

Summary of performance on interview tasks: Ay			
Giving Directions	Pre-	Post-	Delayed
Errors (epenthesis + absence). As a % of words used.	42 (41+1) 28%	12 (12+0) 10%	9 (9+0) 11%
Observed response to re-casts (re-casts not always made)	Re-casts repeated, Epenthesis retained	No re-casts	No re-casts
Paragraph reading	Pre-	Post-	Delayed
Errors (epenthesis + absence).	35 (33+2)	14 (14+0)	16 (15+1)
Prior to reading aloud	No questions	No questions	No questions
Questions/comments after reading	Says 'spar@s@ely', asks how it is said but after listening and repeating 3 times still says 'spars@ely'. Can not hear the difference.	No questions	Asks about and can correct: vanish@, habita#(t)s, damag@ed, and scarred (confused with scattered)
Sounds and Spelling (25 items)	Pre- (number per category)	Post- (no. per category)	
Correct at first attempt	8	15	
Self-corrected	0	3	
Prompt – no model	0	3 ¹⁾	
Listen and repeat (once)	1	3	
L & R several times: sometimes correct	0	1	
L & R several times: not correct	16 ²⁾	0	
Notes: 1) when asked, 'why wince#(s)?' she immediately corrects herself, saying 'oh, winces, because of the rule you told us'. She also refers to a rule in correcting the epenthesis in, 'fantasised'. When told that 'naked' is an adjective, she says, 'oh not past tense?' and produces it correctly. 2) still saying 'rav@es' after 16 attempts.			
Critical Listening: Post-Interview only (12 items)			
- Ay listens to the first item a few times while she works out what she is meant to do, but is eventually able to mark where the epenthesis is. - She then correctly shows the epenthesis for the eleven remaining items. - For item 7 there are three instances of epenthesis: lov@es@ secret@s. Here she notes the first two but not the third. - In item 11 there are three instances of epenthesis: silk@ stockings and@ tight@s. Here she notices the second and third but not the first.			

Table 4.13 Summary of performance on interview tasks - Ay

Immediate Post-Interview: Ay

In response to being asked how she would explain the problem of the extra vowel to a friend Ay says, 'yeah different we learned, I pronounced it pink@ flamingo but you taught us be careful in the pink, pink flamingo, but this one is pinker flamingo' Here she points to the two words, pink and pinker which are written down and pronounces them correctly. She says it is still hard sometimes but the easiest way is to join the

words. She explains that before she didn't know how to say it, no one had taught her, but now she has learned to say the final sound more softly, and she can say it on its own.

Delayed Interview

Discussion of speaking and listening tests:

After being told of her mistakes on the Tough Phrases Test, Ay is able to repeat all but one item correctly ('five lives' alternated between putting epenthesis on either 'five@' or 'liv@es'). There is also a discussion after the listening test in which Ay says she still can't distinguish: 'baked fish' 'asked' 'twist top' and 'waits forever'.

Learner's comments

When asked what she remembers about the pronunciation classes she provides as an example, the difficulties with /ts/. She adds that 'fish' and 'church' (saying both correctly) are very hard for Koreans to say. She suggests Chinese have an advantage because they are 'more international' and then moves on to talk about the confusion that can be caused by difficulties with 'ts' and 'th'. She says that the other day someone asked her where she lived and she pronounced 'Northcote' very slowly and they understood her. Before, they never understood her, especially when she lived in Takapuna and she put the stress on the wrong syllable.

Ay then recalls some of the activities done in class. As seen in the quote below she remembers the card game as interesting and enjoyable. She also stresses the need to understand, to compare, and to practice, as well as a role for rules:

'One day you gave us some cards to play, very interesting, really enjoyed it. One day you gave us some pronunciation together. We could understand more easily. For example, you gave us a rule and then we have to practice. I understand more if I can compare pronunciation, comparing we can understand very easily. Comparing you

and student is better. After we learned the rule and compared your pronunciation and my pronunciation and then practised.'

She is still most concerned about listening and pronunciation, 'Pronunciation is very important because sometimes I cannot explain my mind very correctly. I feel happier about my pronunciation now.'

4.3.4.2 Bea

Summary of performance on interview tasks: Bea			
Giving Directions	Pre-	Post-	Delayed
Errors (epenthesis + absence). As a % of words used.	55 (53+2) 37%	32 (32+0) 22%	26 (25+1) 17% 11 (11+0) 9% (2 nd attempt)*
Observed response to re-casts (re-casts not always made)	3 Re-casts repeated, Epenthesis retained on all	several re-casts repeated: 3 without epenthesis	No re-casts.
* Bea is not happy with her performance (a lot of pauses, hesitations and false starts), and tries again, and is much more fluent and focused on getting the form right.			
Paragraph reading	Pre-	Post-	Delayed
Errors (epenthesis + absence).	37 (32+5)	23 (21+2)	14 (10+4)
Prior to reading aloud	No questions	No questions	No questions
Questions/comments after reading	No questions	No questions	Asks about some words, can repeat them accurately and comments, 'I know what you mean but I can't always do it.'
Sounds and Spelling (25 items)	Pre- (number per category)	Post- (no. per category)	
Correct at first attempt	8	15	
Self-corrected	0	1	
Prompt – no model	2	1	
Listen and repeat (once): correct	9	8	
Listen and repeat 2+ times: correct	4	0	
L & R several times: sometimes correct	1	0	
L & R several times: not correct	1	0	
Notes: 1) Bea explains her thinking for a number of items during the pre-task • trac@ed: 'the last letter is 'ce' and the past tense is 'd' not 't'. • 'placat@es'. Having said it with pauses 'pla' 'cate' 'es' she is asked if she thinks it is 'ts' or 'tes' to which she replies, 'I remember my teacher in China tell me is 'ts' maybe 'ts', maybe 'tes', maybe between t and s is e, ah placat@es.' She listens and repeats accurately. • There are a number of other examples which show an awareness of how to pronounce the additional vowel and of not being sure when it is meant to be pronounced. • She explains that the 'e' in 'hatchet' is pronounced because it ends in 't'. • Conversely in a word which ends in 'ed' such as 'thatched' she believes the vowel needs to be pronounced and has not noticed that in fact those final 'd's' are /t/ sounds. • She is also led astray by the appearance of the word 'red' within tendered which encourages her to add an extra syllable. 2) During the post-task, when asked why she added an extra sound in 'thatch@ed' she replies, 'No, I know no sound but couldn't say it.' repeating it accurately.			
Critical Listening: Post-Interview (11 items)			
• Bea listens to the first item several times while understanding the task requirements, and needs some prompting before she notes the extra schwa, but is eventually able to mark where the epenthesis is. • She then correctly shows the epenthesis for most of the remaining items. • 'You liked@ him' causes some confusion as she focuses on the deleted 'h' in 'him'. After being told that is alright and listening again, she hears an extra schwa but marks it after the 'k' and says there is no /t/.			
Critical Listening: Delayed Post-Interview (11 items)			
Bea needs to hear the first three items two or three times to hear the differences, but she hears the differences on the remaining items straight off.			

Table 4.14 Summary of performance on interview tasks - Bea

Post Interview

Bea begins by talking about the importance of word and sentence stress. She also wants to know more about linking words, saying that ‘You taught me how to link ‘of’ and ‘but’, but there are a lot of link words I don’t know how to say.’ She says she has just been talking to Dee and they feel that their teachers in China have either taught them the wrong pronunciation, or she has learned it incorrectly. Either way, the problem is that now her pronunciation is wrong and it has become a habit which she can’t change, especially when she is speaking without thinking about it, ‘Yes, pronounce is habit, don’t think and just fast and...[laughter] so this pronunciation fix in my head for a long time, in short period time to change is very difficult.’ She thinks the only way to change this would be if she had lots of different types of worksheets and sat down with her friends for an hour after class every day and practised for a long time, and maybe then she could remember how to say the words or the sentence or the rule. She says the real test of any pronunciation learning is if another Kiwi understands her, and stresses again the need for much more practice to change her habits.

In terms of the actual teaching, Bea says all the examples helped her to understand but she had difficulties with some of the language. She says that in her country there was always a schwa after the ‘t’ and ‘d’ and she now understands that in English that is wrong. However, she also talks about the difference between the final ‘t’ and ‘d’ as if this were extremely important and appears not to fully understand the effect of the extra schwa.

After the critical listening task Bea comments, ‘I need to pay more attention to the d@, the @,...light sounds maybe better than every sounds in every word is clear...I think maybe just the ‘t’ and ‘k’ at the end of words just very quickly and light.’

After the direction giving task she says she was nervous because she knew she had a problem with t@ and d@ and if she didn’t think about it she would get it wrong, but she didn’t have time to think about it.

Delayed Interview (18 months)

As already noted, this interview occurred 10 months later than the other delayed interviews. Because Bea had already done the pre-tests for the 'chapter five study' she was not asked to do the old listening test again. However she did do the critical listening task as well as the direction giving and paragraph reading tasks.

In response to being asked what she remembers about the pronunciation classes she replies, 'I remember the extra sounds. This was a big problem, if I pay attention maybe I can do it.'

She then asks about the various allophones of /t/ and /d/ in word initial and final positions, as well as variations in other consonants. She concludes that the sounds at the beginning are said more loudly and that the ones at the end are quiet.

4.3.4.3 Cee

Summary of performance on interview tasks: Cee			
Giving Directions	Pre-	Post-	Delayed
Errors (epenthesis + absence). As a % of words used.	28(28+0) 29%	12(12+0) 12%	25(25+0) 25%
Observed response to re-casts (re-casts not always made)	Re-casts repeated, Epenthesis retained	1 re-cast: repeated accurately and pract- ised several times	No re-casts
Paragraph reading	Pre-	Post-	Delayed
Errors (epenthesis + absence).	30(17+13)	20(13+7)	13(13+0)
Prior to reading aloud	No questions	No questions	No questions
Questions/comments after reading	No questions	No questions	No questions
Sounds and Spelling (25 items)	Pre- ¹⁾ (no. per category)	Post- ³⁾ (no. per category)	
Correct at first attempt	16	15 ⁴⁾	
Self-corrected	0	0	
Prompt – no model	0	0	
Listen and repeat (once)	8	10	
L & R several times: sometimes correct	0	0	
L & R several times: not correct	1 ²⁾	0	
Notes: 1) Pre-test comments and observations: • She says she just guesses from the spelling or knows from similar words, or other patterns such as 'k followed by t'. • She makes notes using the schwa and other phonemic symbols • She asks several times if the final consonant is a /t/ or a /d/. 2) Item 23, lapses, proves to be impossible despite at least a dozen attempts. She tends to aspirate the /p/ as in an initial position and this contributes to the additional schwa between the /p/ and the /s/. 3) Post test: Cee comments that she uses the rule to help her. In the case of 'spirited' which she says as 'spirit' both times, she says, 'because you know I always put the strong 'd@', so I learned to leave it.' She also notes that she knows the word 'spirit' from church. 4) They are not exactly the same items as in the pre-test. She gets three right which she got wrong in the pre-test and she gets four wrong which she got right in the pre-test.			
Critical Listening: Post-Interview only (14 items)			
• Cee needs a lot of prompting on the first item and still can't hear the difference until it is explained where the extra vowel is. Finally, she says she can hear it. • For the second item, 'They thanked him' she notices the extra schwa on the first one, but also thinks the second one is wrong because the final sound is more like a /d/ rather than a /t/. • For one item she hears the schwa but shows it in the wrong place. She is able to get two further items correct after listening three times, and with a little prompting. On two other items she can't hear the difference. • Cee gets the remaining 7 items correct.			

Table 4.15: Summary of performance on interview tasks - Cee

Post-Interview

Learner's comments

Cee comments that the lessons helped, 'when I finished this lesson I think I improve my English pronunciation. Sometime before the lesson I have confused some words, some rules.' As examples she talks about the past tense and a word like 'grinned' which she had pronounced with a /t/ but now she knows it is a /d/. In discussing the

listening she says it is still difficult to hear the difference, for example sometimes she can hear the difference between 'time table' and 'times table' and sometimes she can't. She offers further examples which are difficult: wave/waver, tie/tight, pink/pinker, and it's secret/it's a secret.

Delayed Interview

Learner's comments

When asked what she remembers about the pronunciation class she said, 'Yeah, because you know I learn the bible every Wednesday.' Someone comes to her house every week and tells her about the bible and she reads it too sometimes. When it is suggested that is good because she is practicing her English too she says, no, she just wants to know the bible. When asked again about the pronunciation class, this time she responds, 'But you know my pronunciation always extra sounds you know.' When asked if she can hear it herself she says, 'But I just think my pronunciation is wrong. I forget.'

She is now working as a housekeeper in a hotel. She is working on her own and there is no opportunity to speak. When asked if she speaks to her ten-year-old daughter in English she says, 'Sometimes, we just play.' Cee said her daughter's pronunciation was good because, 'she likes reading, her English improves.' She says she doesn't practise enough and no one can correct her all the time but sometimes she asks her daughter who sometimes corrects her.

Cee says she thinks pronunciation is important and that her pronunciation is OK but she'd like it to be better.

After the listening test, the interviewer discusses some of the items with her and she is able to produce them correctly, following a model.

4.3.4.4 Dee

Summary of performance on interview tasks: Dee			
Giving Directions	Pre-	Post-	Delayed
Errors (epenthesis + absence). As a % of words used.	36(36+0) 23%	9(9+0) 9%	7(7+0) 8%
Observed response to re-casts (re-casts not always made)	3 Re-casts repeated, 2 correct, 1 with epenthesis	2 x self-correction following prompt*	No re-casts
* In all the other interviews, the prompt has always been as a recast of the correct form. Here following her use of epenthesis Dee is asked, 'First@ Road or First Road?' and 'second@ crossing or second crossing?' Dee can hear the difference between the two making it easier to offer this choice.			
Paragraph reading	Pre-	Post-	Delayed
Errors (epenthesis + absence).	34(27+7)	18(14+4)	19(14+5)
Prior to reading aloud	Takes time to read silently first	Takes time to read silently first	Asks for help with the meaning and pronunciation of some words (habitat, sparsely, scarred, mismanagement, campaign, marvels).
Questions/comments after reading	No questions	No questions	No questions
Sounds and Spelling (25 items)	Pre- ¹⁾ (no. per category)	Post- (no. per category)	
Correct at first attempt	8	19	
Self-corrected	3	0	
Prompt – no model	0	3	
Listen and repeat (once)	14	3	
L & R several times: sometimes correct	0	0	
L & R several times: not correct	0	0	
Notes: 1) Pre-test comments and observations:			
- Difficulties are: /ts/ in placates, the /zd/ in fantasised and the /ps/ in lapses. - In some cases she thinks there is meant to be an extra syllable such as in 'raked' and is easily able to repeat the correct pronunciation. - In other cases such as 'encourages' and 'rages' she attempts to pronounce (unsuccessfully) the final 's' with no preceding vowel as she thinks there is not meant to be one. This she is also able to quickly correct. - To test if she can hear the additional schwa she is asked to distinguish between, ruptured@ and ruptured, and tendered and tendered@ (errors she made on her initial attempt) and she is able to do this.			
Critical Listening: Post-Interview only (12 items)			
- On 11 of the twelve items, she hears the epenthesis and/or absence the first time around. - The only item which she has to listen to again is 'She told@ storie#(s)'. The first time she hears it she says it is correct. When prompted to listen again she notes the missing 's' and after listening a third time she notes the extra schwa.			

Table 4.16 Summary of performance on interview tasks - Dee

Post Interview

Learner's comments

During the post interview Dee suggests that while it is good to teach pronunciation it has to be done from the early stages. She also feels this teaching needs to focus on the

individual phonemes and that this is what is missing from the courses. In response to the suggestion that stress might be important she says she knows stress but it's no good if the pronunciation [of phonemes] is incorrect. Dee explains that if she comes across a new word which she doesn't know how to pronounce then she just guesses using what she already knows from similar words. She adds that the stress is wrong though. When asked if she can hear the difference when there is an extra schwa, she says that she can but that she often forgets when she is talking. She also feels that she needs to work on the phonemes and that some words are confusing.

Delayed Interview

After the Tough Phrases Test, Dee is asked to say some of the ones she got wrong. She then produces them correctly without a model. In the same way, after the listening test Dee is asked to listen to some of the contrasts and to try and say them. She still has difficulty with /ts/ contexts (e.g. It's true, tights, waits).

Learner's comments

Dee says pronunciation is very important and she feels it has improved and she is happy with it now. In discussing pronunciation difficulties she says the problem is with knowing how to pronounce new words and correcting 'old words' which she pronounces incorrectly. She says she still finds some of the individual sounds difficult.

She tries to practise her pronunciation for an hour everyday but is sometimes too busy. She likes to do this by reading articles from the newspaper out loud. When she comes to new words she practises them several times in a sentence until they become more natural. She also thinks it is very important to communicate in English, to go out into the community and listen and talk to the locals, and to focus on imitating the local accent.

She has just completed another semester of English study and says that the teacher sometimes corrected their pronunciation in class but she would have liked more correction. She also says that was the only help they got with pronunciation.

She reiterates that it is very important to learn the correct pronunciation from the beginning and because she didn't do that it is very hard to change her habits. Her advice to teachers is to give rules and explanations of how sounds are made from the 'basic class'. She also thinks correction and listening to special pronunciation texts are important along with practice listening and repeating.

4.4 DISCUSSION

This section begins with a discussion of the quantifiable changes before moving on to consider the qualitative evidence of concept formation processes. This is discussed first from the point of view of what was observed in lessons as learners interacted with various methods and techniques used during instruction, and related learner and teacher comments. Then it is considered from the perspective of the interviews with individual learners.

4.4.1 Quantifiable Changes to Learners' Use and Perception of Epenthesis and Absence

Due to the qualitative, ethnographic nature of this study, and the small sample size, no effort has been made to establish statistical significance for these results.

Nevertheless, they do present an interesting picture of how these particular students developed their pronunciation over time and in relation to the course of instruction.

Three of the four learners have made considerable gains while the fourth may have improved marginally in terms of controlled production on the Tough Phrases Test. As was seen in Table 4.8, all four learners made major gains between Time 1 and Time 2, that is, during the first two lessons. Ay, Bea, and Dee have continued to consolidate these gains and retained them over time. Cee however, appears to have lost most of these gains and, on this task at least, made no further progress. Cee was also absent from Lesson 5. It has been noted that the test at Time 3, after lesson 4, was not held

under ideal conditions as the students were in a hurry to leave. There are also no results for Ay at time 5 as her tape did not record. Of course this quantitative data does not tell us if the initial impact would have been the same if lessons 3 and 4, or 5 and 6, had been done first.

As was seen in Table 4.9 changes on the listening discrimination test are not large. The delayed tests do appear to be marginally better but one would be reluctant to draw any conclusions from this. Dee may have made gains here, if one compares the results at times 1, 5, and 6.

It appears that this test was still not sensitive enough to discern changes in speech perception. One way to improve the design of this test would be to give learners the opportunity to listen more than once. It is of course also possible, that there were no changes in perception, but the qualitative evidence collected would seem to suggest otherwise. Learners' responses to some of the items are probed during the interviews. The post-test interview also explores learners' speech perception through a critical listening task which appears to gain more useful insights into learners' concepts. It would seem that such a test, though more qualitative might provide a better measure of changes in speech perception. However, the relationship between perception and production is complex and requires further research as it is not well understood.

Improvement on the paragraph reading test is clear for all four learners, and these improvements are retained over time, with two learners actually continuing to make further gains between the post and the delayed tests.

On the direction giving task, which is less formal and requires learners to formulate their own production, all four learners have improved considerably between the pre- and post-tests, with one losing those gains on the delayed test, two maintaining them, and one actually furthering them. Cee has lost most of the gains made on this task. Ay and Dee have retained the gains they made and Bea has increased her gains. During this task the interviewer would often prompt learners with a re-cast, i.e. repeating the word or phrase correctly with a questioning intonation in much the same way as this would be done in regular conversation to confirm that something had been heard correctly. Clearly, this could not be done after every error as it would completely

destroy the flow of the conversation but it was done when it could be done naturally. As was noted in the interview results there were some interesting differences in the extent to which learners could successfully correct themselves.

As is shown in Table 4.12, three of the four students have improved on this test of spelling and pronunciation from the pre- to the post test. The student who hasn't improved did however do twice as well as the others on the pre-test. Further detail on the performance of the individuals, shows that there are also very clear improvements in terms of ability to self correct and listen and repeat.

In conclusion, at least three of the four learners have achieved clear gains in production across a range of contexts and these have been maintained over time. The reasons for these differences are explored within the discussion of the qualitative results.

4.4.2 Observations of Learning Processes during Instruction

In general terms, learners have become much more aware of their mistakes. They have become aware of what the problem is although they do not all fully understand all the details. They all feel their pronunciation has improved, and are able to discern differences between their production and the target production. It was noted that the listening activity, especially the one used in lesson one, which was planned as a way of providing a context for the focus on epenthesis and absence, proved to be difficult. The level should have been appropriate given the class they were in, suggesting their listening skills were quite weak. In most cases they knew the meanings of the words so it can be assumed they knew the written form but failed to recognize them in the spoken context. The relationship between weak listening skills and pronunciation difficulties is not really surprising and would be worthy of further research.

4.4.2.1 Talking about Pronunciation

This mainly involved: encouraging learners to describe their perceptions of the target pronunciation, teacher use of visual representation on the board to focus attention on salient aspects of pronunciation, and teacher explanation.

The input provided by the learners in discussing how they heard the target sounds was very fruitful in providing a means of communicating about pronunciation. Of course it was necessary for the teacher to intervene in order to help them fill in the gaps. For example, in listening to complex codas in words such as 'looked' the initial response was, 'oh, there is no /k/' and that the final sound was a /t/ even though it was written as a 'd'. Then after further listening and input from the teacher such as, 'I can hear a /k/', they suggested 'leave place but no sound'. This seems to be suggesting that there is space for the sound but it is not articulated. After still more reflection and discussion amongst themselves they then felt that there was a /k/ but it was 'quiet' or 'little'. They then expressed it inversely by saying 'the /t/ is stronger than the /k/'. Other examples of learners discussing their perceptions of sounds were seen with weak forms such as 'and' and 'of' which were described as 'soft sound'. In trying to pronounce 'just think' they described the coda of 'just' as 'short' and demonstrated with their hands the need to stop the sound. They also used their hands to show a downward movement suggesting the pronunciation was 'low', 'quick' 'short time and quickly'. Not all of these ways of thinking about the sounds will necessarily help but they tell the teacher about their perceptions. The teacher can in turn use the more relevant aspects of their perceptions to help them better understand the native speaker perception.

Clearly one danger, is that learners may place too much emphasis on intonational cues as evidenced by students asking questions about intonation when that was not the teacher's intended focus. This can be averted or resolved through the sort of dialogue described above in which the teacher and learners work together to establish commonly understood metalinguistic communication, i.e. descriptors such as 'stronger' and 'short'.

To be most effective, this dialogue needs to be supported through a visual representation on the whiteboard of the contrast in conjunction with the auditory contrast provided the teacher. Thus the teacher points out the critical differences between pronunciation X and pronunciation Y from the perspective of a native English speaker. In practice it went like this: first of all the teacher made it clear to the learners exactly where the problem was by writing the target word on the board and

using a schwa symbol (which they already knew) to show the epenthetic vowel. This vowel was generally a schwa, although in the case of the Korean speaker it might be an /i:/ (following sh/ch) or a /u/ (following /d/). Likewise learners focused on trying to say words together as a way to avoid epenthesis (shown by joining lines on the board) and also words which are generally deleted were also crossed out, on the board. The teacher then attempted to combine this with the learners' descriptions in explanations and in providing corrective feedback by using expressions such as: too strong, shorter, quieter, and smaller. The learners' comments after class and during interviews showed that they had noted this with comments to the effect that their pronunciation had improved because they knew how to link, how to say /t/ and /d/ and not add an extra schwa, how to say /ts/, also that they could hear the difference and understood more. The effectiveness of the board was often seen in its omission, especially when listening and repeating. These issues are discussed in the next section.

4.4.2.2 Practice and Feedback

This section discusses implications for the role of listen and repeat type practice, pair and group work for less controlled practice, and corrective feedback.

In many cases learners were able to listen and repeat accurately. This was seen both in class and during the interviews. It was also seen that they were better at listening and repeating by the end of the course. Therefore this technique, which is probably the most widely used by teachers, does have considerable value for students. The learners themselves were also motivated to keep on listening and repeating until they got it right, even though it may appear to be a painfully boring activity.

However, there were also a number of cases where listening and repeating appeared to achieve nothing, or even further confusion. In particular, when learners are relying solely on their ears they are likely to pick up on cues which are salient to them but which are not necessarily relevant to the native speaker.

As already noted, examples were observed in which intonation, possibly inadvertently supported by the teacher's hand gestures, can mislead students. One case in point was when the teacher modelled the pronunciation of 'gazed' and at the same time showed

a downward movement of the hands. The students' interpretation was of falling intonation, which they focused on but then when they got to the end of the /d/ they stopped concentrating and released it as for an initial /d/ thus adding an extra schwa producing 'gazed@'. The use of a visual representation on the board to show the difference did help but it was not enough alone for all the students to understand. Students also provided each other with feedback to stop when they got to end of the word and not keep going and thus produce the extra schwa.

Another example was seen with the pronunciation of 'expert' versus 'export'. Here the teacher provided a correction but the student thought the focus was on the /p/ whereas in fact the problem was with the vowel. This was easily clarified with the use of a visual representation on the board.

It was also seen that when learners focus on one part of the word the mistake migrates to another part as in the case of 'deadlines', where when they got the /dl/ right they started having trouble with the /nz/.

Another difficulty is the influence of spelling, as learners often feel they have to pronounce a sound for every written letter. This was seen in the case of the 'd' in thousands which led to epenthesis when listening and repeating and was only able to be resolved when the teacher wrote it on the board, crossed out the 'd' and explicitly told them not to say it.

In conclusion listening and repeating is useful as long as it is clear to the students exactly which aspects of pronunciation need to be focused on, i.e. it often needs to be carried out with the support of the written form and in conjunction with the appropriate explanation using metalanguage for which both teacher and student have developed a common understanding. The role of corrective feedback in this process is clearly of central importance.

The pair and group work activities were also observed as providing good opportunities for further practice and feedback. The animal game in particular was commented on as being both fun and useful. Even though these activities are not really authentic communication within a traditional communicative approach they

appeared to be of great benefit to the students. They presented an information gap which was based on differences in meaning and as such helped learners to explore and establish the phonological boundaries as they focused on both form and meaning.

4.4.2.3 Critical Listening

It was seen that once students got used to the idea, they become much better at picking up the salient differences. While they still had difficulties in hearing some of the differences, practice seemed to help. They also commented that this activity was particularly useful. During the post-interviews it was also observed that three of the four students had in fact become quite proficient at this, with the fourth student also developing some skills.

It would seem that this skill is something which teachers should help learners to develop as it would be expected to play an important role in the concept formation process, i.e. understanding the important features of the various categories and their boundaries.

Again, the role of corrective feedback in this process is of paramount importance. As the idea of Critical Listening comes from Fraser's (2000a, 2000b, 2001) application of a concept formation approach, related to a Cognitive Phonology framework, and as it appears to have been successful, it will be the focus of further study in chapter five. The relationship between developing Critical Listening skills and global listening skills is also worthy of further research.

4.4.2.4 Discovery Activities

The idea of an inductive approach, getting learners to discover patterns or rules for themselves, is common in communicative language teaching and was also quite popular with this group. Guided discovery is also a crucial aspect of Critical Listening. These learners quite often asked about rules and some of them felt that they just needed to know the rule then they could apply it and their pronunciation would be fine. It was in fact seen, especially in the sounds and spelling task, that they could apply this rule to effect. However, it didn't always help. In particular, an excessive

focus on the distinction between a final /d/ versus /t/ and /s/ versus /z/ often shifted attention away from making sure that an extra vowel was not added. Thus again, the teacher must be careful to bring learners' focus to what is of greatest salience. The /t/ /d/ and /s/ /z/ distinctions will in fact generally take care of themselves if they've got the vowels right. The relationship between sounds and spelling does provide for some patterns which can support learners but this assumes they also have the right concepts to be able to produce the sounds. Again this is an area worthy of further research.

4.4.3 Individual Differences: Concepts and Responses to Teaching

In learning phonological concepts, there may be many stages as learners understand various aspects of the concept. This may be reflected in their performance in many ways. For example they may be able to produce some but not all syllable codas accurately.

The individual reasons will be found within the sounds involved and the different phonological contexts within which they fall. As was seen in chapter three this can be analysed in a number of different ways.

There are also differences according to the context: whether the speech is extemporaneous, words in isolation with a focus on form, or some other level of control in between. There are differences between speaking with and without a model too. Here some learners may be able to listen and repeat some words correctly while other words remain difficult.

Other differences manifest themselves in how learners hear the words and in their ability to be able to compare and discern differences. Another difference may also arise as a result of the relative degree of the learner's phonemic awareness of the relationship between spelling and sounds. Related to this there may be certain understandings of pronunciation rules. Many of these differences were seen amongst the individuals in this study.

Ay has advanced her concept of the pronunciation of syllable codas. Initially she had great difficulty in listening and repeating, something which she was able to do after instruction and during the delayed interview. She has learned that even though the difference for example between pink and pinker is not great to her ears it is nevertheless an important difference for English speakers. She has also learned some ways to make it easier to produce codas such as joining sounds and 'saying final sounds more softly'. She also believes in the importance of rules. She says these helped her in the sounds and spelling task. She has become much better at listening and repeating and at hearing extra vowels. She is much more aware of this aspect of pronunciation and has clearly improved. She is aware of which particular codas still need her attention.

Bea has also advanced her concept of the pronunciation of syllable codas. While she is aware of the importance of the extra vowel, she appears to have focussed more on the distinction between final /t/ and /d/. Thus she may not have fully understood what is salient to the English speaker about the syllable coda. She did say that she needed more practice and that it was difficult to change her habits. During the initial test Bea made just as many errors as Ay but she was able to repeat after a model with greater accuracy. This suggests her initial concept may have been more developed. She also showed greater awareness of the difference between pronouncing and not pronouncing the vowel.

Cee was initially much more aware than the others of the relationship between spelling and sounds. She was also able to repeat most words accurately, although she was often unable to pronounce them in context. Her approach is quite analytical and she feels she just needs the rule then she can do it. However she has benefited the least of the four learners from the teaching. It was observed that she was not quite as involved in the class, almost as if she thought she knew how to do it so that was enough.

During the post-interview Cee says her pronunciation has improved and she talks about knowing rules and how to pronounce particular words, such as the final /d/ on 'grinned'. However, she struggled more than the others with the critical listening task. Thus she may have developed some aspects of the concept of how to pronounce

syllable codas but this is still far from complete. During the delayed interview she does say that she knows she has problems with the extra vowel so perhaps some of the message has got through. She also had very limited opportunities to speak English between the post-interview and the delayed interview.

Initially Dee had been unaware of her errors of epenthesis and absence. She also had minimal awareness of the relationship between spelling and pronunciation of syllable codas. However, she did seem to be able to hear when an extra vowel was pronounced and with the exception of a few specific consonant clusters she had little difficulty in accurately listening and repeating. Thus by increasing her awareness of these errors through this course of instruction she has been able to remedy most of them. She does of course still have difficulties as these errors have become entrenched, or fossilised, but is quickly able to self-correct. She also still has difficulties in both perception and production of the /ts/ cluster.

All four learners are of the view that this particular teaching has helped them and are of the very strong view that teachers need to focus on pronunciation from the very beginning by including a small amount of pronunciation teaching in every lesson. They also feel that the teacher needs to provide corrective feedback. They feel that their pronunciation is now very difficult to change and that any change would require a great deal of practice.

They all say the teacher should give them rules but Cee is the strongest advocate of this and suggests that is all she needs. Dee feels that explanations, corrections, listening practice and listen and repeat practice are all important. Ay agrees with this but feels that what was most important in these pronunciation classes and what made it easy for her to understand, was being able to compare her pronunciation with the teacher's model, and get feedback on this, combined with the card game. Bea feels that the most important thing for her is to get more practice and to know more about linking and word stress. She says all the examples in the pronunciation classes helped her to understand more than the actual explanation.

4.5 CONCLUSION

In conclusion learners' pronunciation of syllable codas did improve although the connection between production and perception remains rather unclear. They certainly became much more aware of this aspect of pronunciation and learned to pay more attention to the salient differences. However, input and feedback were easily misinterpreted as learners focused on the wrong thing, such as intonation or the consonant rather than the vowel. So it was seen that it was very difficult to establish successful communication lines.

In this regard, then, explicit instruction can help, but it appears to be very dependent upon finding the right kind of metalanguage. It was found that by encouraging learners to explain their perception of the sounds, the teacher was in a better position to establish ways of talking about the target pronunciation. This sort of communication between teacher and learners is very much like cross-cultural communication as both sides must endeavour to find common ground between their currently held concepts before there can be effective communication.

It is proposed to refer to this sort of metalanguage, which involves the construction of meaning through a joint effort of all participants guided by the teacher, as Socially Constructed Metalanguage. Thus learners need to first become aware that there is a problem, and then they need to understand exactly where the problem is. The use of visual representation on the board is critical here. Having done this they need to learn the precise nature of the problem and how to rectify it. Again the visual support provided by the written form is conducive to success in understanding.

Critical listening was found to be one effective technique for helping learners understand the precise nature of the problem by giving the opportunity to compare and contrast and thus establish the phonological boundaries. This is a key aspect of the concept formation process. These boundaries were certainly much clearer for the learners than they had been before the instruction.

The greatest effect from instruction was found after the first two classes which had focussed on the C + C context. It is not known whether this initial progress would

have been the same regardless of the teaching sequence. However this particular context was identified in chapter three as most prone to errors. The learners also tended to mention linking and learning to drop some sounds as being of particular assistance. This suggests that in terms of economy of teaching time it would be a good place for teachers to start. However, feedback from the learners showed that they wanted to know rules so the sorts of patterns presented through the discovery activities were motivating for the learners and provided support, especially in understanding the relationship between spelling and pronunciation. It was however, also seen that students could be misled by such rules as they tended to focus more on the /t/ /d/ and /s/ /z/ distinctions than on the extra vowel.

The entrenched nature of the problem also meant that a great deal of practice was required to further develop and change learners' concepts. Thus positive roles were found for all activities. The animal game in particular was motivating and provided for a large amount of practice. Listening and repeating was also useful provided that the teacher made sure accurate feedback was given so that learners were all focusing on the salient aspects of the feature.

Finally, this study has served to explore a number of variables which may play a role in effective pronunciation teaching. Two of these variables in particular, Critical Listening and Socially Constructed Metalanguage, would appear to be beneficial techniques for helping learners with concept formation, which is suggested by Cognitive Phonology to be a key to pronunciation success. An experimental study designed to test the effectiveness of these methods is reported on in chapter five.

CHAPTER FIVE: STUDY THREE - EXPERIMENTAL TESTING OF SOCIALLY CONSTRUCTED METALANGUAGE (SCM) AND CRITICAL LISTENING (CL)

5.1 INTRODUCTION

The first two studies in this thesis have demonstrated that explicit pronunciation teaching can work. They have also served to provide qualitative data around the effectiveness of different aspects of teaching and have explored how these can assist in the process of forming phonological concepts. The object of this final study is to set up a tightly controlled experimental situation to test the conclusion of chapter four that two particular factors: SCM and CL, are important in determining the success of pronunciation teaching.

The focus of this more formal study is purely on the immediate effect of a single 45-50 minute period of instruction. There is no doubt that long term studies, such as the first two, are important in demonstrating the degree to which progress in concept formation has been assimilated and retained, and both studies produced positive results here. These results also suggested that practice is important if students are going to change entrenched habits and retain those changes over time. However, in order to maximise control over the myriad of variables which might conceivably impact on pronunciation learning, this study has been limited to just the one period of instruction and its immediate impact. Clearly with such a short period of instruction there is a greater risk that learners will show little benefit. Nevertheless this needs to be balanced against the difficulties of retaining such controls through a series of lessons. Thus no claims are being made here about the long term retention of gains. These benefits have already been established, at least in general terms. More specific testing of long term gains would be more difficult to control for and needs to be the subject of future research. The focus in this study is on testing the validity of a concept formation approach as operationalised through two variables which are hypothesised as playing a role in this process.

As in the previous two studies, the focus remains on the syllable coda, but is further narrowed by restricting it just to epenthesis. The data from those studies has been used in the development of both testing and teaching materials.

5.2 THE HYPOTHESIS

This study formally tests the following hypotheses:

1. The right kind of metalanguage (SCM) will help learners to form new concepts.
2. The use of contrast through critical listening will help to establish category boundaries

In statistical terms, what is being tested is the null hypothesis i.e. that the kind of metalanguage and use of contrast have no effect on learning. Thus if the results show the null hypothesis to be incorrect the conclusion is that the above two statements are supported.

5.3 METHOD

5.3.1 Design Overview

This study involves four conditions using a 2 x 2 factorial design. The variables are +/- Socially Constructed Metalanguage (SCM) and +/- Critical Listening (CL). They are defined in greater detail in section 5.3.2. The testing materials and procedures, and method of allocation of subjects to conditions are then described. This is followed by a description and explanation of how these four conditions are realised in four separate 45 to 50 minute lessons. They have been carefully scripted and designed to control for practice and feedback.

The subjects for this study are four groups of six students each. They are adult ESOL learners at an upper intermediate level whose first languages are Mandarin and Korean.

Thus there are four groups of six students with the following combinations of the two key variables being tested for:

Condition One – SCM-/CL- (The control group for both variables combined)

Condition Two – SCM-/CL+ (The control group for SCM, test for CL alone)

Condition Three – SCM+/CL- (The control group for CL, test for SCM alone)

Condition Four – SCM+/CL+ (Test group for SCM and CL combined)

One would expect Condition One to make the least progress, Condition Four to make the most progress, and Condition Two and Three to score somewhere in between.

As a follow up, Condition Four is replicated with four learners from Condition One (SCM-/CL-), which was the control group.

In section 5.4 the method of analysis is described, including measures of rater reliability and correlations between the different tests. The results are presented first according to the effect of condition and then according to the effect of the two independent variables: SCM and CL.

5.3.2 Definition of Variables

The two variables being tested here are those identified and defined through the previous study in chapter four. SCM+ and CL+ are defined again below along with a description of how the absence of these variables, SCM- and CL- is realised. How these are operationalised is seen in section 5.3.5.

SCM+

Socially Constructed Metalanguage (SCM) refers to the kind of metalanguage which is needed for effective metalinguistic communication (Fraser 2001). Such communication,

as with all cross-cultural communication, relies on both parties having a common understanding of the concepts which are being discussed (Fraser 2006b). SCM requires the teacher and the learners to work together to construct common ways of talking about these concepts. This involves the teacher in understanding how the learners interpret the sounds of the target language, i.e. asking them how it sounds to them. Equally it involves the learners in understanding how the sounds they produce are interpreted by the native speaker.

The choice of the word ‘social’ for this term has been made to highlight that this metalanguage is owned by the class as a group. The importance of the social nature of language learning and the role of social construction of common understandings has been underscored in Swain’s (2000) extended output model and her use of the term ‘languaging’ (Swain 2005). It has also been reflected in many calls for a greater focus on the social aspects of language learning (e.g. Lantolf 1996, 1999, 2000; Lantolf and Thorne 2006; Block 2003; Pennycook 2001). Once this metalanguage has been developed, it can be used throughout the course for quick and effective feedback.

While the term SCM has been developed in relation to teaching pronunciation, it would just as easily apply to the use of explicit instruction in all aspects of language teaching.

SCM-

In the absence of SCM, the metalanguage used by teachers is traditionally taken from textbooks. These books typically describe the target language using concepts from the target language itself. One common example of this involves counting the number of syllables (Fraser 2001). There is generally little acknowledgement of how the learners might interpret this metalanguage in terms of their concepts. SCM- could be described as traditional metalanguage.

A review of four popular pronunciation textbooks; Boyer (2001), Hancock (2003), Hewings (1993), and Gilbert (2005) shows that although in many ways they are very good, and are undoubtedly more motivating than some earlier attempts, they explain pronunciation in terms of what it should be like, teaching knowledge ‘that’ rather than ‘how’. None of them work specifically on epenthesis and absence, and the difficulties caused by it, but Boyer (2001) does talk about the consonants pronounced within one syllable and is the only book to refer to epenthesis, ‘Take care not to add a vowel sound between the consonants in words’. Hancock (2003) also focuses on the target language with comments such as, ‘play has one syllable and the past tense played also has only one syllable’. He also explains ‘consonants at the end (go, goal, gold)...add an extra sound, it is still only one syllable.’ Hewings (1993) refers to consonant clusters and consonant clusters across words. He shows joining but provides no further explanation. Gilbert (2005) also tends to explain the ‘that’ rather than the ‘how’, looking at the number of syllables rather than explaining the concept. Further, an explanation of the concept of the syllable as proposed by Celce Murcia, Brinton and Goodwin (1996) is also very much in terms of a native speaker description of the target language.

Typical textbook and target language oriented explanations are used in operationalising SCM-. The argument put forward by SCM+ is that it is up to the teacher to translate this into a form which the particular group of learners can relate to and understand.

CL+

Critical Listening involves the learner in listening for the contrast between two productions: one which is acceptable and one which is not. Typically there should be a meaningful difference, and ideally it would involve comparing the learner’s production when it is acceptable with when it is not. As with SCM, it involves helping learners to understand how the sounds are perceived by the native speaker. It involves a focus on developing speech perception and learning where the boundaries are between the different phonological categories. Discrimination tasks and minimal pairs are not strictly

speaking CL as they actually involve two different words rather than one which is acceptable versus one which isn't. They would therefore theoretically not be expected to be quite as effective in helping to establish category boundaries. However, they do provide a contrast between categories and as such, while they are not ideal, it is anticipated that they will still be beneficial. Practical considerations have led to the inclusion of both CL and discrimination tasks in this study.

CL-

The absence of CL is represented here by not allowing for any contrast between the target items. There is a focus on the same utterances as with CL+, which are repeated but not directly contrasted with potentially confusable utterances.

5.3.3 The Tests

An overview of all tests is provided in Appendix 3A. Table 5.1 below shows the timing of tests.

	2 weeks pre-	1 week pre	Immediate pre-	Immediate post	1-3 days post
Tough Phrases	X			X	
Drunk Snail			X	X	
Listening discrimination			X	X	
Critical Listening		X			X

Table 5.1 Timing of tests

The tests are explained below. There is a particular focus on making them as sensitive as possible to changes in learners' pronunciation and speech perception given that the treatment involves just one 50-minute session. The tests themselves are provided in appendices 1B, 3B, 3C and 3D respectively.

Speaking Tests

Tough Phrases Test

This is the same Tough Phrases Test described in the previous studies (refer Appendix 1B). It will be remembered that it involved reading 40 phrases, such as ‘He asked questions’ and ‘Intermediate students’. It was used as a diagnostic for allocating learners to groups and also for comparison purposes with the earlier studies. For the pre-test only, a list of 14 further items (Appendix 3E) was added to collect samples for Critical Listening practice during the teaching sessions and for the Critical Listening test described below.

Drunk Snail Test

Half the items in the drunk snail test (refer Appendix 3B) are those which are actually taught (for list of items taught refer to Appendix 3F). The remainder of the items are different words and phrases but they represent similar phonetic contexts. For example, the item ‘Just think’ is taught and tested, and another item with ‘st’ followed by ‘th’ – ‘first thing’ is tested but not taught. It is in this part that most gains would be expected. In order to make the test as sensitive as possible to any changes it has been subdivided into three parts; *part a* involves listening and repeating while also seeing the written form, in *part b* joining of sounds in connected speech is shown through a curved line between word final and word initial sounds, as is word stress through underlining, on the basis that this might provide an extra prompt, and in *part c* the learners are simply asked to read the words and phrases with no additional guidance.

Listening Discrimination

The listening discrimination test (Appendix 3C), which in its previous forms in the earlier studies was not as effective as had been hoped (refer to 3.7.1.1 and 4.4.1), has been

completely revised. Efforts have been made to ensure that all the items are likely to present a significant level of difficulty. To increase the sensitivity to changes, learners now hear each item three times and are asked to supply an answer after each time. For example they hear ‘A drunk snail. A drunk snail. A drunker snail.’ and tick which one is different, or they can tick that they are the same or they don’t know. Thus the scope for measuring improvement has been increased even though there are now only 15 items. This test has also been piloted to ensure that learners understand what to do and that the level of difficulty is appropriate.

Critical Listening

This test (refer Appendix 3D) has been developed from the idea used in study two. Here learners listen to, for example, two learners saying ‘He asked questions’. One of them has added epenthesis between the ‘k’ and the ‘d’. Learners have to say if the two productions are the same or different. Then if they think they are different, they are asked to pinpoint and describe the difference, or failing that, to say which one is better. They are encouraged to comment on their perceptions. Of course, this is not the same as Critical Listening as used in teaching, as there is no guidance given, but it aims to test if and how learners perceive the differences. The test has been slightly refined and more controlled by allowing learners to listen to each item twice and having all learners listen to the same tape. There are twelve items derived from what the learners produced as an addition to the Tough Phrases pre-test described above, where they were asked to read an extra list of words and phrases. These items were converted to digital, and using Sound Studio on an Apple iMac computer, examples where there was epenthesis and examples where there was no epenthesis were cut and pasted to form contrasting pairs.

5.3.4 Selection and Allocation of Subjects to Conditions

Learners from four adult ESOL classes at upper intermediate levels were tested using the Tough Phrases Test. Based on previous experience, learners making more than twelve errors of epenthesis were considered to be good candidates for this study. In practice, one

learner with 11 errors was also included in the study. The initial attempt at allocating learners to groups was based upon the number of errors so that the groups would be as equal as possible. Of course not all learners were available at all four times so this also had to be taken into account. From the point of view of obtaining statistically significant results it had been hoped to form four groups of eight, however there were only enough to form four groups of six. It had also been hoped to take L1 into account however this became impractical. All participants had either Korean (18) or Mandarin Chinese (6) as their L1. The scores on the Tough Phrases Test for the learners in each group were as follows:

Group 1 Student	Number of errors	Group 2 Student	Number of errors	Group 3 Student	Number of errors	Group 4 Student	Number of errors
1A(K)*	30	2A(K)	31	3A(K)	26	4A(M)	21
1B(K)	29	2B(M)	19	3B(K)	21	4B(M)	21
1C(K)	23	2C(K)	18	3C(K)	18	4C(K)	17
1D(K)	22	2D(M)	17	3D(K)	18	4D(K)	15
1E(K)	12	2E(K)	15	3E(K)	16	4E(K)	14
1F(K)	12	2F(K)	11	3F(M)	13	4F(M)	12
Sum	128		111		112		100
Mean	21.33		18.5		18.67		16.67

Table 5.2 Structure of groups and scores on tough phrases pre-test

* The letter in brackets after each student refers to the L1: K = Korean, M = Mandarin

Initially, the groups were more evenly balanced but unfortunately at the last minute learner 1A who was scheduled to be in Group 4 said she could only come at the Group 1 time. Therefore she swapped with another student, 4E, who was meant to be in Group 1. If this had not occurred, the mean scores for the four groups would have been much closer together, ranging from 18.5 to 19.33.

5.3.5 The Teaching: Lesson Development and Design

As observed in the previous two studies the ‘how’ of teaching plays a major role in its success. Therefore a great deal of care has been taken in planning the detailed differences between the four conditions and how these should be reflected in the lessons. Through this careful operationalisation of the variables involved, every attempt has been made to control the experiment as tightly as possible.

Each lesson has the same structure, the same items were taught, the items used in class were pre-recorded as far as possible, the items shown to students were prepared on overhead transparencies, and the lessons were pre-scripted as far as possible including the actual explanations used. Feedback and practice are unavoidable parts of any lesson and are an inevitable function of the teaching approach used. Thus these have also been carefully controlled for so that while the type of practice and feedback varies according to the condition there is a logical consistency in the way in which they are used. The lessons were also audio-recorded in order to verify that they were run as planned.

Structure

The lesson is divided into two parts. The first part focuses on individual words while the second part focuses on groups of two or more words.

Part A: 1) Introduction entailing an explanation supported by examples.

2) Listening practice (either listening and identifying words and number of syllables (Condition 1), or listening plus feedback in terms of the sound of the final consonant and the extra vowel (Condition 3), or a listening discrimination task accompanied by either CV (consonant vowel) patterns (Condition 2) or underlining of stressed syllable on board (Condition 4).

3) speaking practice: Listen and repeat (from OHT) with feedback: the feedback varying according to the condition.

Part B follows the same pattern but with short phrases.

Table 5.3 below provides an overview of how this structure is represented in the four conditions.

Overview of lesson structure: four experimental conditions.

Critical Listening +	Focus on TL concepts: Explain the English syllable and number of syllables is important for grammar. Count no. of syllables. Critical listening practice. L & R with feedback. - Words: analyse syllables according to CV patterns, counting syllables, explain difference in grammar resulting from extra syllable forming comparatives - Critical listening - Listen and repeat. - Phrases: review ML, counting syllables, effect on grammar: comparatives - Critical listening - Listen and repeat.	Focus on L1 concepts in building L2 concepts: explain precisely where the difference is and how it is different to L2 ear. Develop common ways of talking about it. Critical listening practice. L & R with feedback. - Stressed/unstressed syllables and meaning, focus on sound of final consonant, students explain how it sounds to them to jointly establish ML. - Critical listening. - Listen and repeat - Phrases: review ML, stress and meaning focus on final sound and joining sounds. - Critical listening. - Listen and repeat
Critical Listening -	Focus on TL concepts: Explain the English syllable and number of syllables is important for grammar. Count no. of syllables. Listening practice (counting), L & R with feedback - Words: analyse syllables according to CV patterns, counting syllables, explain difference in grammar resulting from extra syllable forming comparatives - Listening and counting syllables - Listen and repeat. - Phrases: review ML, counting syllables, effect on grammar: comparatives - Listening and counting syllables - Listen and repeat.	Focus on L1 concepts in building L2 concepts: explain precisely where the difference is and how it is different to L2 ear. Develop common ways of talking about it. Listening practice, L & R with feedback. - Stressed/unstressed syllables and meaning, focus on sound of final consonant, students explain how it sounds to them to jointly establish ML. - Listen, no contrast. - Listen and repeat - Phrases: review ML, stress and meaning focus on final sound and joining sounds. - Listen, no contrast. - Listen and repeat
	Socially Constructed Metalanguage -	Socially Constructed Metalanguage +

Table 5.3 Overview of Conditions, (ML = Metalanguage, TL = Target Language)

Items Taught

The items taught are the same for all four lessons, although the order and manner of presentation varies according to the condition (see Appendix 3F). Comparatives have been chosen as they were used in the previous study and they provide for both grammatical and meaningful differences. Some additional items have also been chosen as they caused particular difficulties.

Translating the Variables into Practice.

SCM+

This begins with the word ‘blacker’ focussing first on stressed and unstressed syllables then moving on to the sound of the ‘k’ and then again when there is just the one syllable (e.g. black). This involves eliciting from learners how it sounds to them (although already being aware from previous studies how they might describe it). The words used to describe this are then employed in feedback during the listening and production practice stages. The teacher describes how to him, it sounds like an extra syllable. He then contrasts this perception with the description just provided by the learners, who might for example, have described the sound as louder or longer. The second part of the lesson begins with the phrase ‘blacker bear’ and reviews the stressed and unstressed syllables before moving onto other examples such as ‘black bear’ and ‘just think’ where joining and elision might be evident. Again learners are asked to explain how it sounds to them and the descriptions jointly developed by the teacher and the learners are used in feedback during the listening and production practice stages. Visual representation, on the board or overhead projector, is used to show precisely where the problem is. This may involve using a schwa symbol, crossing out deletions, and using a line to show joining, as well as underlining to show stressed syllables and a dot to show weak syllables. The teacher again describes how to him, it sounds like an extra syllable when, in their terms, they say the final consonant too loud or too long.

CL+

This involves the use of contrast so all the items, e.g. 'blacker' and 'black' are presented side by side for comparison. In the presentation stage learners are presented with samples of their own speech and practise listening for the difference that is critical to L1 speakers, which is the presence of the schwa in this case. As already mentioned, these samples were recorded at the time of the Tough Phrases pre-test (Appendix 3E). They were transferred from tape to a digital format where they were cut and pasted and then returned to an audiotape format. During the listening practice stage they do a listening discrimination exercise, with the first six items again being based on their own speech. The remainder have been read on to the tape by the teacher. During the practice stage they also listen and repeat the two versions (with and without the schwa) side by side.

SCM-

This involves an explanation of the syllable in terms of analysing the patterns of consonants and vowels and judging how many syllables there are in a word or phrase. This is backed up with the patterns being written beside the word on the overhead transparency. The difference in grammar is also pointed out. Feedback is also given in terms of number of syllables.

CL-

In this condition there is no direct contrast. Listening and speaking practice is done by listening to items individually.

A detailed description of each lesson is provided in appendices 3G – 3J (Conditions one to four) and a rationale for the listening and speaking practice stages is provided in Appendix 3K.

In Table 5.4 below is a comparison of the four lessons showing the planned timing.

Table 5.4 Comparison of four lessons:

Timing	Group 1. SCM-/CL-	Group 2. SCM-/CL+	Group 3. SCM+/CL-	Group 4. SCM+/CL+
Time: 00 mins	Part A: (using examples of single words: e.g. black, blacker, in comparative) A1. Introduction: Listen, words on board. Metalanguage: this is one syllable. Listen, first all the single syllable words and then, 'this is two syllables' the comparatives and other e.g.'s, but not contrasted directly. Count the syllables. Notice difference in grammar.	Part A: (using examples of single words: e.g. blacker, black, in comparative) A1. Introduction: Listen, words on board. Metalanguage: this is two syllables, this is one syllable. Listen and compare. Count the syllables. Also some examples of students saying them correctly and incorrectly. Notice difference in grammar.	Part A: (using examples of single words: e.g. blacker, black, in comparative) A1. Introduction: Listen, words on board, underline for stressed syllable, dot for second syllable. Metalanguage: first part louder, stressed syllable, 2nd part also syllable. Listen and compare. Also some examples of students saying them correctly and incorrectly. Notice difference in meaning.	Part A: (using examples of single words: e.g. blacker, black, in comparative) A1. Introduction: Listen, words on board, underline for stressed syllable, dot for second syllable. Metalanguage: first part louder, stressed syllable, 2nd part also syllable. Listen and compare. Also some examples of students saying them correctly and incorrectly. Notice difference in meaning.
Time: 10 mins	A2. Listening practice: hear one word, say what it is: e.g. faster. Say how many syllables it has. Yes, no feedback. The target word then modelled again. (Teacher recordings only)	A2. Discrimination practice: listen for which of three words is different, e.g. fast, faster, fast. Give yes no feedback. Model the contrast. Count the syllables (Recordings of both learners and the teacher)	A2. Listening practice: hear one word, say what it is: e.g. faster. On board after listening, show the syllables, model and use metalanguage from above. (Teacher recordings only)	A2. Discrimination practice: listen for which of three words is different, e.g. fast, faster, fast. Both on board after listening, underline the difference and model to show the contrast. (Recordings of both learners and the teacher)
Time: 15 mins	A3. Practice, listen and repeat, with feedback using the metalanguage as above	A3. Practice, listen and repeat, with feedback using the metalanguage and contrast as above	A3. Practice, listen and repeat, with feedback using the metalanguage as above.	A3. Practice, listen and repeat, with feedback using the metalanguage and contrast as above.

Time: 20 mins	Part B: Using examples of phrases, e.g. black bear. B1. Introduction, listen: black bear, plus e.g.'s (on board) Metalinguage: count syllables, reminder to use right number of syllables. Comparatives (and other e.g.'s), blacker bear, plus e.g.'s count syllables and note comparatives, the difference in grammar.	Part B: Using examples of phrases e.g. blacker bear, black bear. B1. Introduction, listen: blacker bear, using underlining for stressed syllables and dots for unstressed. First all the comparatives and then the single syllable words, but not contrasted directly. Metalinguage, using the board as in part A, stress change in meaning, make the final consonant quieter and note the difference in grammar.	Part B: Using examples of phrases e.g. blacker bear, black bear. B1. Introduction, listen: blacker bear, using underlining for stressed syllables and dots for unstressed. First all the comparatives and then the single syllable words, but not contrasted directly. Metalinguage, using the board as in part A, stress change in meaning, make the final consonant quieter and shorter, use joining to help say it correctly.	Part B: Using examples of groups of words, e.g. blacker bear, black bear. B1. Introduction, listen: blacker bear, black bear, using underlining for stressed syllables and dots for unstressed. Metalinguage, using the board as in part A, stress change in meaning, make the final consonant quieter and shorter, use joining to help say it correctly.
Time: 30 mins	B2. Listening Practice, hear one phrase, say what it is, e.g. drunker snail. Count the syllables. Yes, no feedback. The target word then modelled again. (Teacher recordings only)	B2. Discrimination Practice: listen for which of three groups of words is different, e.g. drunk snail, drunker snail, drunk snail. Give yes/no feedback. Model the contrast. Count the syllables. (Recordings of both learners and the teacher)	B2. Listening Practice, hear one phrase, say what it is, e.g. drunker snail. On board after listening, show the syllables, model and use metalinguage from above. (Teacher recordings only)	B2. Discrimination Practice: listen for which of three groups of words is different, e.g. drunk snail, drunker snail, drunk snail. Both on board after listening, underline the difference to show the contrast.(Recordings of both learners and the teacher)
Time: 40 mins End: 45-50 mins.	B3. Practice, listen and repeat, with feedback using the metalinguage as above.	B3. Practice, listen and repeat, with feedback using the metalinguage and contrast as above.	B3. Practice, listen and repeat, with feedback using the metalinguage as above.	B3. Practice, listen and repeat, with feedback using the metalinguage and contrast as above.

5.3.6 Follow up: Condition One does Condition Four

Those who had been in Group 1, i.e. Condition One were given the opportunity of having the Condition Four lesson. This was a way of replicating this part of the study. Unfortunately, only four of the six learners attended which makes it difficult to make statistically significant statements as there is no way of controlling for the effect of the two missing learners.

5.4 ANALYSIS

5.4 1 Calculation of Test Scores

Speaking Tests

The recordings of the pre- and post- Tough Phrases and Drunk Snail tests were converted from analogue to digital and stored in separate sound files on an Apple iMac computer using Sound Studio. The first rater, who is both the researcher and the teacher, listened to them several times without reference to which condition they had done in order to be satisfied that all instances of epenthesis had been noted.

The number of errors has been added up for the Tough Phrases Test and each section of the Drunk Snail Test. This leads to a measure of performance on the three parts of the Drunk Snail Test, the Tough Phrases Test, and an overall total for all the speaking tests. For this study, there appears to be no particular advantage in converting errors to a percentage rate so they have been left in their numerical form. It should of course be remembered that a lower score represents a decrease in the amount of epenthesis and therefore a gain in learning.

Listening Discrimination Tests

The results of the listening discrimination tests are presented as the number of correct answers out of 15. The learners heard each item three times and were asked to provide an answer after each time. The answer given after the third listening has been taken as the participant's final answer and used in determining the score. Where a learner

supplies an answer for only one or two of the repetitions, the last tick made is taken as applying to any subsequent repetitions. If for example a tick is placed next to the correct answer after the second repetition and there is no answer beside the third repetition then it is assumed that the learner has simply not bothered to repeat the tick and has in fact understood the difference. In contrast to the results on the speaking tests, a higher score represents an improvement in the participants' abilities.

Critical Listening Tests

The results on the critical listening task have been quantified through coding and are presented in terms of the number of items correct, or partially correct, out of 12. The critical listening task was a test of learners' abilities to perceive salient differences. Here, the results are more qualitative. Nevertheless they have been quantified by coding and are presented in terms of the number of items correct, or partially correct, out of 12. Participants' responses have been coded as follows:

- 1 = 'same' (i.e. the learner said they were the same)
- 2 = 'different' but chose the wrong one as better, or couldn't say which was better.
- 3 = 'different' chose right one as better but the wrong place of error and/or wrong explanation.
- 4 = 'different' chose right one as better but no place of error (or too vague about it to be sure), no explanation or vague explanation (e.g. stress, intonation) This is the 'maybe' category.
- 5 = 'different' chose right one as better and pinpointed place of error but no explanation.
- 6 = 'different' chose right one as better and pinpointed place of error with vague explanation (perhaps repeating it with the extra schwa but it's still hard to be sure that they really know what they're saying)
- 7 = 'different' chose right one as better and pinpointed place of error and provided explanation.

To enable clearer presentation the coded responses have been conflated, as detailed below, to describe whether or not they understand and can determine the presence or absence of epenthesis:

- 1, 2, 3 have been grouped together as ‘no’. That is, the student either doesn’t hear the difference or is not aware of the significance of the extra schwa (or sees some other difference as being of greater importance).
- 4 represents ‘maybe’. In these cases it is not possible to really know what the student thought but they may understand.
- 5 and 6 have been grouped together as ‘probably’. However one cannot be certain they have heard the epenthesis as they have not been able to explain it.
- 7 represents ‘yes’ as there is no doubt that the epenthesis has been heard.

5.4.2 Rater Reliability

Clearly, as with the previous two studies there were some cases in the speaking tests when a decision had to be made as to whether or not there was enough of a vowel to be noticeable as epenthesis. Therefore a second opinion was again sought.

In order to make this a blind test for the second rater, the sound files for each learner’s pre- and post-tests (The Tough Phrases Test and the Drunk Snail Test in the same sound file), were copied into a separate folder and numbered. They were in a random order as they had originally been filed according to the participants’ first names regardless of the group they were in. The pre and post tests were also jumbled up so that they were not grouped in any way. Thus there was no clue as to group, time (pre or post), or person. The rater chose 11 files (out of a total of 48 files) at random. Results on the 11 samples taken show a significant Pearson Correlation between the scores of the two raters of $r(9) = .957$, $p < .001$. The mean number of examples of epenthesis marked per file was 20.73 compared with 24.55 which had been found by the first rater. Thus the first rater had noted on average more errors. However, he had also listened more times.

In order to resolve this discrepancy the items where there were disagreements were isolated and the two raters listened again, with the second rater not knowing the first rater's judgment. Of the 30 items listened to again, there was agreement in all but two cases. As with second markers in the other studies, discussion centred around careful speech style versus unacceptable epenthesis.

Although it has been emphasised that the focus of this study is on native speaker perception rather than acoustic reality, ten of the cases where there was disagreement or uncertainty have been analysed acoustically. PRAAT (Boersma and Weenink 2008), a well known program for acoustic analysis was used to look for the visual representation of a formant structure, which would either support or discount the auditory judgement of the existence of a vowel. The results are summarised in Table 5.5 below:

Item (epenthesis shown with @)	Rater 1 judgement (epenthesis heard = yes)	Rater 2 judgement (epenthesis heard = yes)	Clear vowel formant?	Length of vowel or aspiration
made@pudding	Yes (unsure)*	Yes (unsure)*	Yes	40 ms
cold@housing	No	Yes	No	16 ms
patient@ly	Yes	No	Yes	90 ms
finds@happiness	Yes	No	Yes	100 ms
shove@	Yes	No	No	130 ms
fer@n fronds	Yes	No	Yes	90 ms
head@lights	Yes	No	Yes	95 ms
grand@plan	No	Yes	Yes	46 ms
wildlife@sanctuary	Yes	No	Yes	100 ms
wild@life sanctuary	No	Yes	No	55 ms

Table 5.5 Summary of acoustic analysis using PRAAT

*Although both raters had judged that there was epenthesis, they had both put a question mark beside it.

There were seven instances where there was a clear formant structure, suggesting epenthesis, ranging in length from 40 to 100 ms. In the other three cases there was no clear formant structure, although there was evidence of an extra sound, suggestive of extra strong aspiration, ranging in length from 16 to 130 ms. It is interesting that some of the instances perceived as epenthesis were in fact aspiration as this would tally with learners' observations that they need to make a sound shorter so that it doesn't sound

like an extra sound. However, as has been argued in both this and the earlier studies in chapters three and four, what is important is not the actual physical sound but how it is perceived.

Given the good level of correlation on the initial assessment, and the informal agreement reached in follow up discussions, there is every reason to be confident that the original judgements can stand as a reliable assessment of the number of errors of epenthesis.

5.4.3 Correlations between Scores on Different Tests.

To test for the performance of individual participants across different tests, Pearson Correlations have been run on the pre-tests. Correlations have been looked for between the Tough Phrases Test and the Drunk Snail Test. Further correlations have been looked for within the three parts of the Drunk Snail Test and between those three parts and the Tough Phrases Test. Finally, performance on the listening discrimination test and the speaking tests are compared.

Table 5.6 below, shows the only case in which there was not a significant correlation was between *part a* and *part b* of the Drunk Snail Test; $r(22) = .327, p = .119$.

	Pre Drunk Snail Test (Total)	Pre Drunk Snail Test part a	Pre Drunk Snail Test part b	Pre Drunk Snail Test part c
Pre Tough Phrases Test	.637** .001	.508* .011	.440* .031	.591** .002
Pre Drunk Snail Test part a			.327 .119	.430* .036
Pre Drunk Snail Test part b				.682** .000

Table 5.6 Pearson Correlations between parts of speaking tests.

Notes:

** Correlation is significant at the 0.01 level (2-tailed)

* Correlation is significant at the 0.05 level (2-tailed)

A further correlation has been tested for the performance on the listening discrimination test and the speaking tests. This correlation, which is negative, remembering a low score on the speaking test is good while a high score on the listening test is good, stands at; $r(22) = -.341, p = .103$. This suggests a 90%

confidence level that there is a correlation. This may imply there are other factors influencing the relationship between learners' speaking skills and their listening skills.

5.4.4 Statistical Analysis

In the first instance the mean scores are calculated for all the conditions. These are presented graphically to provide an overview of the test results for the four conditions.

A one-way analysis of covariance (ANCOVA) is conducted for each of the tests as well as the three parts of the Drunk Snail Test, using SPSS (Statistical Package for Social Sciences, version 14, see for example Green and Salkind 2005). The independent variable, 'condition' includes four levels representing conditions one to four. The covariate is the pre-test scores. The means on the post-test are adjusted for initial differences on the pre-test among groups. The F test evaluates whether there are differences between the results for the four groups. Pairwise comparisons reveal which of these differences are significant.

To establish the role of the two independent variables, SCM and CL, a 2 x 2 ANOVA is conducted for each of the tests as well as the three parts of the Drunk Snail Test, again using SPSS. Here, the pre-test is also taken as a covariate. This analysis evaluates whether there is a main effect for the two variables and whether there is an interaction between the two variables (see, for example, Jackson 2006: 290-307).

5.4.5 Delivery of Lessons

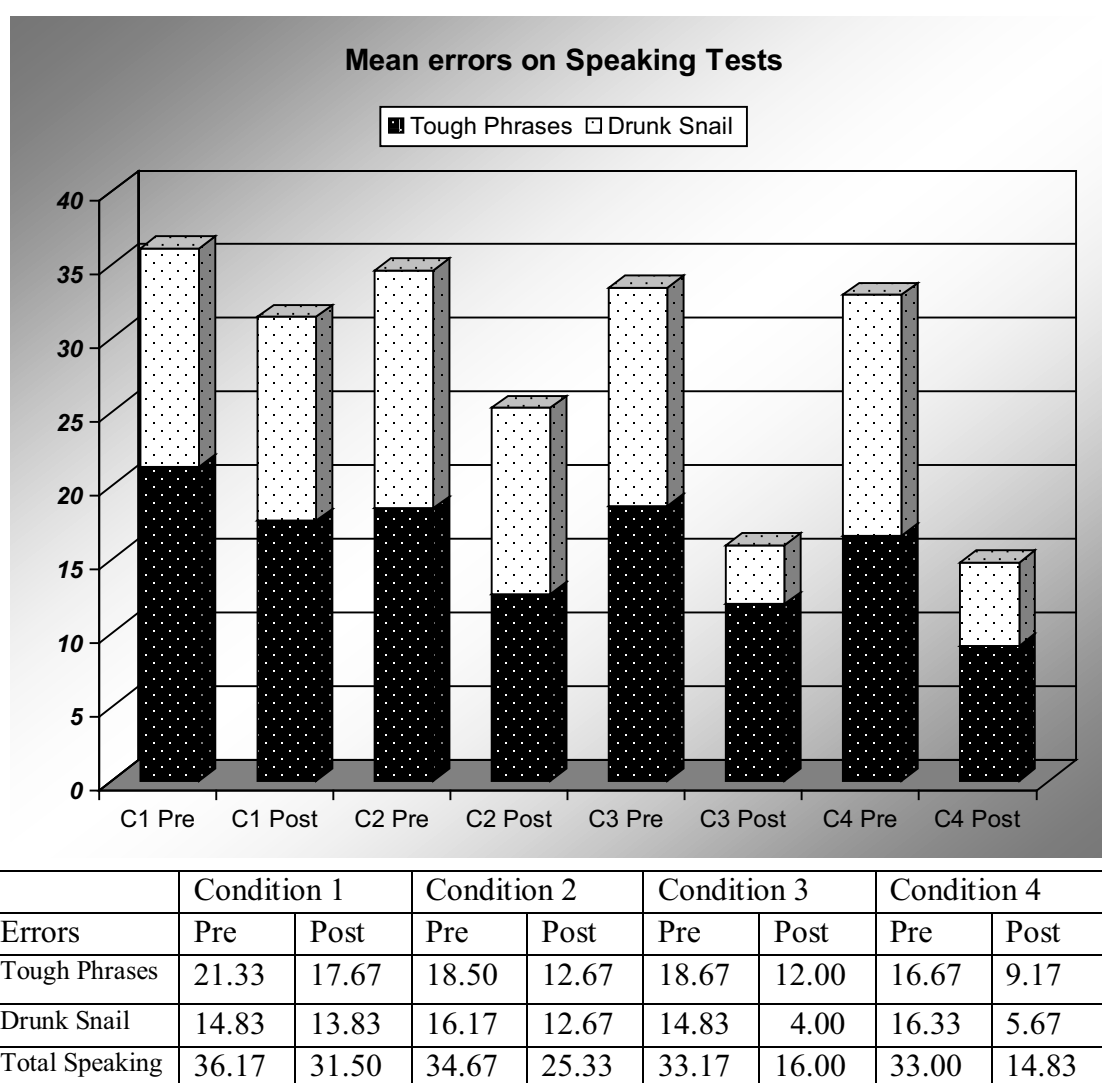
Listening to recordings of the lessons confirms that the lessons were run as planned, with some small variations. The script itself was followed quite closely although the explanations tended to be repeated a number of times and these were reinforced along with the metalanguage being used in response to student participation. In terms of time, the Condition One lesson was completed in 45 minutes while the other three lessons went for 50 minutes. The lessons for Condition Three and Condition Four spent longer during the listening phases in confirmation of the SCM as learners asked more questions checking they had understood. This meant that the listen and repeat practice for these groups was cut short.

5.5 RESULTS

5.5.1 Speaking Tests

5.5.1.1 Effect of Condition

The graph and accompanying table in Figure 5.1 below provide an overview of the results on the pre and post speaking tests by condition.



Condition 1 = SCM-/CL-

Condition 2 = SCM-/CL+

Condition 3 = SCM+/CL-

Condition 4 = SCM+/CL+

Figure 5.1 Mean number of errors on speaking tests, pre and post by condition

It is clear that the participants in Condition Three and Four made the greatest overall progress on the speaking tests. While Condition Two appears to have made some progress, Condition One (the control condition for both variables) has made very little.

The individual results for each student are provided in Appendix 3L. Here there appears to be an irregularity. One of the results (Student 1D) on the Tough Phrases pre-test yielded 23 errors but very few errors on the Drunk Snail pre-test, suggesting this result may not have been a good reflection of the participant's ability.

Turning to the Tough Phrases Test, it will be remembered that the differences in the pre-test results, by condition, were commented on in section 5.3.4. Now, comparing the post-test results it is seen that Condition Four made the greatest progress, followed by Condition Three and Two, while Condition One made the least improvement.

As far as the Drunk Snail Test was concerned, both Condition Three and Four made clear improvements, the progress made by Condition Two was less certain, while Condition One appears to have made minimal progress.

The results of a one-way analysis of covariance (ANCOVA) for the total number of errors on the two speaking tests, combined and individually, are summarised in Table 5.7 below.

Cond ¹⁾	Total Speaking Tests			Tough Phrases Test			Drunk Snail Test		
	Mean ^{a)}	Mean diff.	Sig ^{b)}	Mean	Mean diff.	Sig	Mean	Mean diff.	Sig
1&2	30.076	5.052	.183	15.418	2.493	.260	14.192	1.842	.427
1&3		13.272*	.002		3.307	.139		9.833*	.000
1&4		14.314*	.001		4.371	.062		8.927*	.001
2&4	25.024	9.262*	.020	12.925	1.874	.388	12.350	7.084*	.006
3&2	16.805	8.219*	.037	12.111	.814	.704	4.359	7.991*	.002
4&3	15.762	1.043	.778	11.047	1.064	.623	5.266	.907	.694

Table 5.7 Comparison of effect of instruction (ANCOVA) on tough phrases and drunk snail tests

Notes: 1) This is a comparison of conditions. The means as shown in the adjacent column represent the mean for the conditions in order: 1, 2, 3, 4.

a) Covariates are evaluated at the following values:

Total Speaking Pre-tests = 34.2500, Tough Phrases Pre-test = 18.7917, Drunk Snail Pre-test = 15.5417

b) Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments)

* The mean difference is significant at the .05 level.

This analysis represents a comparison of the four conditions adjusted for initial differences on the pre-test among groups.

Looking at the adjusted total number of errors on the speaking tests combined, it is again clear that Conditions Four and Three made the greatest improvement. The results of the ANCOVA confirm there is a significant effect for condition; $F(1, 19) = 5.388, p = .007$. Pairwise comparisons show the only differences which are not significant are between Conditions One and Two, and Three and Four.

Examining the results on the Tough Phrases Test, there are still apparent differences with Condition Four making the most progress. However the ANCOVA fails to find a significant effect; $F(1, 19) = 1.353, p = .287$. Pairwise comparisons show the difference between Condition One and Condition Four is close to significance at $p = .062$.

The adjusted results on the Drunk Snail Test show more significant differences between conditions. The results of the ANCOVA confirm there is a significant effect for condition; $F(1, 19) = 7.442, p = .002$. Pairwise comparisons confirm that Conditions Three and Four achieved the greatest gains. The only differences which are not significant are between Conditions One and Two, and Three and Four.

Analysing the results further for differences between the sections of the Drunk Snail Test produces the following results, displayed in Table 5.8 below.

Cond ¹⁾	Drunk Snail Test <i>Part a</i>			Drunk Snail Test <i>Part b</i>			Drunk Snail Test <i>Part c</i>		
	Mean ^{a)}	Mean diff	Sig ^{b)}	Mean	Mean diff	Sig	Mean	Mean diff	Sig
1&2	4.833	.853	.341	4.346	1.739*	.037	5.042	.665	.616
1&3		3.167*	.002		2.667*	.002		4.000*	.006
1&4		3.814*	.000		2.980*	.001		2.167	.113
2&4	3.981	2.961*	.003	2.607	1.241	.120	5.707	2.832*	.043
3&2	1.667	2.314*	.016	1.680	.928	.246	1.042	4.665*	.002
4&3	1.019	.647	.468	1.366	.313	.689	2.875	1.833	.176

Table 5.8 Comparison of effect of instruction (ANCOVA) on drunk snail test: *parts a, b, and c.*

Notes:

1) This is a comparison of conditions. The means as shown in the adjacent column represent the mean for the conditions in order: 1, 2, 3, 4.

a) Covariates are evaluated at the following values: Drunk Snail pre-test part a = 5.6667, Drunk Snail pre-test part b = 4.1250, Drunk Snail pre-test part c = 5.7500

b) Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments)

* The mean difference is significant at the .05 level.

On *part a* of the Drunk Snail Test, Condition Four made the greatest improvement ($M = 1.019$) followed by Condition Three ($M = 1.667$). Conditions Two and One made less progress ($M = 3.981$ and $M = 4.833$ respectively). The ANCOVA shows a significant effect for condition on *part a* of the Drunk Snail Test; $F(1, 19) = 6.410, p = .003$. Pairwise comparisons show the only non-significant differences are between Conditions One and Two, and Three and Four.

On *part b* of the Drunk Snail Test, the ANCOVA shows a significant effect for condition; $F(1, 19) = 5.017, p = .010$. Pairwise comparisons show Conditions Four, Three and Two all performed significantly better than Condition One.

On *part c* of the Drunk Snail Test, Condition Three made the greatest improvement followed by Condition Four. Conditions One and Two made almost no improvement. The ANCOVA shows a significant effect; $F(1, 19) = 4.993, p = .010$. Pairwise comparisons show Condition Three improved significantly over Conditions Two and One, while Condition Four improved significantly over Condition Two.

5.5.1.2 Effect of Variables: SCM and CL

The above analysis provides a description and comparison of the performance of the four conditions. To understand the effect of the two variables, SCM and CL, a 2x2 ANOVA is now used. As with the ANCOVA, pre-test results have been used as a covariate to allow for differences in pre-test scores. This leads to results for the effect of the two variables as well as an interaction effect. On the graphs below, if there is no interaction effect then the two lines are parallel. There were no significant interaction effects and no significant effects for CL on any of the speaking tests results below.

Beginning with the totals for the speaking tests, the following results were found:

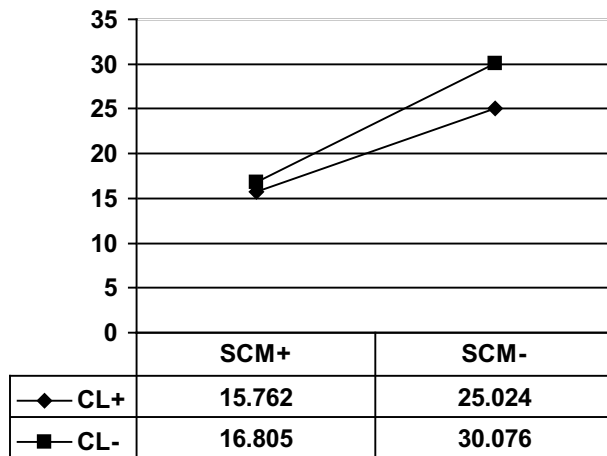


Figure 5.2 Effect of independent variables on combined speaking tests

Notes: Covariate: Pre-test = 34.25

These results show that the effect of SCM on the two speaking tests combined was significant; $F(1, 19) = 18.860, p < .001$.

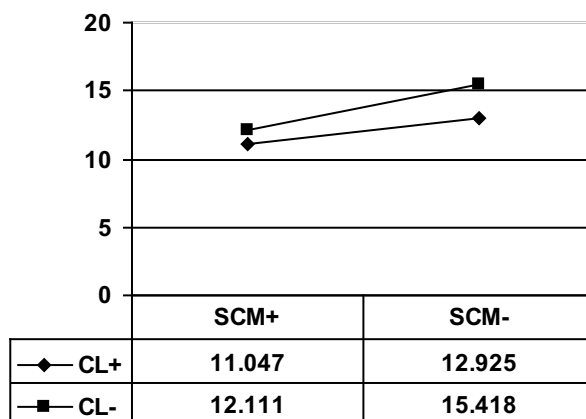


Figure 5.3 Effect of independent variables on Tough Phrases Test

Notes: Covariate: Pre-test = 18.7917

There was some effect of SCM on the Tough Phrases Test, but this was not significant at the .05 level; $F(1, 19) = 2.897, p = .105$.

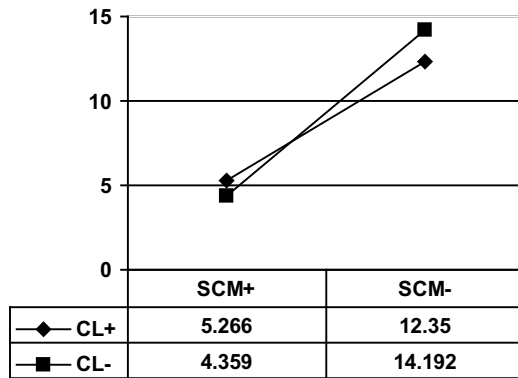


Figure 5.4 Effect of independent variables on Drunk Snail Test

Notes: Covariate: Pre-test = 15.5417

The effect of SCM on the Drunk Snail Test was significant; $F(1, 19) = 27.928, p < .001$.

The effect of SCM and CL amongst the different sections of the Drunk Snail Test is shown in Figures 5.5, 5.6, and 5.7 below.

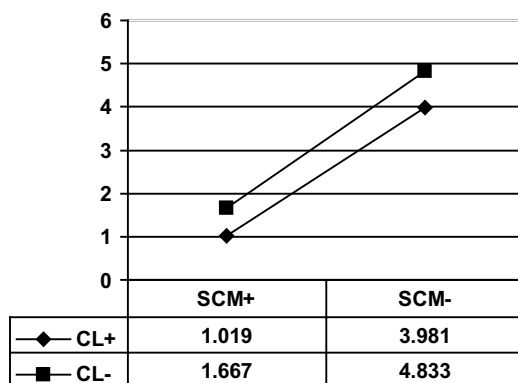


Figure 5.5 Effect of independent variables on Drunk Snail Test *part a*.

Notes: Covariate: Pre-test = 5.6667

The effect of SCM on the Drunk Snail Test *part a* was significant; $F(1, 19) = 24.539, p < .001$.

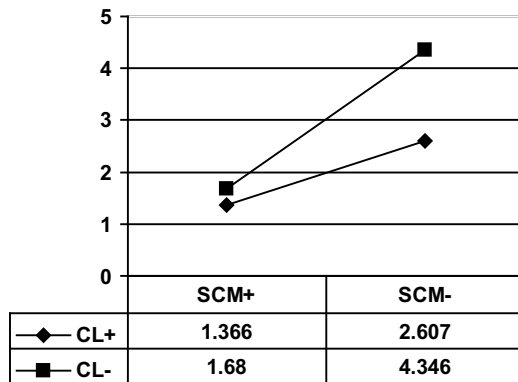


Figure 5.6 Effect of independent variables on Drunk Snail Test *part b*.
Notes: Covariate: Pre-test = 4.1250

The effect of SCM on the Drunk Snail Test *part b* was significant; $F(1, 19) = 13.124$, $p = .002$. There are indications of an effect of CL although this does not quite reach significance at the .05 level; $F(1, 19) = 3.422$, $p = .080$.

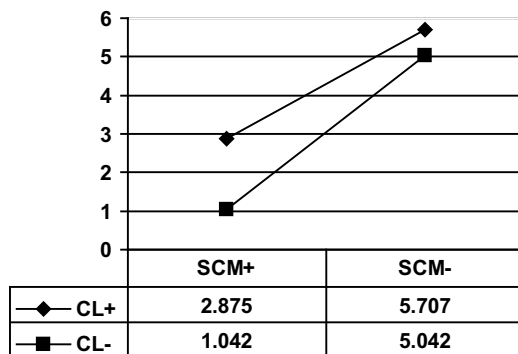


Figure 5.7 Effect of independent variables on Drunk Snail Test *part c*.
Notes: Covariate: Pre-test = 5.7500

The effect of SCM on the Drunk Snail Test *part c* was significant; $F(1, 19) = 13.708$, $p = .002$.

5.5.2 Listening Discrimination Test

5.5.2.1 Effect of Condition

The results of the listening discrimination test, pre- and post- for the four conditions, are presented in Figure 5.8 below. These scores represent the mean number of correct answers out of a possible total of 15. It will be remembered that these results are

based on the participants' third and final answer for each item. For details of individual scores after each listening, refer to Appendix 3M.

It can be seen that participants in Condition Two and Condition Four made the greatest progress on the Listening test. Those in Condition Three made some progress, while for those in Condition One the score actually went down slightly.

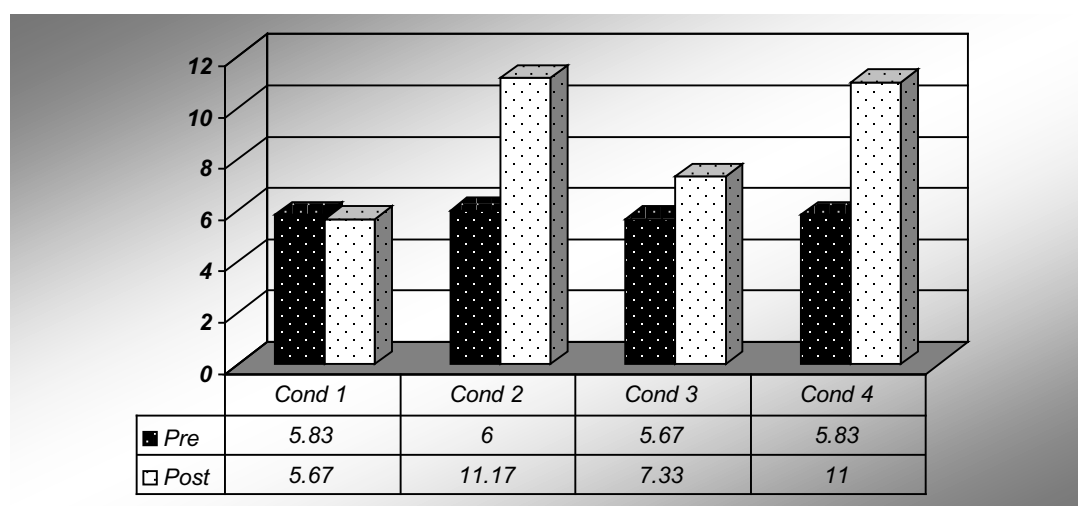


Figure 5.8 Comparative performance of the four conditions on the listening discrimination test.

Notes: Numbers represent a mean score out of a possible 15.

The results of a one-way analysis of covariance (ANCOVA) for the mean scores on the listening discrimination test are summarised in Table 5.9 below. This represents a comparison of the four conditions adjusted for initial differences on the pre-test among groups.

Listening Test			
Cond ¹⁾	Mean ^{a)}	Mean diff	Sig ^{b)}
1&2	5.667	5.381*	.000
1&3		1.786	.131
1&4		5.333*	.000
2&4	11.048	.048	.967
3&2	7.452	3.596*	.005
4&3	11.000	3.548*	.005

Table 5.9 Comparison of effect of instruction (ANCOVA) on listening discrimination test.

Notes:

1) This is a comparison of conditions. The means as shown in the adjacent column represent the mean for the conditions in order: 1, 2, 3, 4.

a) Covariates are evaluated at the following value: Pre-listening = 5.8333

b) Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments)

* The mean difference is significant at the .05 level.

The results of the ANCOVA confirm there is a significant effect for condition; $F(1, 19) = 11.188, p < .001$. Pairwise comparisons show that Conditions Two and Four improved significantly over both Conditions One and Three.

5.5.2.2 Effect of Variables: SCM and CL

As with the speaking tests, a 2x2 ANOVA is now used to confirm the effect of the variables.

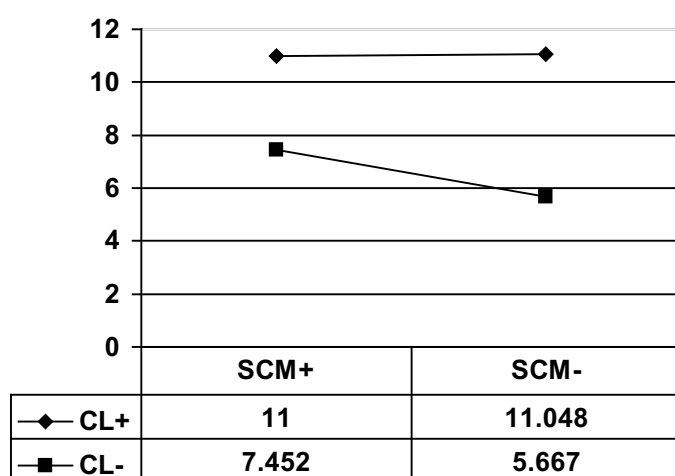


Figure 5.9 Effect of independent variables on Listening Discrimination Test

Notes: Covariate: Pre-test = 5.8333

There was a significant effect for CL on the Listening Discrimination test; $F(1, 19) = 31.058, p < .001$. The effect for SCM was not significant; $F(1, 19) = 1.176, p = .292$, and neither was the interaction effect; $F(1, 19) = 1.311, p = .266$.

5.5.3 Critical Listening

5.5.3.1 Effect of Condition

It will be remembered from section 5.3.3 that the Critical Listening task involved a test of learners' ability to perceive salient differences. The method of analysis, described in section 5.4, categorised learners' responses in terms of certainty that they have understood the concept: 'No' = not understood, 'Maybe' = possibly understood, 'Probably' = probably understood but the participant hasn't been able to explain it, and 'Yes' = clearly understood. The results are presented in figure 5.10 below. The

average number of responses in each category is shown for each condition, both pre and post. There are 12 items so the numbers shown are out of 12. These are shown on a percentage scale to provide an impression of the relative scores. The details of individual and mean group responses are provided in Appendix 3N.

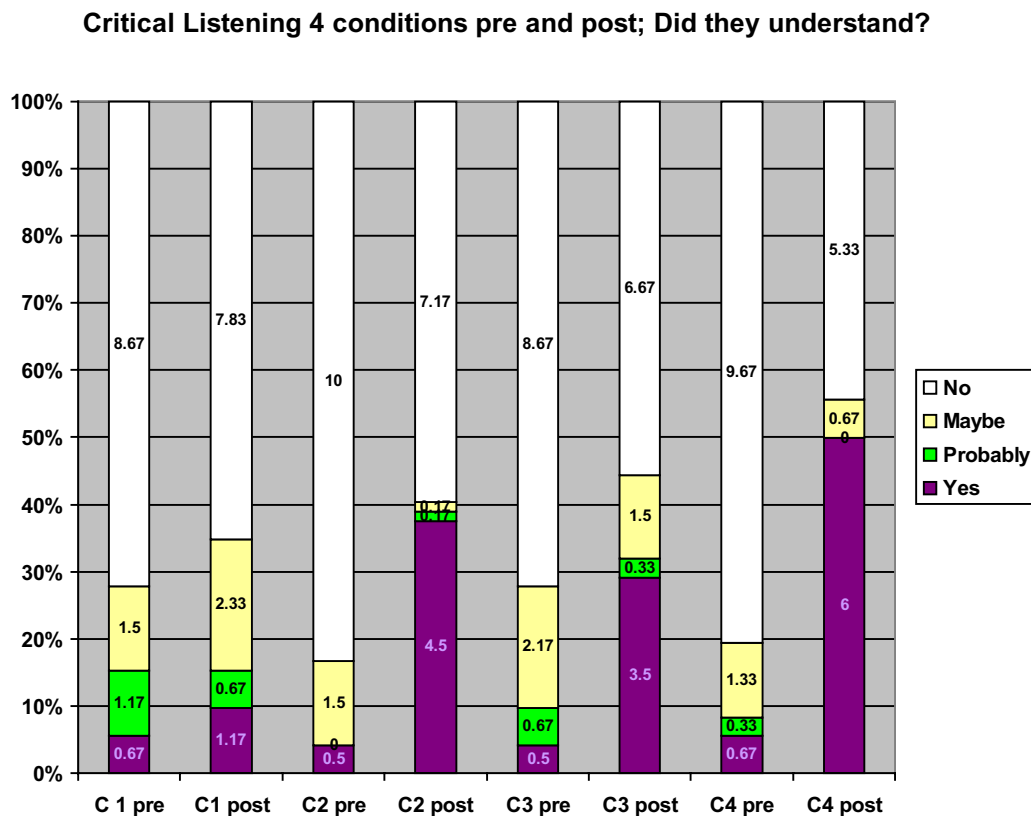


Figure 5.10 Results on Critical Listening Task

As can be seen, the largest gains were made by Condition Four, with large gains also being made by Condition Two and Condition Three. Only minimal gains appear to have been made by Condition One. An analysis of covariance (ANCOVA) has been carried out on these results.

The only results to achieve statistical significance are those coded as 'Yes'; $F(1, 19) = 3.414, p = .038$. Pairwise comparisons show the only difference to achieve significance at the .05 level is that for the adjusted means between Condition One and Condition Four, although the difference between Condition One and Condition Two comes close to significance at $p = .056$. These results are summarised in Table 5.10 below.

Critical Listening			
Cond ¹⁾	Mean ^{a)}	Mean diff.	Sig ^{b)}
1&2	1.183	3.135	.056
1&3		2.301	.152
1&4		4.833*	.005
2&4	4.317	1.699	.284
3&2	3.484	.833	.594
4&3	6.016	.2.532	.117

Table 5.10 Comparison of effect of instruction (ANCOVA) on Critical Listening task.

Notes:

These results represent the mean number of responses coded as 'yes' (out of 12) by condition

1) This is a comparison of conditions. The means as shown in the adjacent column represent the mean for the conditions in order: 1, 2, 3, 4.

a) Covariates are evaluated at the following value: Pre-test = 0.5833

b) Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments)

* The mean difference is significant at the .01 level.

5.5.3.2 Effect of Variables: SCM and CL

Here again, a 2x2 ANOVA is used to quantify the effect of the variables.

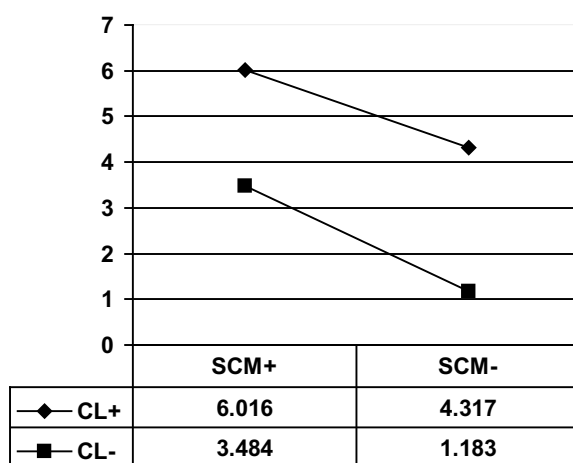


Figure 5.11 Effect of independent variables on Critical Listening Test

Notes:

Scores: number of cases (out of possible 12) coded as 'Yes'.

Covariate: Pre-test = .5833

These results show a significant effect for CL on the Critical Listening test; $F(1, 19) = 6.786, p = .017$. There was also some effect for SCM but this did not achieve significance at the .05 level; $F(1, 19) = 3.381, p = .082$.

5.5.4 Condition One does Condition Four

Four students from Condition One attended an extra lesson which replicated Condition Four. As can be seen from the graphs in figures 5.12 and 5.13, similar progress has been made.

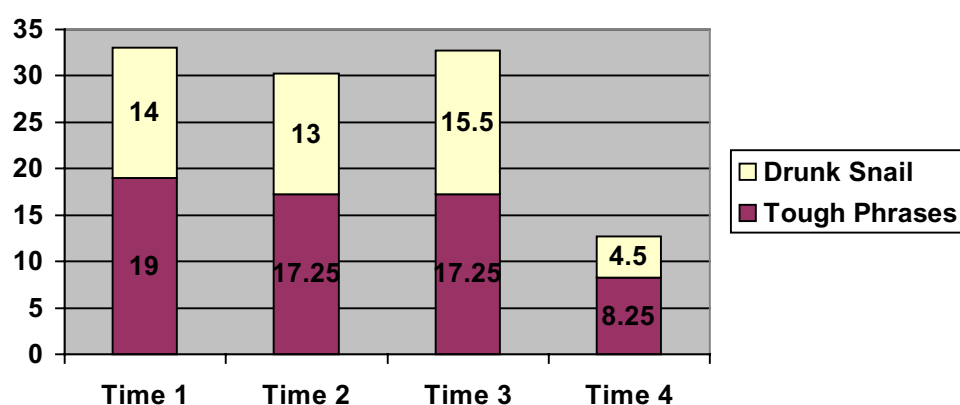


Figure 5.12 Number of errors on speaking tests: Effect of conditions 1 and 4

These results in Figure 5.12 represent the mean number of errors on the speaking tests for the four students who first did Condition One, and then later did Condition Four. Time 1 represents the pre-test, taken prior to Condition One. Time 2 represents the post-test immediately after Condition One. Time Three represents the pre-test (taken approximately two weeks later, prior to Condition Four) and Time Four represents the post-test immediately after Condition Four. It is evident that large gains were made between Time 3 and Time 4, and the largest gains were made on the Drunk Snail Test.

There was also evidence of improvement on the listening discrimination test, as shown in Figure 5.13 below. Although small gains were made between times 1 and 2, and 2 and 3, the largest gains were again made between Time 3 and Time 4, suggesting a large effect for the Condition Four lesson.

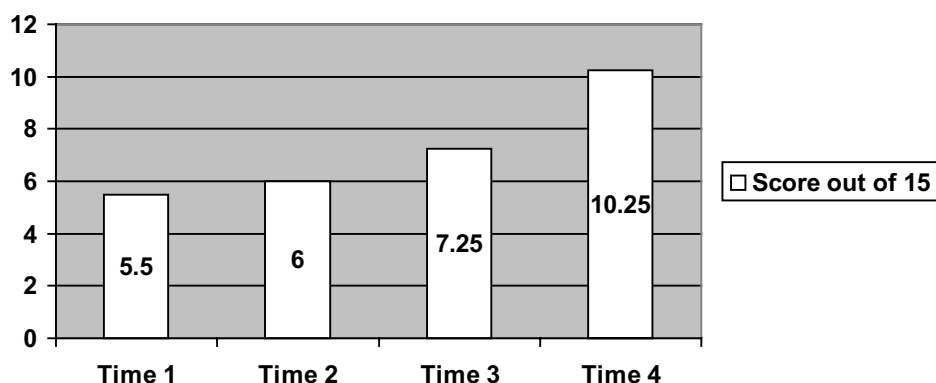


Figure 5.13 Effect of conditions 1 and 4 on listening discrimination test

Notes:

Mean scores out of 15 (N = 4) at four times:

Time 1 = pre-condition 1 test scores.

Time 2 = post-condition 1 test scores.

Time 3 = pre-condition 4 test scores.

Time 4 = post-condition 4 test scores.

5.5.5 Student Comment

While this study was set up to be largely quantitative, the students who first did Condition One and then Condition Four did comment briefly after their second lesson. When asked to compare the two classes they were unanimous that the second one was better. They said the practice was better and that they now knew the difference. The following comments suggest they understood. One student said, ‘You teach us how to pronounce, how we put ‘a’, an extra vowel.’ Another student said, ‘I didn’t understand what was wrong with the...[my pronunciation] I had some problem to add the extra vowel.’ However one student also said, ‘I understand but I still can’t say it.’

Although it had been anticipated that students would be encouraged to comment during the pre- and post-interview during which they did the critical listening task, in practice there was no time left for students to make any comments.

5.6 DISCUSSION

As has been seen, Condition Four (SCM+/CL+) made significant gains in both production, as shown through the speaking tests, and in perception, as shown through the listening discrimination test and the Critical Listening test. The significance of

these gains is underlined through their comparison with those made by Condition One in its function as a control group.

Condition Three was also found to have made similar significant gains in terms of production. Gains in perception were however not quite so dramatic. In contrast, Condition Two made dramatic gains in perception, similar to those achieved by Condition Four, but failed to make large gains in production. These results are in line with the predictions of the initial hypothesis.

On its own, this study is open to claims that to show acquisition has occurred, a delayed post test would also be required. This has not been done for two reasons. The first is that the previous two studies have already looked at the longer term effects of instruction. The second is the practical consideration that on its own, a 50 minute intervention is unlikely to achieve long term gains without a number of additional factors. These include the need for more practice and on-going feedback as was provided in the earlier studies. While it would have been interesting to have known if even this short intervention led to long term gains, it becomes difficult to maintain the level of tightly defined control established over the four different conditions. Over time, it also becomes difficult to control for external influences. Thus what is being claimed here is that a first step towards acquisition has been demonstrated. Nevertheless this is a very important and essential first step.

Another effect of creating such a tightly controlled study was that the focus was on words and phrases. In actual teaching practice it would be expected that they would be much more contextualised.

5.6.1 Speaking Tests

The ANCOVA test on the total scores across all speaking tests shows that Conditions Three (SCM+/CL-) and Four (SCM+/CL+) improved significantly over both Conditions One (SCM-/CL-) and Two (SCM-/CL+). Further, the 2 x 2 ANOVA finds that the variable SCM is strongly significant, providing evidence that SCM+ is significantly more effective than SCM-. The variable CL appears to have had at most a very small effect on performance on the speaking tests. In looking at the post-test

errors adjusted for pre-test errors, it was seen that Condition Three and Four made a mean of 16.805 and 15.762 errors respectively, while Condition Two made a mean of 25.024 errors compared with 30.076 for Condition One. This difference between Condition One and Two is not significant, but it may represent a trend.

In summary, SCM was translated more readily into changes in production than changes in perception while, as will be discussed later, CL was translated more readily into changes in perception than production.

Drunk Snail Test

Looking at the Tough Phrases Test and the parts of the Drunk Snail Test, the trends are similar although the most significant gains were made on the Drunk Snail Test. It will be remembered that half of these items were taught during the class, while the other half were representative of phonetic contexts similar to those taught. Thus it is perhaps not surprising that the greatest gains were made here.

The test was designed such that *part a*, being a listen and repeat task, should have been the easiest, *part b* should have been next as reminders of joining and stress were provided, and *part c* was expected to be the most difficult as learners were simply told to read the words and phrases. However, the pre-test averages for the number of errors were 5.667, 4.125, and 5.75 respectively. So while *part b* may have been easier than *part c*, as predicted, *part a* was in fact not so easy. In fact it suggests there may be little difference between listening and repeating, and simply reading. The relative difficulty that the learners had on *part a* supports the view that providing a model and getting learners to repeat it, is sometimes not effective as learners will continue to listen and repeat incorrectly if they have not understood the concepts. There is of course another unknown factor, which is the relative difficulty of the individual items on the three parts of the test. This would make further testing necessary in order to be able to make categorical statements about the level of difficulty.

The ANCOVA test on the results of the Drunk Snail Test also shows that Conditions Three and Four improved significantly over both Conditions One and Two. This was reflected in the 2 x 2 ANOVA which finds that the variable SCM is strongly

significant, again providing evidence that SCM+ is significantly more effective than SCM-. The variable CL appears to have had almost no effect on overall performance on the Drunk Snail Tests.

In turning to *part a* of the Drunk Snail Test, which required learners to listen and repeat the words and phrases in front of them, this might be where one would expect to see the most improvement. While Condition Four and Three both made very large and significant improvements Condition Two and One made relatively small improvements. This was reflected in the 2 x 2 ANOVA which again found a strong effect for SCM+. The fact that Condition One managed to improve only slightly despite intensive listening and repeating practice with half of the actual items on the test, highlights the point made earlier that listening and repeating alone is not always enough to make progress.

In *part b*, learners had some guidance through curved lines to remind them where to join words and underlining to show stress. This would be expected to be especially helpful for those benefiting from SCM+ (Condition Three and Condition Four). While it was found yet again that both of these conditions improved significantly over Condition One, it was interesting that Condition Two also improved significantly over Condition One. It can only be assumed that the guidance provided also triggered a useful reminder to those in Condition Two. In looking at 2 x 2 ANOVA results, the effect of SCM was significant, and although the effect of CL didn't quite reach significance ($p = .080$), it did come very close. These are tentative indications that CL+ may also be having some effect on production.

In *part c* learners had to read the list of words and phrases with no further guidance. Given that half of them had been practised, and the other half were representative of similar phonetic contexts, one might expect some improvement here as a result of instruction. Interestingly, Condition Three made the most progress here, although it was not significantly greater than that made by Condition Four. Both conditions are significantly better than Condition Two but only Condition Three is significantly better than Condition One. The 2 x 2 ANOVA shows the effect for SCM is statistically significant while yet again the effect for CL is relatively small and not significant.

In conclusion, the results from the Drunk Snail test show very large gains being made by both Condition Three and Condition Four. They provide further evidence to support the hypothesis that SCM has a positive effect on pronunciation while the effect from CL is much smaller and fails to reach significance.

Tough Phrases Test

The results on the Tough Phrases Test also indicate improvement. However, in terms of statistical significance these are less convincing. Condition Four is the only one to come close to achieving statistical significance (.062) against Condition One. The 2 x 2 ANOVA also doesn't reach significance for SCM ($p = .105$). There are two possible reasons for the lower improvement on this test compared with that achieved on the Drunk Snail Test. One possible reason is that a greater transfer is required as these items were not the focus of instruction. However, given the relatively small groups of six learners per condition and the limited period of instruction, the trend noted is suggestive of the beginnings of acquisition. A second possible reason for the scores on this test relates to more practical difficulties in setting up the study. It was noted that the number of errors on the Tough Phrases pre-test was lower than average for Condition Four, because of the need to shuffle learners at the last minute. This imbalance may have made it harder to achieve statistically significant gains. It was also noted that one of the learners in Condition One appeared to make more errors on the Tough Phrases pre-test than was representative of her difficulty as she made far fewer errors on the Drunk Snail pre-test. This may have skewed the results as in fact the gains by that student account for nearly 60% of the total gains made by the whole Condition One group on the Tough Phrases Test. A further consideration is that this test was designed to test for both epenthesis and absence, making it possibly less efficient.

5.6.2 Listening Discrimination Tests

The ANCOVA test on the results of the listening discrimination tests shows that Condition Two and Four improved significantly over both Condition One and Three, nearly doubling their scores. The 2 x 2 ANOVA shows a very strong effect for CL (p

< .001). Thus the CL+ groups improved significantly more than the CL- groups as a result of instruction. It is of course true that the CL+ groups did have some listening discrimination practice and this may have helped with the task type on the actual test. Then again the object of CL is to improve understanding of where category boundaries lie and thus change perception. This is essentially what the listening task tests for.

Condition Three improved more than Condition One but at $p = .131$ this is not considered statistically significant. However it may be indicative of some improvement in this area, suggesting the beginnings of a transfer of production gains arising from SCM to gains in perception.

This was certainly a more revealing test than the ones used in the previous two studies and it provides clear evidence that learners were significantly better on listening discrimination tasks having used this CL technique.

5.6.3 Critical Listening

In this task, Condition Four and Condition Two also made the most improvement, as in the previous test, but this time it was Condition Four that was better than the others, and the only one to reach significance. There were greater signs of understanding from those in Condition Three.

There are only 12 items on this test, which may have made it more difficult to achieve statistically significant gains. It was also very difficult for students in the pre-test stage, as is shown by the very low scores. Having the SCM appeared to help the learners in Condition Three as they knew what it was they were listening for even though they hadn't had the practice. Those in Condition Two were better at listening discrimination, but when it came to actually pinpointing where the error was they didn't do as well as Condition Four, which supports the argument that SCM plays an important role in concept formation. Neither Condition Two nor Three improved significantly over Condition One, however they did both improve, with Condition Two coming close to a statistically significant improvement over Condition One (.056) and Condition Three (.152).

This task provided greater insight into the learners' stages in concept formation as they were required to go further than the listening discrimination demanded in the previous task and actually show they knew what the difference was. Although they still made mistakes, some learners showed a remarkable improvement in perception of epenthesis, from having absolutely no idea as to what the difference was to actually being able to discern the difference. There are quite large individual differences. In Condition Four, three learners improved from none or one correct to 8 to 10 correct (correct being coded as 7 = Yes, see Figure 5.10 and for the details see Appendix 3N). One could safely say that those three now understand the concept. The other three have made only slight, or possibly no, improvement still only scoring three out of twelve. Condition Two, shows two learners making large improvements (scoring 7/12 and 8/12 respectively) to the point where one could say they have understood the concept. In Condition Three, one student has improved from zero to seven. Of the others, two scored 5/12, thus showing some improvement, but still requiring more before one could confidently state that they have learned the concept. By way of contrast the only student to score reasonably well from the Condition One group, scoring 6/12 had already scored 5/12 before the instruction. Thus it is clear that not all learners fully understood the concept, but those in Condition Four, and to a lesser extent those in Condition Two and Three, have made considerable gains.

It is difficult when teaching to effectively reach all learners but it is the teacher's task to find ways of communicating effectively with as many as possible. It should be remembered that the subjects in this study already represent those who had not been able to acquire this aspect of pronunciation either through experience or from instruction. Therefore if three or four of six learners improve as the result of instruction this should be taken as evidence that the instruction was effective. Different approaches will always suit different learners and there will always be some learners who appear to learn naturally with no instruction. It would certainly be of interest to investigate how those who have managed to understand the concept did so.

5.6.4 Condition One does Condition Four

The aim here was to replicate the results for Condition Four. This group of four students made a similar degree of progress in both listening and speaking to that achieved by the first group in Condition Four. Of course, because two of the students did not come for this lesson it is difficult to make statements about statistical significance as it could be argued that the two who did not come might have made no progress, thus skewing the results. Despite this, the fact that the results for Condition Four have been replicated for four learners, strengthens the statistical proof already provided for the effectiveness of the condition. Also the fact that those four made no progress under Condition One, and then made progress under Condition Four, further suggests that the Condition Four results are not an aberration.

5.7 CONCLUSION

Overall there is clear evidence that both the focus on CL and SCM brought about positive gains for learners. There was a tendency for SCM to be reflected in improvements in production while CL brought about stronger gains in perception. One could interpret the results as meaning that production can be improved without necessarily improving perception and vice versa. The conclusion is that one should attempt to do both on the grounds that one will support the other.

Thus the hypothesis has been tested and it has been found that:

1. The right kind of metalanguage (SCM) will help learners to form new concepts.
2. The use of contrast through critical listening (CL) will help to establish category boundaries

Although it was not possible to provide ongoing practice and feedback within the scope of this experimental study, results suggest the foundation has been laid for this to be able to occur. Again there were individual differences, with some learners

making more progress than others. This is a reminder of the ongoing quest for the teacher to find ways of communicating effectively with as many learners as possible.

Given that the intervention involved just one 50-minute session, the gains made by Condition Four, and also Condition Two on perception and Condition Three on production, are quite remarkable. It is also notable that despite having groups of six as opposed to the originally planned eight, statistical significance was achieved.

This experiment has provided detailed definitions and operationalisation of two variables and demonstrated that they are important to pronunciation teaching. By providing detailed descriptions of the lessons it is possible for others to replicate this study to confirm these findings, as indeed they were replicated when the group which had received Condition One was given Condition Four.

The results themselves are convincing, and allow for the conclusion that SCM and CL, being representative of a concept formation approach as proposed by a Cognitive Phonology framework, are effective pronunciation teaching techniques. The implications of these findings, and those of the earlier two studies, are discussed in terms of practice and theory in chapter six.

CHAPTER 6: DISCUSSION

6.1 INTRODUCTION

This chapter begins with an overview of the findings of the studies undertaken for this thesis. These results are compared with those from other studies reported in the literature. Then the implications for the classroom are considered, addressing the questions of whether and how pronunciation should be taught, before laying out a number of guidelines for teachers based on the findings of the thesis. This is followed by a discussion of the theoretical implications, beginning with SLA theory and social and cultural theories and educational psychology. In the next section, the findings are discussed as they relate to L2 speech research into speech perception and the relation between perception and production. Finally it is seen how the CP framework combines theory and practice in a unified whole.

In discussing the results of these studies, they are referred to as Study One (presented in chapter three), Study Two (presented in chapter four), and Study Three (presented in chapter five).

The aim of the studies which comprise this thesis has been to make both practical recommendations for teachers by testing the effectiveness of different teaching approaches, methods and techniques and to contribute to theory building. In the first instance this has required observation of both teaching and learning processes in order to derive general principles and related hypotheses for further testing. Thus a combination of quantitative and qualitative research methods has been employed, ranging from classroom based research and ethnographic case studies through to controlled experimental hypothesis testing.

The approach taken to theory building, as explained in chapter one, has been one of understanding the problem from as many different perspectives as possible before testing for particular hypotheses. This has been particularly necessary in this case, given the lack

of previously established empirical evidence about pronunciation teaching. Thus Study One, which built on the action research project described in section 1.2 of chapter one (Couper 2003), involved a series of short lessons incorporated into regular classroom teaching and employed a range of activities drawn from pedagogical literature and the teacher/researcher's intuitions as to what might be effective. This was matched with learner surveys and interviews to gain insights into their perceptions of the teaching and the learning processes they were going through. This led to a refinement of the teaching materials to be used in Study Two so that the effect of specific approaches, methods and techniques on learning processes could be explored from the combined perspectives of the learners and the teacher in an ethnographic case study environment. Finally, from this study two key variables, Socially Constructed Metalanguage (SCM) and Critical Listening (CL), emerged which could be tested experimentally for their effect on learning. These variables were the focus of Study Three.

6.2 OVERVIEW OF FINDINGS

The three studies presented in this thesis employed a range of research techniques, and have attempted to illuminate the issues from different perspectives. This has led to a large number of both qualitative and quantitative findings. The most important of these findings are reviewed briefly before moving on to a discussion of their implications.

6.2.1 Quantitative Findings

Study One reported large and significant decreases in error rates on the Tough Phrases Test (a test involving reading 40 specially designed phrases), most of which were retained over time. The second test, called the Citric Acid Test, which was a sentence level reading task, also showed significant gains three months after instruction. Using the same tests, baseline data was collected from a large number of other students, who received no particular instruction in epenthesis and absence, and it was found that there was no change over a one semester period. Thus it was concluded that gains from teaching were made and retained, and that they were transferred to other contexts.

The focus of Study Two was largely qualitative, with only four learners, so no attempt was made to establish statistical significance. Nevertheless, large decreases in error rate were recorded on all the speaking tests: the Tough Phrases Test, the paragraph reading task, and the direction giving task. These were also maintained in the delayed tests 8 – 18 months later. Thus although one cannot make claims about a wider population, one can say that this group improved on a wider range of tasks and they maintained these gains over time. They also showed gains on a test of spelling and pronunciation. In terms of listening discrimination, the gains made in both these studies were more modest.

Study Three tested for the effect of SCM and CL. Both variables were found to have a significant positive impact on the effectiveness of pronunciation instruction. SCM showed a significant effect on the speaking tests while CL showed significant effects on the listening discrimination and critical listening tests.

6.2.2 Qualitative Findings

There were also a number of qualitative findings in addition to the quantifiable changes noted above. These included insights into learners' past experience with pronunciation instruction and current levels of awareness of English phonology and awareness of their pronunciation difficulties. These studies shed light on learning processes, showing how individual learners perceived English pronunciation and how different teaching methods and techniques affected this perception. Learners' views and interpretations of teaching events such as: explanations, rules, corrective feedback, critical listening, listen and repeat and other activities also provided insights into learning and teaching.

6.2.2.1 Study One

In Study One it was seen that for a large number of learners the particular problem of epenthesis and absence was not easily overcome without focussed instruction (as

discussed in section 3.7.1.2). It was also noted (see section 3.7.2.2) that the prevalence of the difficulty was related to the degree to which the coda was marked.

It was found that previously learners had generally received little pronunciation instruction and that they were often not aware of the precise nature of their weaknesses. However, many learners did perceive that they had some difficulties and that pronunciation was important. Upon completion of this study learners were much more aware of this particular difficulty with epenthesis and absence and they believed they had improved. It was also clear that these errors were very much entrenched and that even though they could often hear their mistakes they still found they didn't have time to stop them while speaking, i.e. a lack of processing time. Change requires practice and feedback.

The importance of the nature of teacher explanations also emerged from this study. It was noted that traditional explanations of syllable patterns did not appear to be effective, while explanations which drew on the learners' own perceptions of the sounds appeared to be more successful. The greatest difficulty for learners was to understand exactly what was salient about the TL pronunciation. Thus there were some differences which they still struggled to hear. Here it was important for the teacher to focus learners' attention on these differences.

Problems such as the pronunciation of syllable codas were much more difficult to overcome than those which centred around the relationship between orthography and pronunciation and could be corrected with little difficulty. Learners were easily able to understand some items such as how they should pronounce the weak form of 'and', and it was clear that they had been under the misapprehension that they needed to pronounce all letters clearly.

Feedback from the learners suggested that the way the Critical Listening exercises were presented in class was generally beneficial but too demanding for some (see section 3.7.3). This led to a more effective application of this technique, providing more support

and scaffolding, in its introduction in Study Two. The students commented that while rules were sometimes useful they tended to forget them while speaking. Practice was seen as critical, and even though learners recognised activities such as ‘listening, repeating and recording’ were not authentic, they still saw the need for them.

Study One also served to establish which phonetic contexts would be best to focus on in teaching epenthesis and absence.

It concluded that effective teaching involves:

- Making learners aware that there is a difference between what they say and what native speakers say.
- Helping learners to hear the difference in the way that native speakers do, and practise it.
- Finding the metalanguage that is appropriate to a particular group of students.
- Helping learners to discover useful patterns and rules.
- Giving feedback and providing opportunities for further practice.

6.2.2.2 Study Two

Study Two went into greater depth and explored these findings, especially in terms of learning processes. The techniques were different as this was not just short sessions as part of a course but rather a series of additional lessons. Thus they were set up in a more communicative manner, using a listening text to provide a meaningful context before focussing on particular areas of pronunciation. There was also a greater effort to provide more interactive practice with the development of information gap activities, in the form of card games, requiring accurate pronunciation. Because there were just four students rather than a class of twenty it was much easier to gain insights into individuals’ progress. The classes were also videotaped making it possible to review the processes.

There were many observations (discussed in section 4.4) but the findings can be summarised according to the effect of the methods and techniques used during instruction.

In general terms it was found that learners had become much more aware of the pronunciation of syllable codas and had learned to pay more attention to the salient differences. All four learners were very positive about the instruction they had received and were insistent that all teachers should teach this from the beginning levels of English learning.

Individual differences were also noted in the ways they understood various aspects of this phonological concept and in their abilities to compare and discern phonological differences.

Talking about Pronunciation

It was observed, and backed up through analysis of transcripts, that the input provided by learners in discussing how they heard target sounds provided the most effective means of communicating about pronunciation. In relating this to the notion of metalinguistic communication (Fraser 2001), the term SCM (Socially Constructed Metalanguage – refer to section 4.5) was coined. It was also noted that it was essential to use visual representation on the black/whiteboard in making sure all learners were focusing on the aspect of pronunciation under discussion. Without this visual support they easily misinterpreted input and feedback by focusing on the wrong thing, such as intonation or the consonant rather than the vowel. This is as predicted by Fraser's (2001) idea of metalinguistic communication. Thus, before explicit instruction can be effective, learners must be aware that there is a problem, understand exactly where the problem is, learn the precise nature of the problem and know how to rectify it.

Critical Listening

This was found to be a particularly effective technique for helping learners to understand the precise nature of the problem by giving the opportunity to compare and contrast and thus establish the phonological boundaries. This technique was employed more successfully than in Study One. It was more carefully structured and more consistently supported with visual cues and SCM. Learners became more proficient with practice and commented that it was particularly useful. In the post-interviews, three of the four learners demonstrated they could consistently distinguish the category boundaries between when there was epenthesis and when there wasn't. This provides clear evidence of concept formation.

Practice and Feedback

Listening and repeating was not always successful. There were cases in which learners could listen and repeat many times and still not repeat accurately. It was noted that some codas were particularly difficult. However, listening and repeating was found to be useful practice once it was clear to the students exactly which aspects of pronunciation needed to be focused on, i.e. with visual support and SCM. The role of corrective feedback is of central importance and it is the nature of that feedback which is critical.

Other activities, especially the 'animal game', received praise from the learners and were observed to be beneficial in helping learners to explore and establish the phonological boundaries as they focused on both form and meaning.

Discovery Activities

Taking an inductive approach through the use of discovery activities is common practice in Communicative Language Teaching and was found to be motivating for the learners, who were keen to know the rules (refer to section 4.4.2.4). These patterns were useful for learners in understanding the relationship between orthography and pronunciation.

However, it was also seen that students could be misled by such rules as they tended to focus more on /t/ /d/ and /s/ /z/ distinctions than on the extra vowel.

Thus the key qualitative findings from the first two studies arose from insights into learning processes as progress was made in concept formation. It was seen that it was the type of instruction which was critical to its success. In particular these studies have enabled two variables to be defined and operationalised for quantitative testing. As already noted in the review of quantitative findings these variables were found to have a significant positive impact on the effectiveness of pronunciation instruction.

6.3 COMPARISON OF FINDINGS WITH OTHER RESEARCH INTO TEACHING PRONUNCIATION

In section 2.6, research into the effectiveness of L2 pronunciation instruction was reviewed. It was noted (Derwing and Munro 2005) that there had been few studies of pronunciation instruction. Macdonald, Yule and Powers (1994:77) commented, after their unsuccessful attempt at teaching pronunciation, that ‘remarkably little is known about the relative benefits of those various procedures in terms of perceived improvement in any individual learner’s L2 pronunciation, either immediately or over the longer term.’ It is against this backdrop that the discussion is begun by relating the findings here to the conclusions of those few studies, before moving on to consider the practical and theoretical implications.

Derwing, Munro and Wiebe (1998) attempted to narrow down type of instruction by classifying it according to whether it focussed on segments or more global prosodic features and concluded there was a need to focus on both. The three studies in this thesis have of course just taken the one aspect of pronunciation and found that gains were made in that aspect rather than looking at how they have influenced overall fluency. Nevertheless they add to the findings of Derwing, Munro and Wiebe in that they provide further evidence for the effectiveness of teaching, and more importantly they suggest that, while there is no doubt that all aspects of pronunciation need to be taken into

consideration when deciding what to teach, the real question is how should they be taught.

It will be remembered from the literature review, that Park (2000) defined the ‘how’ of instruction along the lines of: form-focussed, meaning-focussed, and forms- and meaning-focussed. She found that ‘meaning-focussed’ instruction had no effect, ‘form-focussed’ had a positive impact and ‘forms- and meaning-focussed’ was more effective. This thesis has not tested for these distinctions, but the instruction found to be effective has generally been both ‘forms- and meaning-focussed’. Therefore the positive role found for instruction would tend to support Park’s conclusions.

Others have referred to the use of visual support (de Bot 1983; Warsi 2002) and it has been seen here that it can be critical for the teacher to use visual representations if learners are to understand precisely what it is the teacher is referring to. Likewise Elliott (1995) argued for the value of a multimodal approach.

The results here also strongly support Chang’s (2006:ii) conclusion that ‘explicit teaching in conjunction with meta-linguistic discussion raises awareness of phonological form.’ This thesis has focussed on defining the precise nature of that meta-linguistic discussion as SCM+/-, and experimentally testing its effectiveness. The theoretical basis for this is discussed later in the chapter.

In conclusion, the studies undertaken for this thesis have confirmed and extended the body of literature which is slowly developing around the role of instruction in L2 pronunciation learning. The following sections discuss the practical and theoretical implications of these findings.

6.4 IMPLICATIONS FOR THE CLASSROOM

6.4.1 An Assessment of Current Pedagogy

In section 2.3.1 and 2.3.2 views on the role of pronunciation in language teaching were reviewed. One of the key issues was the place of pronunciation teaching, and more generally a focus on form, within Communicative Language Teaching. One interpretation was to focus solely on meaning, while another was to take a broadly-constructed communicative approach as proposed by Morley (1991). The findings here clearly support the concept that one needs to focus on both accuracy and fluency, and consequently on both form and meaning. This idea that, to be able to create meaning, learners also need to learn the necessary skills, possibly involving a focus on form, has often been suggested in the literature on language teaching and learning in general. This is seen in findings by R. Ellis (2006), Spada, Lightbrown and White (2005), Skehan and Foster (2001), and Swain and Lapkin (1982, 1995).

Burgess and Spencer (2000) point out that a communicative approach implies that learners need to learn how to pronounce sounds rather than about the sounds. They suggest an implicit approach, using noticing and ordering tasks to present forms. In contrast, it has been shown here that an explicit approach is effective in achieving this. In response to Burgess and Spencer one could point out that learning about language is not necessarily the same as explicit instruction. In fact, one needs to be very explicit if one is going to be successful in helping learners to understand and learn how to pronounce sounds (at least in those cases where they are not able to acquire the pronunciation without instruction). As was seen in the development of SCM, much traditional metalanguage is simply about language from the perspective of that language. Once the learner's perspective is included, it is possible to help learners understand sounds by helping them to understand how they are perceived and consequently how they are pronounced.

In section 2.3.2, teaching recommendations from the literature were reviewed. One common theme was the need for awareness-raising. The findings of this thesis also suggest the value of this, favouring the role of explicit explanations supported by visual representation and the use of contrast.

In the same section of the literature review it was also reported that practice was generally agreed to be a key factor in pronunciation learning, and that it needed to be variously controlled, guided and communicative (Celce-Murcia, Brinton and Goodwin 1996; Porter 1999; Morley 1991; Pennington and Richards 1986). The studies in this thesis have also made use of a great deal of practice: drilling, guided and communicative. Feedback from learners also underscored its perceived importance.

The idea that the pronunciation teacher fills the role of a coach was also put forward. These studies saw the teacher acting as a coach, providing cognitive guidance and feedback through awareness of learners' individual perceptions.

The findings here are not at odds with Porter's (1999) suggested teaching sequence, especially his focus on raising awareness of the nature of specific problems. Likewise the recommendations made by Pennington and Richards (1996:219), such as to, 'lead learners gradually from controlled, cognitively based performance to automatic skill-based performance' are in line with the view that pronunciation is a cognitive skill. The proposal to adopt a communicative-cognitive approach as advocated by Cunningham Florez (1998) and Celce-Murcia, Brinton and Goodwin (1996) is also supported by the findings of this thesis. Of course this thesis provides further specification of how the various stages need to be carried out; i.e. while a description and analysis of the targeted feature is necessary to raise learner awareness of the specific feature, it was found how it was described and analysed was critical. In the same way, how listening discrimination activities were carried out and the type of feedback given were also found to play an important role in their effectiveness.

In terms of classroom techniques, a number of which were reviewed in section 2.3.2, the findings of the studies in this thesis do not conclude that any particular techniques are not effective but rather that what is important is how they are employed. For example, explaining syllables through an analysis of CV patterns, an idea taken from Celce-Murcia, Brinton and Goodwin (1996) was not found to be successful in this thesis. However, it was demonstrated that through a combination of concept formation techniques such as SCM and CL, learners could develop an understanding of when English speakers perceived an extra vowel and how this led to the perception of an additional syllable and changed the meaning.

In terms of practice activities, listen and repeat type practice was also found to be effective, but it relied on learners already understanding enough of the phonological concepts involved. There was plenty of evidence to show that learners were often unable to listen and repeat accurately. This supports the observation made by Porter (1999) that most materials focus on practice and make the assumption that learners already understand what it is they are practising. In the same way corrective feedback while listening and repeating required learners to understand precisely what the feedback related to. Rules were found to be useful, but they only worked if learners understood the concepts behind the rules. Listening discrimination activities were also useful, but again it was important that learners understood precisely what it was they were listening for.

Information gap activities were also found to be effective, although some interpretations of a communicative approach might preclude such activities on the basis that they lack authenticity. Doubts could be cast about the choice of lexical items and it could be suggested that the situations involved in these activities were not very communicative. However, observation of the learners engaging in these activities as well as comments during the interviews, made it clear that these games were motivating and created their own communicative situations. The role of such activities and the need for authenticity are areas worthy of further exploration.

In conclusion, the findings of these studies clearly demonstrate that there is a role for explicit pronunciation instruction, at least in this particular area of epenthesis and absence. Thus in answer to the question of whether or not pronunciation should be taught, this thesis provides a resounding yes. As will be seen in the next section, this implies a greater role for pronunciation teaching.

6.4.2 A Greater Role for Pronunciation Teaching.

It was noted in chapter one and section 2.3 that pronunciation teaching was often neglected and a number of possible reasons were suggested for this. These included questions around age and identity, and a lack of empirical evidence to show that pronunciation teaching can work (Derwing and Munro 2005).

In the first instance, the findings here are in line with those reported by Macdonald (2002) and Barrera Pardo (2004) that pronunciation teaching had been neglected. The empirical evidence provided here should encourage teachers to believe that it works and to pay it more attention.

It was found that learners certainly wanted to improve their pronunciation, despite suggestions that issues around identity may imply that pronunciation instruction is not appropriate (Porter 1999). Many of the learners said they wanted to be explicitly taught and corrected which suggests the threat this poses to one's identity is far less than the loss of face in not being able to make oneself understood. This supports Pennington's (1998) argument that it is in the interests of the learners to help them to achieve pronunciation which is as accurate as possible. These findings give credence to the idea that it is possible to link pronunciation and identity to achieve positive outcomes (Morgan 1997), based on the view that identity is multiple and dynamic (Golombek and Jorden 2005). Similarly Jones's (1997) comments regarding the need to tie pronunciation work in with individual psychological and sociological factors and Pennington's (1998) comments about making the L2 pronunciation a psychologically comfortable alternative were realised in practice in these studies. Once learners understand how the Target Language

(TL) speakers think about TL pronunciation it is less threatening and easier to adopt and also to adapt to one's own ends. Thus this knowledge becomes empowering. This fits in with the idea of a third place (Lo Bianco, Liddicoat and Crozet 1999) in which learners can try out new identities as they develop intercultural competence.

It was also seen that age did not prevent these learners from improving their pronunciation. It may be that a number of factors related to age played a role in the state of their pronunciation prior to instruction, however, the point is that this instruction was in fact able to counter some of their difficulties regardless of age.

What was difficult was that it was sometimes a challenge to change a lifetime of thinking about sounds in a certain way and then, having changed that, to make it automatic enough to employ it successfully in spontaneous speech. In addition to the difficulties imposed by L1 perceptions, the use of epenthesis and absence in English had become a long established habit which was difficult to break. However, the findings of the thesis go some way to providing evidence from empirical research, as asked for by Derwing and Munro (2005), that pronunciation teaching can be effective. They provide clear evidence for the positions taken by Sinclair (2003) and Pennington (1995:102) that the cognitive skills of adults mean they can make better use of the conscious, deliberate dimension of learning and benefit by activities which provide opportunities to 'compare and contrast and recognise patterns in speech'. In conclusion, the findings here support a greater role for pronunciation teaching.

6.4.3 Guidelines for Teachers

Having considered the findings of these studies in the light of current attitudes towards pronunciation teaching, and having concluded that there is a case for it, a number of recommendations can now be made. Those which are most strongly supported by the evidence, especially the role of contrast and metalanguage in concept formation, are discussed first.

The Prerequisites

These recommendations are made against the background of the teacher understanding and being aware of the distinction between phonology and phonetics (refer to section 2.2.2). That is the teacher must remember the distinction between the conceptual abstract nature of the phonological system and the actual sounds which are produced. For learners to master the L2 pronunciation they must understand this relationship. This understanding also requires an awareness of this distinction in the L1. That is, learners have to put aside their long-established phonological concepts and ‘allow their ears to do the work’ (Fraser 2006a:89).

Raise Awareness and Develop SCM

In the first instance there is a need to raise awareness, not just that something is not right, but to use visual representation on the board to make it clear precisely where the problem is. Having done this, learners need to understand what the problem is and how to solve it. In response to the observations in this thesis as to how learners can be best helped it was suggested that a particular type of metalanguage should be developed. This was defined as socially constructed metalanguage (SCM) and is about developing mutually understood ways of talking about pronunciation. This thesis has put forward some suggestions relevant to the case of epenthesis and absence, but clearly this has to be developed and customised for different aspects of pronunciation and for different groups of learners.

Use Contrast through CL to Establish Category Boundaries

An important part of the process of learning categories is contrast. Thus teachers must find ways to help learners perceive these contrasts and establish category boundaries. To this end Critical Listening was proposed as a technique. The process used in this study was time-consuming as it involved recording learners and cutting and pasting sound

tracks to provide comparisons. The aim is to help learners distinguish between what is and what is not understood as being within certain categories. So anything which helps learners to compare this in a meaningful way should contribute to the achievement of this aim. Minimal pairs and listening discrimination exercises are a useful starting point as they do at least contrast the categories and they are much easier to set up. Nevertheless, learners can be made aware of what they have said as they say it in class and this can be used to help them hear the contrast. Recordings of learners can also be used to highlight certain difficulties without necessarily going to the lengths of cutting and pasting. There are still some technical issues to be thought through in making this easily accessible to teachers. One possibility is to make use of computers to show these contrasts as has been done in some laboratory studies, e.g. Fraser (in press).

Provide Corrective Feedback

Corrective feedback is also a critical aspect of the learning process. Having established SCM this can then be used in the provision of corrective feedback.

Provide Opportunities for Practice

Other recommendations include the need for practice. Again, practice activities are only effective once learners have understood the phonological concept. Practice activities also need to move from the tightly controlled to the more communicative.

Clearly it is necessary to make pronunciation instruction meaningful to learners.

6.5 IMPLICATIONS FOR LANGUAGE ACQUISITION AND LEARNING THEORIES

6.5.1 SLA

In section 2.4 it was observed that there was a spectrum of views on the role of cognition in language learning. It was seen that those on one end of the spectrum hold that there is no interface between the Language Acquisition Device (LAD) and general learning skills.

This viewpoint (held for example by Krashen 1985), often referred to as nativist, implies that pronunciation is impervious to instruction. The findings of the thesis clearly do not support this position.

However, despite the limited role implied for instruction by the linguistic theory upon which much of SLA is based, it was also noted in the literature review that there are many factors outside any LAD. Consideration of these factors has led Housen and Pierrard (2005:2) to the position that 'SLA is typically considered to be a process which is open to instruction.' The results here would strongly support the position that a number of psychological, social and cognitive factors, do indeed suggest that the process of SLA is open to instruction.

Within traditional SLA theory these results would be viewed in terms of whether or not learners are able to convert explicit knowledge into implicit knowledge. Some, such as R. Ellis (1993, 2006), have proposed a weak interface position which suggests that explicit knowledge can in some way trigger the acquisition of implicit knowledge. R. Ellis (2006) recognises that there are differences in explicit knowledge, suggesting there may be 'analysed knowledge' and 'metalinguistic explanation'

The view taken here is that the distinction to be made is not between explicit and implicit knowledge but between explicit instruction which is effective in the formation of phonological concepts and that which is not. There are some parallels in that ineffective metalinguistic explanation leads to the sort of explicit knowledge which does not appear to be convertible to implicit knowledge. That is, rules and explanations of the target language are often expressed in target language concepts which the learner does not understand. These were represented as SCM- in Study Three and found to lead to at best very modest improvements.

'Analysed knowledge' on the other hand appears to have something in common with the formation of concepts and the effective use of SCM as described in Study Three. It is

claimed, and expanded on later, that the Cognitive Phonology framework within which these ideas have been developed has greater explanatory power.

Those who take a communicative view of language and see language learning as a skill which can draw on general learning faculties, such as Johnson (1996), Anderson (1993) and DeKeyser (1997, 1998) would be able to account for the results of these studies within their theoretical positions.

In section 2.4.2, literature which suggests a role for instruction was reviewed. Although very little of this referred specifically to pronunciation, the underlying theory is of relevance. In reviewing the effectiveness of form-focussed instruction, Norris and Ortega (2001) noted that explicit instruction appeared to be better than implicit instruction. The results here also support that view. However, they also echo the concerns that ‘Generalisability of these findings is limited because the L2 type-of-instruction domain has yet to engage in rigorous empirical operationalisation and replication of its central research constructs’ (ibid:157-158). This thesis has defined and operationalised some of the variables relevant to type of instruction. Empirical evidence has been provided to show two of these variables are critical to the success of pronunciation teaching. However, these variables are quite different from what has been suggested to date within traditional SLA theory. The implications of this are discussed when considering Cognitive Phonology as a framework.

The importance of attention and noticing were reviewed in section 2.4.2.2. Of particular interest are, the Working Memory Model as discussed by N. Ellis (2001) who underscores the role of attention, and Schmidt (2001:4) who claims, ‘SLA is largely driven by what learners pay attention to and notice in target language input and what they understand the significance of noticed input to be.’ It is this noticing, attending and understanding which has been found to be critical in the concept formation process.

The role found for corrective feedback in the setting of phonological boundaries is also in agreement with current work on SLA in this area, as reviewed in section 2.4.2.3.

Corrective feedback has been observed to take a number of forms (Lyster and Ranta 1997) and a number of theories suggest corrective feedback is useful (Long's (1996) interaction hypothesis, Schmidt's (2001) noticing hypothesis, and Swain's (1995) output hypothesis). This is in contradiction to a nativist stance which suggests acquisition requires only positive evidence. The findings of this thesis further define corrective feedback within the context of SCM to ensure that learners actually understand the correction. Thus again Cognitive Phonology provides a useful framework for analysing what it is that makes corrective feedback effective. These conclusions are compatible with those of R. Ellis (2007) who suggests the following conditions for effective corrective feedback: the focus should be on meaning in the context in which errors occur, learners must recognize the correction and notice their errors, compare the correct form with their own production, construct a form-function mapping, uptake and modification of interlanguage.

The question as to the type of instruction has been a key focus of the thesis, although the variables suggested here do not fit neatly into the categories suggested by SLA, or at least they would require SLA to fine tune some categories and recognise that they do not adequately distinguish the elements which are relevant to the success of teaching. It was noted in the literature review that it is not just a case of whether or not direct instructional intervention works but whether some kinds work better than others (Ellis, R. 2002), and more work was needed to isolate the different options in order to evaluate their contribution to learning.

The thesis has helped to isolate some of these options by, for example, defining different types of explanations. It was also seen in the literature review that there is no analysis as to what is involved in the explanation used within an explicit approach even though Housen and Pierrard (2005:11) do acknowledge that, 'Metalinguistic rules and pedagogical descriptions can differ in clarity, intelligibility and processability so that a given target feature can be explained in both simple and elaborate terms.' Widdowson (2003:111) acknowledges that 'different descriptions focus on different aspects of the truth.' This of course needs to be taken a step further, to test for the implications for

learning, but it does show some recognition of the potential role for the type of explanation in explicit instruction. Widdowson's comment here is also interesting as it seems to invoke a phenomenological philosophy, which as is seen later in the discussion has its place as the philosophical underpinning of Cognitive Phonology.

The studies within this thesis could have been framed within more traditional SLA terms as they certainly deal with relevant issues such as form-focused instruction, awareness raising and noticing, and corrective feedback. However, much richer insights are achieved by including the social and cultural aspects of learning within a CP framework.

6.5.2 Educational Psychology and Social and Cultural Theories

Literature relating to the importance of the learner as an individual and the learner's relationship with the external environment was reviewed in section 2.5. The findings in this thesis strongly support Moyer's (2004:3) claims that to 'understand how new knowledge is acquired, we must discover how learners actively participate in the learning process itself'. The focus on learner participation in the learning process has led to a greater understanding of this process and the consequent development of the concept of SCM which has been demonstrated to be successful.

Thus the studies in this thesis have also demonstrated the role of the social and the cognitive in the development of L2 pronunciation and in particular, SCM finds resonance in Swain's (2000) extended output model which proposes dialogue, (Swain (2005) refers to this as languaging) as a socially constructed cognitive tool. They have also confirmed Gibbons' (2006) analysis of the bridging role of talk between teachers and students as co-constructed discourse. The successful co-construction of knowledge about pronunciation provides evidence for the view of communication suggested by socio-cultural theory (SCT) as reviewed in section 2.5.1.

The positive impact of giving learners input into the development of ways of talking about pronunciation helps to give learners control as proposed by Vygotsky (Zuengler

and Miller 2006). Viewing the results of the studies in this thesis in terms of Vygotsky's zone of proximal development, the role of the more competent other in providing linguistically mediated interaction (Thorne 2000) was convincingly demonstrated. Thus it must be concluded that the theory of mediated mental development proposed by SCT (Lantolf and Thorne 2006; Lantolf 2000) is strongly supported by these results.

The theory of Intercultural Language Teaching (ILT) was also reviewed in the same section. This has focussed on inter-cultural communication as successful cross-cultural communication occurring in a third place between the two cultures (Lo Bianco, Liddicoat and Crozet 1999). Of particular interest is the key role of dialogue, as discussed by Carr (1999). Although the focus of ILT has not been on pronunciation, the development of socially constructed metalanguage is based very much on the idea of finding common ground, or a third place, in which to explore different perceptions.

Writings from Educational Psychology, particularly from the cognitive psychologists who focus on 'the sense that learners seek to make of their worlds and the cognitive or mental processes they bring to the task of learning' (Williams and Burden 1997:12) and are interested in concept formation, are also supported by the findings of this thesis. It has already been seen that the work on attention and memory undertaken by the information theorists is supported by the findings here. However this thesis has also included a strong element of a constructivist approach, that is, the learner 'constructs his or her own view of reality' (Macaro 2003:58) through social interaction and the mediating help of the teacher (Williams and Burden 1997). It has demonstrated that such an approach can make a significant contribution to learning. Thus by applying these ideas to pronunciation teaching the work on the use of a constructivist approach proposed by Macaro (2003) and Blyth (1997) for the teaching of aspect, and by Nelson (2003) for the teaching of writing, has been further extended.

The term 'Socially Constructed Metalanguage' has been derived very much from social and cultural theories and Educational Psychology. Of course it has also been developed within the language learning framework provided by Cognitive Phonology.

Thus the social aspects of language learning add much more to understanding of the learning processes. They have not focused particularly on L2 pronunciation learning. For some input into this we must turn to theories of phonology and especially the contribution made by L2 speech research.

The importance of the learner as an individual has also been underscored through the efforts to customise teaching to individual needs, and the observation related to this that different learners react in different ways to different explanations and activities.

6.6 Implications for Theories of Phonology and L2 Speech Research.

As has been noted, SLA theory has paid relatively little attention to pronunciation and has tended to focus more on grammar and syntax when considering form. It was also seen in section 2.7 that findings in the area of L2 speech research suggest there is a positive role for instruction and as such, are at odds with traditional generative SLA theory.

The disciplines of phonology and L2 speech research have provided a number of useful insights into pronunciation learning processes. The findings of this thesis make a number of contributions to these fields. It was seen in Study One that there are large individual differences but L1 does appear to play a role in the type of errors learners make (refer to section 3.6.4). Phonological universals were also found to play a role. For example, the more marked a syllable coda is, the harder it is to learn (refer to section 3.6.5).

Of greater interest in terms of what makes teaching effective are some of the issues dealt with in areas of L2 speech research, such as the role of categories in L2 speech perception and the influence of attention and talker variability in the process of category formation.

The role of categories, and the difficulties involved in learning those of an L2, has come through clearly in the findings here. Thus there was much evidence to support the notion

of a Native Language Magnet effect proposed by Kuhl and Iverson (1995), as L1 prototypes limit learners' abilities to perceive L2 contrasts (Leather 1999). These findings also provide evidence for Wode's (1995) Universal Theory of Language Acquisition. It was reported in section 2.7.1 that perception is influenced by L1 and experience (Best and Tyler 2007), an observation confirmed here.

The importance of Flege's Speech Learning Model (SLM) was highlighted in the literature review. The findings here are also relevant to the SLM. Perhaps most important is confirmation of one of the SLM's assumptions 'our phonetic systems remain adaptive over the life span and reorganise to allow for L2 sounds by adding new phonetic categories or modifying old ones' (Flege 1995:233). The studies presented in this thesis demonstrated that categories could be modified. There was also evidence to show that category formation had been blocked by equivalence categorisation. For example, learners did not notice that they were adding an extra schwa to consonants and without training they could not hear the difference.

The difficulties of spoken word recognition were also underscored as learners struggled with the lack of acoustic invariance, linearity and segmentation. Thus there was a great deal of evidence to support Lively, Pisoni and Goldinger (1994) and their claims that learners needed to store a great deal more than just irregular information which cannot be computed by phonological or syntactic rules. In these studies it became clear that learners needed to learn all the different realisations of different codas in different contexts produced by different speakers. That is, even if they understood that there was an extra vowel, or that a particular consonant was inaudible, they would not always get it right as different codas presented different challenges.

The findings also strongly support Rochet's (1995) conclusions that the difficulties adults face with L2 pronunciation are not representative of a sensory based loss but rather a change of selective attention. Likewise conclusive evidence has been provided here for Strange's (1995:40) assessment that 'adult L2 learners have the sensory capacity to learn new contrasts' because they 'retain the auditory perceptual abilities that are required for

the detection and discrimination of the acoustic parameters that carry phonetically relevant information.'

The successful use of fading techniques in laboratory training (Jamieson and Morosan 1989) has been reflected in the use of Critical Listening techniques which also aimed to help learners establish categories not just by focussing on prototypes but on the full range of sounds which fall within that category. Thus CL successfully demonstrated the classroom application of this.

The findings have also demonstrated the role of attention. It was observed that Nearey and Hogan (1986:142) were quite right when they said, 'Considerable effort is required to direct attention to finer phonetic detail, however salient, to a speaker of another language.' Thus it was seen that learners often failed to attend to the difference which was significant to the native speaker. Such findings have also been reported by Bohn (1995) and Flege, Munro and Skelton (1992).

This thesis has shown that adult learners are capable of learning contrasts when their attention is directed explicitly to the salient differences. This is in line with findings by Guion and Pederson (2007).

The relationship between perception and production has not really been clarified by the results of these studies. What has been confirmed is that the relationship between perception and production is a complex one. It was noted in the literature review that findings to date have been contradictory with some studies suggesting perception precedes production and others showing that production can precede perception. The studies in this thesis have been inconclusive with Study One showing that listening discrimination ability, taken as an indicator of perception, did not improve as much as production. While Study Two also showed only marginal gains in such tests although the learners did demonstrate a good level of perception through the Critical Listening test after instruction. In Study Three those who had received the SCM+ and CL- showed some improvement in perception, though this was not statistically significant. Those who

had received CL+ and SCM- showed a small improvement in production, but again this was not statistically significant. This suggests that the listening discrimination tests were not sufficiently sensitive to discern changes in perception while the critical listening test was better in this regard. Thus it is difficult to compare the effect on production and perception as they must by definition be measured using different means, making it impossible to quantify any comparative gains. The conclusion is that perception and production reinforce each other but the precise details as to how this is reflected in pronunciation and speech perception over time is still uncertain. It implies that teachers should work on both perception and production.

The contexts of speaking and listening may also add to the degree of success. Thus, when listening one can use the context to make up for what one doesn't hear but there is also often even less processing time than when speaking and there may be no opportunity to ask for repetition. On the other hand when speaking, there is the potential for greater control, one can employ strategies such as varying the rate of speech, and rehearsal, to gain processing time and approximate accuracy is usually sufficient to be understood.

In conclusion, the findings here support much of what has been suggested by L2 speech research. They are compatible with Flege's SLM and provide further evidence for a number of laboratory based findings, reproducing aspects of them in classroom based settings.

6.7 COGNITIVE PHONOLOGY AS A FRAMEWORK

This section discusses the results of the studies in this thesis in terms of a Cognitive Phonology framework, as reviewed in section 2.9, and suggests that while the other theories discussed so far can account for the findings in varying ways and to various degrees CP provides a more unified explanation which is both consistent in terms of theory and easily applicable in practice.

In the literature review a number of key points were established about the CP framework. Firstly, it is a sub-discipline of Cognitive Grammar, premised on a usage based view of language which does not regard language as an autonomous component of the mind with a system of pre-determined rules, instead meaning is central to linguistic organisation and language is used flexibly as a tool to co-construct meaning and achieve communication (Archard and Niemeier 2004). Thus it takes what is known about general perceptual and cognitive processes as a basis of theories of language acquisition (Taylor 2002).

This thesis has provided much evidence of the cognitive capacities which Taylor (2002) suggests may be involved in language learning. Two of these capacities in particular were clearly demonstrated: categorization and figure-ground organization. Categorization is of course both a help and hindrance to language learning. Some of those categories which one has already established need to be put to one side and new categories formed. It was seen that this could be done, especially through the use of critical listening techniques. The question of figure-ground organisation, or figure/ground gestalt as discussed by Grundy (2004), has been brought into focus in the observations of the difficulties learners have in establishing this in an L2. It was noted that it took considerable guidance from the teacher to reconfigure this figure-ground organisation, i.e. to understand the salient differences. This was a key focus of SCM and CL as concept formation techniques aimed at making learners aware of precisely where the problem was and helping them to listen for the salient features.

Langacker (2000) also proposes a number of psychological constructs. Entrenchment was seen both in its negative form when habits needed to be changed and positive when new routines could be practised and become routine. Thus the need for practice was underscored. It was also seen that learners need multiple experiences to achieve abstraction and the development of schemata. The importance of, and the need to develop, the ability to compare two structures and detect discrepancy was also noted in both the qualitative and quantitative results of the studies in the thesis.

Because Cognitive Grammar understands language as symbolic and representative of concepts it is readily understood that phonology is about concepts rather than reality (Fraser 2006a, 2006b). Thus phonological units are concepts. This is the fundamental stance of CP. What has been demonstrated in this thesis is that by focussing on these concepts as concepts and not reality, learners have been able to increase their understanding of them and improve their pronunciation. Murphy (2002) defines concepts as being mental representations of classes of things whereas categories are the classes themselves. CP theory suggests that, 'a category can be defined in terms of a prototype, with 'prototypical' members at the centre of the category and more 'peripheral' members around an often fuzzy boundary (Fraser 2006b:59). It has been seen in this thesis that learners often understand the prototypical members only and that through SCM and CL they are able to learn more about the peripheral members of these categories.

The findings strongly support the claim by CP that 'the language faculties constitute highly specialized uses of more general cognitive faculties' (Archard and Niemeier 2004:7). They also provide evidence for the claim made by Fraser (2006a:80) that 'In learning a cognitive skill, practice is essential, but its value depends on students having the right concept of what it is they are practising.' Thus it was noted that learners could listen and repeat many times but still not improve their pronunciation.

As mentioned earlier, in considering guidelines for teachers the need for both the learner and the teacher to understand the distinction between what we say and what we think we say was amply demonstrated. Support was also found for Fraser's (in press:3) contention that 'our everyday phonological metalanguage offers a very poor indication of our concepts of speech' and it was seen in the case of SCM- that this type of metalanguage was not helpful for the learner. In the same way, it is this poor metalanguage which often renders rules incomprehensible to learners as they are couched in concepts which learners also do not understand. The aim of SCM then is to address the issue raised by Fraser (in press:3) of the teacher being able to communicate effectively with the learners, 'In order to help the learner step outside the entrenched concepts of the native language, and

categorise and conceptualise the sound of speech in ways appropriate to the target language, the teacher must first help the learner to develop appropriate metalanguage.’

There was also evidence to support Fraser’s (2006a) comments that listen and repeat practice can be helpful if done in the right way (making sure learners are listening for the right things), and on the need to provide useful feedback and further practice with the aim of influencing concepts. It has been demonstrated here that the effectiveness of this feedback depends very much on learners having understood the concept and having developed SCM.

The role of contrast as seen through the use of CL exercises was also shown to be important in developing concepts. Thus the findings of Fraser (in press) are also supported.

It will be remembered that in a brief aside in the literature review (2.9.3.4), and earlier in this chapter (6.5.1), phenomenology was referred to as having clear links with Cognitive Phonology (Fraser 2006b). Invoking this philosophical position helps to explain the role of concepts, and in particular the notion of a natural attitude. That is, it is our natural attitude which enables us to categorise experiences and make sense of the world around us. To learn the pronunciation of another language, one must be able to step outside that natural attitude and learn a new way of perceiving the world.

In conclusion, the perspective offered by Cognitive Phonology points the way towards the sorts of factors which the teacher needs to take into account. One of the most important insights is that pronunciation is essentially a cognitive skill which can be learned. Thus it involves concept formation processes in understanding how sounds are categorised in the L2. This leads to the question of what the teacher can do to assist in forming these new concepts. Viewed from this perspective, it becomes easier to explain why some teaching is more effective than others. This has been demonstrated most clearly here through the example of the type of metalanguage used and the role of contrast.

CHAPTER SEVEN: CONCLUSION AND FURTHER RESEARCH

This chapter begins with an overview of what the thesis has achieved in terms of understanding the reasons for lack of success in pronunciation learning and establishing general principles for teaching. It then summarizes how this has been done in terms of the various studies undertaken. From here the theoretical and practical implications are reviewed before returning to the aims and questions posed in section 1.7. Finally areas of further research are sketched out.

7.1 OVERVIEW OF ACHIEVEMENTS

This thesis makes a step towards increasing the amount of attention paid to pronunciation teaching and learning by both teachers and researchers:

- It has added to what is already known about pronunciation teaching and learning. It is hoped that this may lead more teachers to teach pronunciation and to do it successfully.
- It has demonstrated that pronunciation teaching does work as long as one is aware of a few general principles. Empirical evidence has been provided to show not only that it can work but has also set out some necessary conditions for its effectiveness.
- It has shown that whether or not there is a LAD, there are many ways in which adult learners can improve their pronunciation. Theorists might be encouraged to include these findings in models explaining SLA. It may be concluded that a usage-based approach is particularly enlightening when considering the role of instruction in language acquisition
- It has taken a broad view of pronunciation as an inseparable element of oral communication with a central role in communicative language teaching.
- It has shown the importance of understanding learners as individuals and through this helping them to understand how to communicate more accurately and consequently empowering themselves.

The thesis has contributed to the development of theory by focusing on the cognitive processes involved in pronunciation learning and the implications for teaching. It has produced evidence to show there is a positive relationship between pronunciation instruction and learning. It has shown that while current theories of SLA and social and cultural theories may be used to account for the data, the account provided by applying a Cognitive Phonology framework is more unifying. The application of this theoretical approach to the interpretation of aspects of pronunciation teaching as observed in real language classrooms has led to theoretical advances in defining types of instruction. It has enabled the operationalisation and formal testing of two particular variables: Socially Constructed Metalanguage (SCM) and Critical Listening (CL).

In aiming to develop practical guidelines for teachers, the focus has been on the learning processes of learners who have not acquired easily intelligible pronunciation despite being in the L2 environment and having attended language classes. Applying the notion that pronunciation is essentially a cognitive skill has provided a number of practical insights into these learning processes, leading to the development of general principles which teachers can apply in different contexts and to different aspects of pronunciation. These guidelines suggest raising awareness, especially through SCM. They also propose the use of contrast through Critical Listening techniques to help learners establish category boundaries. Of course such explanation and demonstration of both how to listen to, and how to produce, the target language speech must be followed up with on-going opportunities for practice in which phonological differences are meaningful. Finally as an integral part of that practice, corrective feedback using the established SCM is recommended.

For these principles to be effective it is crucial the teacher recognizes the distinction between the conceptual abstract nature of the phonological system and the actual sounds produced. This makes it possible for the teacher to help learners understand this relationship between the actual sounds and the concepts of the L2. To be successful, learners also need to be able to put aside their long established L1 phonological concepts and use their ears instead.

7.2 HOW ACHIEVEMENTS HAVE BEEN ACCOMPLISHED

These principles of teaching and learning have been based on the example of epenthesis and absence, but it is maintained that they are sufficiently broad to be applied to all aspects of pronunciation.

They have been developed in the particular context of adult high-intermediate level ESOL students in New Zealand. As new migrants, the focus of these learners is on the language they need to settle successfully in New Zealand. It would be interesting to see whether these general principles hold, or how they should be adapted, in different contexts, for example: English as a Foreign Language, English as an International Language (Jenkins 2002), when the teacher is a nonnative speaker (Ellis, L. 2002; Mahboob 2003), different learning environments and different age groups.

This thesis has taken the approach of bringing theory and practice together by using practice to inform theory and theory to re-inform practice. Gregg (2001:169) maintains no research has shown a ‘theoretically relevant relation between some specific type of input modification on the one hand and some specific bit of acquisition on the other.’ In applying a Cognitive Phonology perspective this has in fact been achieved here. The thesis has attempted to define the problem and understand it from as many different perspectives as possible before developing solutions and testing them. This has involved a multi-disciplinary approach drawing on insights from phonology and L2 speech research, pronunciation pedagogy, and theoretical insights from SLA, socio-cultural theory and educational psychology, and bringing these together under a unifying theory of Cognitive Phonology.

The empirical evidence to support both the theoretical and practical conclusions reached has been provided through a progressive series of three studies.

In Study One, the focus was on understanding learning processes from different perspectives and exploring the effect of a range of different teaching techniques. This

study involved classroom-based research with pronunciation sessions being interspersed in the regular classroom teaching. Baseline data was also collected to measure the amount of progress made in this area without explicit intervention. The results found that the students receiving the explicit instruction made statistically significant progress and retained a statistically significant proportion of this over a three month period. The qualitative results of this study suggested how this instruction could be more effective and pointed the way to the establishment of a number of generaliseable principles.

This study performed the function of establishing some of the groundwork required before critical variables could be isolated, defined and tested. Firstly this involved investigating the specific aspect of pronunciation chosen (epenthesis and absence in syllable codas) in order to achieve a greater understanding of exactly what the difficulty was for learners and how it might be overcome. Secondly, it was necessary to provide more convincing evidence that pronunciation teaching could be successful. Finally, it was necessary to explore how effective a number of commonly advocated pronunciation techniques were, as there was little theoretical or empirical evidence available to support their use or otherwise.

Study Two was a qualitative study using what was essentially a case study ethnographic type approach. This study was set up as a series of additional pronunciation classes outside normal class time and explored how the individual learners related to explicit pronunciation instruction in a broadly communicative framework. The effect of the explicit instruction, including the metalanguage used both in explanations and later in corrective feedback, and different activities involving awareness raising, critical listening, and different types of practice was probed through observation of response, interviews, and tasks to gauge the extent to which the phonological concepts related to English syllable codas were being formed.

By reflecting on the learning processes observed in terms of concept formation, and noticing what learners had to do to understand what the salient differences in syllable codas are for English native speakers, it became possible to isolate a number of variables

for further investigation. In addition to the effect of different types of activities, what shed the most light on concept formation processes was the observation of the effect of different ways of talking about pronunciation and the value of critical listening. Thus it was observed that the language used by learners, mediated by the teacher, was particularly beneficial in promoting understanding. This led to the development of what has been termed SCM. Similarly, the use of contrast, combined with careful use of visual representation to direct learners' attention to the salient differences, led to a focus on the effectiveness of CL techniques.

Study Three then focused specifically on these two variables, formally testing their effect on pronunciation learning. This involved four groups of six high-intermediate level adult students who had difficulties with epenthesis. Each group received 45-50 minutes of instruction on pronouncing syllable codas. This instruction was carefully scripted to ensure each group received the treatment prescribed by its assigned condition: SCM-/CL-, SCM-/CL+, SCM+/CL-, or SCM+/CL+.

Based on a Cognitive Phonology perspective, both of these variables were found to have a positive effect on pronunciation learning. Empirical evidence clearly demonstrated that CL in isolation led to statistically significant improvements in listening discrimination skills and speech perception. These were accompanied by smaller improvements in production which did not achieve statistical significance. Similarly, SCM in isolation led to statistically significant improvements in production, accompanied by smaller improvements in listening discrimination skills and speech perception which were not statistically significant. CL and SCM in combination led to similar levels of statistically significant improvement on both perception and production, showing that both should be employed. This study still did not resolve the question as to how perception and production are inter-related. What this study did show was that CP provides a useful theoretical base from which to define and operationalise the types of variables which have an impact on the effectiveness of instruction.

7.3 IMPLICATIONS FOR THEORY

As previously discussed in chapter six, these studies have a number of implications for theory. The main ideas are summarized here, firstly in terms of implications for SLA, and secondly in terms of implications for the type of theoretical approach taken by Cognitive Phonology.

7.3.1 SLA and Form-Focused Instruction

In terms of SLA theory, the results of these studies all demonstrate that there is a role for form-focused instruction in pronunciation learning. While traditional SLA tends to focus on distinctions between explicit and implicit instruction, what has been shown here is that it is necessary to make distinctions within the explicit category. For example it is argued that it is not a question of whether or not an explanation is provided, but rather a question of the nature of that explanation. In a similar way, SLA focuses on the distinction between explicit and implicit knowledge. The findings in this thesis suggest that it is the nature of this explicit knowledge which is important. Here there may be some parallels with the distinction drawn by R. Ellis (2006) between analysed knowledge and metalinguistic explanation. That is, the right type of explicit knowledge may be convertible to implicit knowledge.

In the same way, it has been found that corrective feedback is important. Again, this is a major issue within SLA at the moment and these findings clearly support those who argue for the role of corrective feedback. However, it takes the question of corrective feedback further by showing the value of defining feedback in terms of SCM to ensure learners actually understand the correction. Equally, evidence has been found for the importance of consciousness-raising and what is needed to make this effective.

In conclusion, the findings suggest that for those taking a no-interface or weak-interface position, the role of any LAD is relatively minor in terms of the effect of instruction on pronunciation acquisition, at least amongst adults. Those who view language learning from a skills perspective or a more usage-based approach will find these results support

their expectations. Those taking such positions may find the approach taken by Cognitive Phonology to be a useful framework for analysing the cognitive processes involved and the related practical implications for the role of instruction.

7.3.2 Cognitive Phonology

The framework provided by Cognitive Phonology has helped in further refining the variables involved in pronunciation learning and teaching. The results of the studies in this thesis have provided evidence to show that the formation of L2 phonological concepts requires learners to:

- understand how English speakers categorise sounds
- understand that this is different from their own understandings of how English sounds are categorised
- understand where the difference lies
- conceptualise exactly what the difference is
- understand how to change their production

The role of a number of cognitive capacities, which are theorized as being involved in language learning (for example, Taylor 2002; Langacker 2000), has also been demonstrated in this thesis. Observations of these cognitive processes strongly support the claim that L2 pronunciation is a cognitive skill and suggest a number of ways in which learners' progress or lack of progress can be analysed. These include:

- categorisation (Taylor 2002): Learning the concepts of the L2 phonology is a prerequisite to successfully categorising the sounds of the language. This is in many ways the overarching cognitive capacity.
- figure-ground organization (Taylor 2002): Learners need help to understand precisely what is important and how it is important.
- entrenchment (Taylor 2002; Langacker 2000): Learners need practice and ongoing feedback both to change old habits and establish new ones.
- the need for multiple experiences to achieve abstraction and develop schemata (Langacker 2000): This requires practice and exposure to the language.

- the ability to compare two structures and detect discrepancy (Langacker 2000): This can be fostered by the teacher as demonstrated through Critical Listening activities.

From the theoretical standpoint provided by Cognitive Phonology, it has been possible to develop a number of guidelines and practical suggestions for teachers.

7.4 IMPLICATIONS FOR PRACTICE

In practical terms, this thesis has provided evidence that there is a role for form-focused pronunciation instruction and it has gone some way in defining what form such instruction should take in order to be effective. Participants in these studies have also reported that they want the teacher to teach them pronunciation and that in the past this hasn't often happened.

This thesis has demonstrated in practical terms how important effective metalinguistic communication is. It has been seen that SCM is a form of cross-cultural communication which relies on both parties developing a common understanding of the concepts being discussed. This is a practical way in which teachers can analyse, understand, and improve how they communicate with their learners.

It was also observed how SCM could provide a much more efficient basis for providing effective corrective feedback.

Critical Listening has also been shown to be an effective way in which learners can build up their understanding of L2 phonological concepts. Teachers will need to take this concept and explore further ways of applying this in practice.

The studies in this thesis reported that even when learners started to understand the phonological concepts it still took a lot of practice to make these changes an automatic part of their speech, i.e. the speaking habits involving epenthesis and absence were

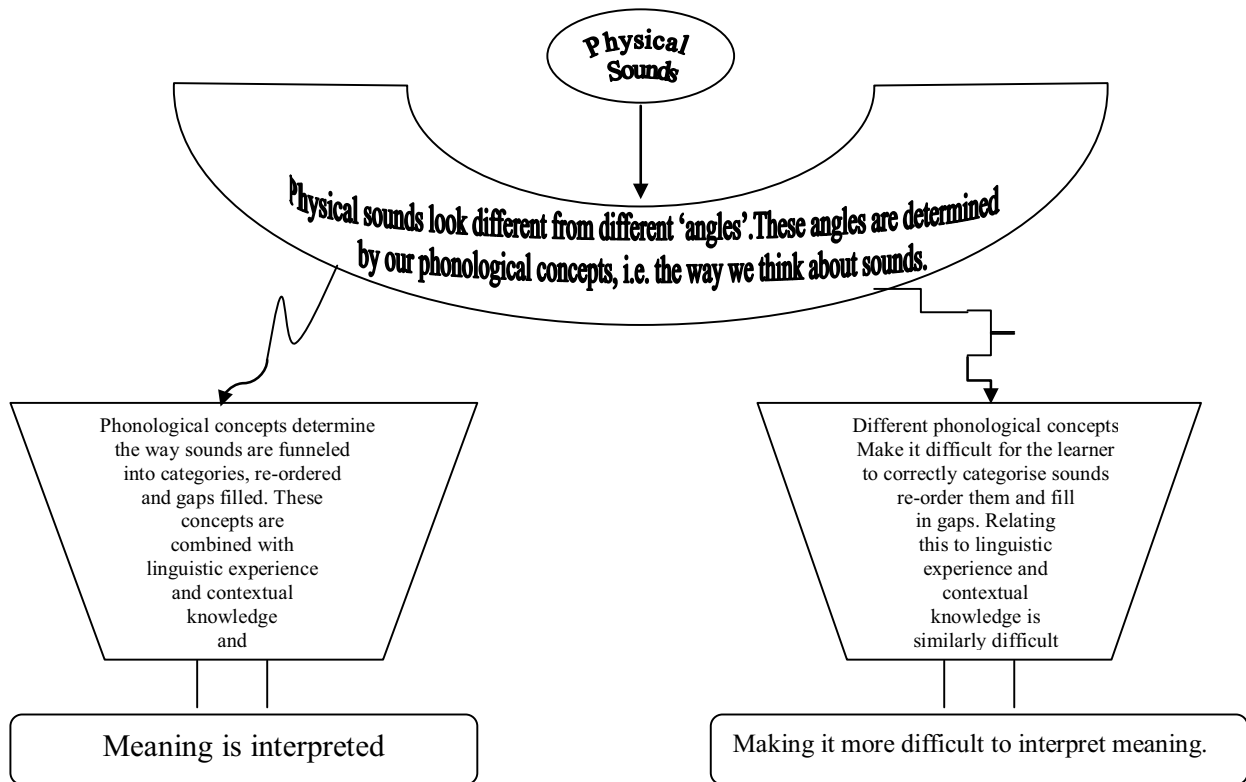
deeply entrenched. They also had to learn how to make these changes for all the varying syllable codas in different phonetic contexts. They were able to make some of these changes quite easily whereas others took a great deal of practice along with corrective feedback. While it was observed that learners were at different stages in this process with differences in the way they understood various aspects of the concept and in their abilities to compare and discern phonological differences the process was essentially the same. They had to understand how syllable codas were perceived and produced by learning all the aspects involved in the concept and then practicing them until they became automatic.

The role of practice activities was amply demonstrated. The key point is that such activities are only effective in as far as the related phonological concepts are correctly understood. The ‘animal game’ appeared to be particularly successful as it was not only motivating but set up an information gap which required accurate pronunciation for that gap to be filled. It also provided feedback, as a failure to pronounce the phrase correctly led to a failure to communicate. This leads to the point that such instruction and practice needs to be meaningful for learners.

The findings of this thesis imply a broad communicative approach to language teaching. That is to say there needs to be some focus on accuracy but this should be in terms of the communicative functions of language.

Teachers then must understand the role of phonological concepts in pronunciation and the implications of this for both teachers and learners. This is presented schematically in Figure 7.1.

Interpreting speech



What the teacher must do:	What the learner must do:
The teacher needs to understand the difference between the physical sound and the phonological concept, or at least understand that there is a difference. The teacher also has to understand the process the learner is going through.	The learner must remove the changes to their perception of sounds imposed by their L1 perspective, moving away from the way they categorise their L1 sounds and learning how the L2 speakers categorise their sounds.

Key:

Physical Sounds: →

Native Speaker perception of sounds: ~~~~~

Learner perception of sounds: ———

Figure 7.1 Interpreting speech

In conclusion, the guidelines for teachers could be summarized as follows:

- Raise awareness
 - of the nature of the problem
 - by communicating explicitly and meaningfully about the problem (i.e. through SCM).
- Provide the opportunity to form category boundaries by presenting contrasts between what the native speaker does and does not perceive as belonging to the category (i.e. through Critical Listening).
- Actively involve learners in the meaning making process (a broadly communicative approach).
- Provide the right kind of practice (i.e. that which will help to form and practice phonological concepts).
- Provide the right kind of corrective feedback (using SCM).
- Define instruction in terms of what will help learners to form and practice new concepts (as demonstrated by SCM and CL).

7.5 THESIS QUESTIONS

It can now be seen clearly that answers have been provided to the questions which were originally posed in the first chapter of the thesis:

1. What effect does instruction have on pronunciation?

Taking the particular case of epenthesis and absence, and for the third study, just epenthesis, it has been shown that the right kind of instruction makes a significant difference.

2. Can gains be transferred to other items and different contexts?

It was seen that gains could be transferred to different contexts: both reading and extemporaneous speech.

3. Are these gains retained over time?

It was found that a considerable proportion of gains made were retained over time periods ranging from 3 to 18 months.

4. What are the learning processes involved in pronunciation acquisition?

These processes have been described in some detail. They were found to involve the development of cognitive skills as new phonological concepts were formed

5. How can teaching foster those learning processes?

Here, a number of suggestions have been made. These all centre on understanding the conceptual nature of pronunciation as a cognitive skill.

6. How do these observations of learning processes and the role of teaching relate to CP and other theoretical views?

As has already been discussed the value of Cognitive Phonology as a framework for analysing learning and teaching has been well established in this thesis. The studies in this thesis also add evidence to a number of current issues in SLA around form-focused instruction, type of instruction and corrective feedback.

In conclusion a great deal has been discovered about the nature of L2 pronunciation learning and the role teaching may have in that process. It has been demonstrated that pronunciation teaching can be effective and that the type of instruction is critical in determining its effectiveness. The approach taken to defining type of instruction was developed from a Cognitive Phonology framework. This led to a focus on type of metalanguage, as defined by SCM, and contrast through CL. Both of these were shown to be significant factors in successful pronunciation teaching. Consequently the theory suggested by Cognitive Phonology has been further extended and developed.

7.6 FURTHER RESEARCH

7.6.1 Changing Learners' Perceptions

It has been found that learners' speech perception can be changed through the use of Critical Listening techniques. However, this thesis has really only shed light on some perceptions of one particular aspect of phonology. Further research is necessary to learn more about how speakers from different language backgrounds, including native speakers, perceive different aspects of phonology. Such understandings would help teachers know more about how they can help learners to change their perceptions.

In terms of developing theory, much more work needs to be done to more fully understand how various phonological categories are perceived by different speakers of different languages. While L2 speech research has already done a lot of work in the area of phoneme categories, what is needed is a greater understanding of other phonological concepts such as the syllable, word stress, sentence stress and intonation. Of course phonologists have defined the categories these concepts represent, but further insights into these concepts and what makes them difficult to learn could be gained by exploring how they are perceived by naïve native speakers and L2 speakers from various backgrounds. Related to this is the issue of how the native speaker perceives non-native speaker speech. This leads on to the question of what is important for intelligibility.

A greater understanding of perception can be translated into practical classroom activities. It has already been seen how important contrast is in establishing phonological boundaries for syllable codas through the use of Critical Listening techniques. Based on a better understanding of learners' perceptions of other phonological concepts, such as stress and intonation, classroom activities could be developed to help learners re-set a range of category boundaries to more closely reflect those of the native speaker. It is proposed to adapt Critical Listening techniques for these activities. These could be developed with the use of computer technology, possibly adapting some laboratory

techniques from L2 speech research, such as the fading technique used by Jamieson and Morosan (1986, 1989).

In addition to testing for the effect of Critical Listening activities on different aspects of pronunciation, more longitudinal studies are necessary to track the extent to which newly learned concepts are retained over time.

Another means of gaining insights into concept formation processes would be to investigate the phonological perceptions, and reflections on the learning processes, of successful learners.

Finally, research into this area may provide insights into the theoretical question as to what is the basic unit of speech: the phoneme, the syllable, or the word.

7.6.2 SCM

SCM has been successfully developed for one particular aspect of pronunciation for learners in a particular context. The next step is to work with more groups of learners to develop SCM for different aspects of pronunciation and evaluate its effectiveness. It will always be up to the teacher to work with learners to find the best way to communicate about pronunciation but assistance can be provided by finding a wide range of different ways in which different learners might talk about different aspects of pronunciation. These learners' perceptions will vary according to a whole range of individual differences, including L1, age, language learning experience of the target language and other languages, learning style, and personality. The effects of different learning contexts, such as nonnative English speaker teachers, English as a Foreign Language, and English as an International Language, also need to be investigated. For example, if the nonnative English teacher shares a common language with the learners, it may be easier to establish effective communication about pronunciation.

As well as looking for the effectiveness of SCM in different contexts, more longitudinal studies will be necessary to demonstrate its long term effect. Investigating the effect of SCM in a wider range of contexts will also lead to the development of more pedagogical materials to provide for further practice.

The thesis has proposed that once SCM has been established, its on-going use throughout a course of instruction when providing corrective feedback would be more effective than other types of corrective feedback. More empirical evidence is needed to support this claim. This would involve longer term studies in its use.

These proposed studies will also have implications for a wide range of theories. While they will further demonstrate the application of Cognitive Phonology, they will also have the potential to add to a number of debates in areas such as SLA research and social and cultural theories. For example, they could make a significant contribution to the SLA debate around the operationalisation of key variables in categorizing particular types of instruction. Such studies may also help to focus SLA discussion on the salient features in making corrective feedback effective.

The concept of SCM could also be applied to other aspects of language teaching. The importance of dialogue in establishing common understanding has been referred to by others who have focused on its role in language learning and teaching in general but have not applied it to pronunciation. For example, the work by Swain (2005) on languaging and the theory of Intercultural Language Teaching suggest theoretical perspectives which could be unified to achieve a more coherent theory of language learning and teaching. One obvious application would be in the teaching of grammar. Pedagogic grammars typically make use of certain metalanguage as the basis of grammatical explanations. For example, in teaching the English present perfect, students are likely to be told this is used if it relates to the present, but this often doesn't help as one's concept of whether or how something relates to the present is culturally bound.

7.6.3 The Relationship between Perception and Production

It has been seen that this relationship is still unclear. The sorts of longitudinal studies proposed for the effect of instruction on learners' perceptions and for the effect of SCM would also be able to provide insights into this relationship.

Theoretically, if one fully understands the phonological concept it should be evidenced in one's pronunciation and speech perception. However, much understanding is partial and changes over time. This suggests there are many other variables which are likely to affect production. For example, in the early stages of learning English, a learner may not hear the final 's' on words and may then get into the habit of not saying it. By the time the learner has understood how that final 's' actually sounds, i.e. they have the phonological concept, they have become so used to not saying it that they forget it. In such cases it can be seen how errors of perception and pronunciation can reinforce errors of grammar, and vice versa, so that in the end it is not possible to determine whether it is a grammatical or pronunciation error. A similar situation is seen with the effect of orthography. Further variables include a lack of processing time and lack of familiarity with particular items. Thus if one has time to prepare, one's pronunciation may be more accurate. Likewise, learners may have greater difficulty in pronouncing less well-known words. Following up on these effects would also provide insights into further aspects of concept formation.

Given the lack of research in the field of pronunciation teaching and learning there is wide scope for further study. To make this as useful as possible, there is a need for more cross-disciplinary work. In particular the work done in L2 speech research needs to become more widely known in SLA. The work done in social and cultural theories is also seldom related to work in pronunciation teaching. To this end it is proposed to continue looking for ways of unifying these various disciplines through the application of the theories of language and learning found in Cognitive Phonology.

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APPENDICES

Appendix 1A: Citric Acid Test

High Intermediate Study Pronunciation: Diagnostic Test 1. Beginning of semester.

Name: _____

Record these sentences on the tape.

1. It's good to eat oranges and lemons in winter.
2. He lit lots of cigarettes because he had to wait for a long time.
3. Victoria walked all the way even though she wasn't feeling very well.
4. He speaks Spanish with a strong accent.
5. We've got hot and cold baked potatoes for breakfast.
6. Heat the beans and put them on a plate.
7. I've been waiting since five to seven and now it's ten past twelve.
8. Many kind men and women live on the slopes of Mount Eden.
9. Haven't you ever seen girls and boys cheering and shouting for joy.
10. He loves sailing through storms.
11. The lawns in Greenlane are great.
12. She threw her perfect birthday jumper in the birdbath.

Appendix 1B Tough Phrases Test

Record these phrases on your tape.

- | | |
|------------------------------|--------------------------------|
| 1. He asked questions. | 21. Here and now. |
| 2. They thanked him. | 22. Now and then. |
| 3. She told stories. | 23. Push and shove. |
| 4. We discovered perfection. | 24. Pictures and texts. |
| 5. Saved money. | 25. Wrong count. |
| 6. You liked him. | 26. It's difficult. |
| 7. He tempted fate. | 27. A grand plan. |
| 8. She waited patiently. | 28. Fern fronds. |
| 9. He loves secrets. | 29. Times tables |
| 10. She builds houses. | 30. Five lives. |
| 11. It works well. | 31. Perfect timing. |
| 12. He thinks slowly. | 32. Experienced climbers. |
| 13. She jumps. | 33. Intermediate students. |
| 14. He races dogs. | 34. Film strip |
| 15. He wants victory. | 35. Headlights |
| 16. He finds happiness. | 36. He wasn't thankful. |
| 17. Find a job. | 37. Silk stockings and tights. |
| 18. Hand out. | 38. Wildlife sanctuary |
| 19. Told off. | 39. Tourist attractions |
| 20. Lemons and apples. | 40. Fine lines |

Appendix 1C: Listening Discrimination Test

Listen to these sentences and circle the one you hear.

- | | |
|--|--|
| 1) a) Catch a tram
b) Catch a tramp
c) Catch a tramper | 11) a) Know your mine
b) Know your mind
c) Know your minder |
| 2) a) It's coal
b) It's cold
c) It's colder | 12) a) Give away
b) Give a wave
c) Give a waiver |
| 3) a) A grey plan
b) A great plan
c) A greater plan | 13) a) bake fish
b) baked fish
c) baked a fish |
| 4) a) Is true
b) It's true
c) It's a true
d) It true | 14) a) way up
b) wake up
c) wakes up |
| 5) a) move a house
b) moved house
c) moved a house | 15) a) Thank Mill.
b) Thanks Mill.
c) Thanks a mill. |
| 6) a) silk tie
b) silk tight
c) silk tights
d) silk ties | 16) a) It's a sport.
b) It's sport.
c) It's support. |
| 7) a) were
b) work
c) worker | 17) a) Trains are late.
b) Train's late.
c) Train late.
d) Tray's late. |
| 8) a) fie
b) five
c) fiver | 18) a) ask question
b) asked question
c) asked a question |
| 9) a) fine
b) find
c) finder | 19) a) He has bees
b) He has beans
c) He has been |
| 10) a) I like law
b) I like lawn
c) I like laws
d) I like lawns | 20) a) tracks of wolves
b) tracks wolves
c) track wolves |
| | 21) a) Thai table
b) timetable
c) times table |

Appendix 1D: Class Survey

High Intermediate: Research Project

Name.....

To help me write about how your pronunciation has improved I need some information about your language learning background.

Part A. Personal Details.

1. Date of birth.....
2. How long have you been in New Zealand?
3. What is your first language?
4. What city or province are you from?
5. Do you have a special dialect or accent? (If yes, please explain how this affects your pronunciation)
.....
6. Do you speak any other dialects?
7. Do you speak any other languages? (If yes, how well: Elementary, Intermediate, Advanced)
.....

Part B. English learning before you came to New Zealand.

1. Where did you learn English? school/university/somewhere else. (How many years? How many hours per week?)
.....
.....
2. Did your teachers teach you pronunciation? (If yes, how often and how did they do it?)
.....
3. How did you feel about your pronunciation when you arrived here?

Part C. English in New Zealand.

1. How much time have you spent learning English in NZ? (Not including this course)
.....
2. Have your teachers taught you pronunciation? (Not including this course) If yes, how?
.....
3. Who do you speak to in English outside class? (How often, and how much time everyday?)
.....
4. What is the most important thing in English for you to learn now? (e.g. writing essays, informal conversation etc.)
.....

Part D. Pronunciation.

1. What aspects of pronunciation do you need to work on most?
.....
2. How important is pronunciation? (Put a tick after the one you agree with)
a) Not important b) A little important..... c) Important..... d) Very important.....
3. How much has your pronunciation improved this semester? (Tick the one you agree with)
a) Not at all..... b) A little..... c) Some..... d) A lot
4. What is the best way to improve your pronunciation? (e.g. teacher explaining how to do it and giving rules, listening to interesting stories, listening and repeating in class, using the language lab to listen, repeat and record yourself, comparing your pronunciation with a model.) ONE only.
.....

Interview Questions

The aim of the interviews is to let the learners explain their view. They will be prompted to talk about:

- how they felt about the teaching and the actual practice exercises used in class
- their current and previous phonological concepts and whether or not there has been any change
- their levels of awareness of pronunciation difficulties and their confidence in accurately producing the target sounds with a particular focus on strategies they use.
- difficulties in actually doing the tests

The following broad questions will be used to provide an outline structure, but follow up questions will depend on where the interviewee takes it.

1. How useful did you find the classroom teaching and practice in this area of pronunciation?
Looking at what we did in these sessions (show worksheets), which ones do you think helped?
2. Why do you find it difficult to pronounce final consonants accurately?
How would you explain the sounds to someone else who comes from the same city or country as you? (What do you do to try and say these sounds accurately?)
Has your understanding of these sounds changed as a result of this teaching?
3. Do you still find these sounds difficult to pronounce accurately? Can you hear when you don't get them right?
Have you always known this was a problem area for you?
4. How useful did you find the tests?
Do you agree with the results? Do you think you have improved in this area?
5. What will you do to improve or keep on improving?
6. What is the most important thing for a teacher to do about pronunciation?

Appendix 1F: Summary of Interviews

Interviews: comparison of comments.

	Student One	Student Two	Student 3	Student Four	Student Five
Critical Listening	Good, useful. Could hear how it was wrong. Could more or less hear the difference, but not always.	Didn't help. Couldn't hear what was wrong. Too hard, too little difference. Could sometimes hear when T said what the diff was.	Good way to show correct pron. Not sure if others understood though. Need to explain to each person individually.	Good idea, but didn't help her because 'missed' the sounds. Could only hear the really obvious diff's. Still can't hear some diff's.	Liked it and could sometimes hear the diff. Good way to practise but sometimes confused and unable to hear diff.
Rules for pron. of 'ed' and 's'	Not useful as already knew them. But forgets rule while speaking.	Very useful and important. New for him. Now he knows how to pronounce it – no need for extra practice.	Good to know but the practice done in pairs testing each other was the most valuable thing. Need practice.	Really helped, practice was good. She understood this.	Very good rule, but forgets it when speaking. Better at pronouncing 's' now. 'd' and 't' at the end are harder
Explanation of syllables	Not useful, couldn't see the point.	Not useful because didn't understand how syllables are made.	Hard because he doesn't pay attention to vowels, just says what he hears.	Not useful. Can't see how it will help with pronunciation.	Easy. Understands and can do this.
Comments on language lab work and contrasts (e.g. tram, tramp, tramper)	Very useful and helpful. Now can hear the diff. Work with contrasts useful too. Did extra work in learning centre, now much clearer.	Some use, eg. work with contrasts, but couldn't follow when asked to listen and repeat without text. Very hard to hear diff. Not the same as speaking naturally.	Contrasts was good, esp working with another S to correct each other. Lang lab good way to practise – mech. but good way to learn- lots of rep. Recording yourself too – 1 st sounds horrible but get better.	Prob with listening practice – can't hear diff. Listening and repeating is better – good to practise but not sure if it can do it right. Listen and record is good but not sure if it helps.	Good, couldn't always hear the diff. L&R is good – likes having a model. When listening to own voice not sure if it's right or not.
Awareness of difficulties (before/after) and evidence of learning. Concept changes.	Can now say 't' in 'starts' and 'v' in 'lives'. Can hear the diff. Prob in joining words –. Before, aware that he had problems but wasn't sure what they were. Has changed the way he thinks about sounds.	Learned weak forms of 'and' – new; prior thought it nec. To pronounce every letter of every word. Has more understanding of joining sounds and cons. Clusters. Pron is low priority.	Can hear problems & listen & correct own mistakes. Aware absence is prob. knew before but didn't worry as people seemed to understand – now notices that people often just say yes, yes, but don't understand.	Better understanding of how to pron. Can't always hear if they are right. Before, unaware of pron diffs, now is aware and plans to practise.	Sometimes forgets to use joining rules when talking. Always knew that she diff's in this area. Marks where to join sounds when speaking from a worksheet – this helps.
Ability to monitor	Sometimes	During the test	Maybe, but doesn't use it often.	No. Never has 'real' conversations.	Sometimes
Best way to learn, plans for future improvement	Listen to more pron. tapes to imitate sounds.	Talk to native speakers outside the classroom or listen to authentic texts.	Aim to speak fluently and not stop in the middle and correct yourself.	Practice	Practice; listen, repeat and record.
What the teacher should do.	Correct mistakes straight away if possible. Or explain later to student individually.	Give rules and explanations.	Get students to listen, repeat and record themselves. Also teach them how to react when they don't understand.	Get students to listen to authentic and interesting tapes.	Correct pronunciation all the time every time.

Appendix 1G: Teaching Schedule

Teaching Schedule

Week 4

Tuesday: pre-test.

Thursday: Session 1; 40 mins - return of tests and explanation
Listening to peers and guided help in perceiving differences 1;

Friday Session 2; 40 minutes – past tense endings (Headway) plus practice.

Week 5.

Tuesday Session 3; 20 mins - Explanation of syllables in English and possible syllable structure.

Tuesday Session 4; 30 mins - Listening to all versions of the original listening test. Students listen, repeat and record themselves.(Language Lab.)

Thursday Session 5; 20 mins - explanation of pron of 3rd person 's', rule discovery.

Thursday Session 6; 30mins - work with syllables(consonants and joining), explanation and practice

Thursday Session 7; 50 mins - Listening to peers and guided help in perceiving differences 2; incl. Lang lab; feedback and discussion

Friday Session 8; 30 mins – plural and 3rd person 's' endings (Headway)

Friday Session 9; 30 mins - Listening to peers and guided help in perceiving differences 3; (Pairs; listen and evaluate)

Week 6

Tuesday Session 10; 30 mins - Listening to peers and guided help in perceiving differences; 4&5

Tuesday Session 11; 30 mins - Listen, repeat and record in Lang. Lab.

Thursday Session 12; 20 minutes - Revision; pair practice.

Thursday: Post-test.

Appendix 2A Listening Discrimination Test: Version 2

Part A. Listen to these sentences and circle the one you hear.

- | | |
|---|--|
| 1. a) A grey plan
b) A great plan
c) A greater plan | 11. a) tracks of wolves
b) tracks wolves
c) track wolves |
| 2. a) Is true
b) It's true
c) It's a true
d) It true | 12. a) Thai table
b) timetable
c) times table |
| 3. a) move a house
b) moved house
c) moved a house | 13. a) twist top
b) twist a top
c) twisted top
d) twisted a top |
| 4. a) silk tie
b) silk tight
c) silk tights
d) silk ties | 14. a) He likes smoke
b) He likes a smoke |
| 5. a) I like law
b) I like lawn
c) I like laws
d) I like lawns | 15. a) wait forever
b) waiter forever
c) waits forever
d) weights are forever |
| 6. a) Give away
b) Give a wave
c) Give a waiver | 16. a) take right
b) takes right
c) takes a right
d) take a right |
| 7. a) bake fish
b) baked fish
c) baked a fish | 17. a) A pink flamingo
b) A pinker flamingo |
| 8. a) It's a sport.
b) It's sport.
c) It's support. | 18. a) It's secret
b) It's a secret |
| 9. a) ask question
b) asked question
c) asked a question | 19. a) fit
b) fits
c) fitter
d) fitted |
| 10. a) He has bees
b) He has beans
c) He has been | 20. a) sack worker
b) sacked worker
c) sacked a worker |

Part B. Listen to these sentences and circle the one you hear.

1. a) A grey plan
b) A great plan
c) A greater plan
2. a) Is true
b) It's true
c) It's a true
d) It true
3. a) move a house
b) moved house
c) moved a house
4. a) silk tie
b) silk tight
c) silk tights
d) silk ties
5. a) I like law
b) I like lawn
c) I like laws
d) I like lawns
6. a) Give away
b) Give a wave
c) Give a waiver
7. a) bake fish
b) baked fish
c) baked a fish
8. a) It's a sport.
b) It's sport.
c) It's support.
9. a) ask question
b) asked question
c) asked a question
10. a) He has bees
b) He has beans
c) He has been
11. a) tracks of wolves
b) tracks wolves
c) track wolves
12. a) Thai table
b) timetable
c) times table
13. a) twist top
b) twist a top
c) twisted top
d) twisted a top
14. a) He likes smoke
b) He likes a smoke
15. a) wait forever
b) waiter forever
c) waits forever
d) weights are forever
16. a) take right
b) takes right
c) takes a right
d) take a right
17. a) A pink flamingo
b) A pinker flamingo
18. a) It's secret
b) It's a secret
19. a) fit
b) fits
c) fitter
d) fitted
20. a) sack worker
b) sacked worker
c) sacked a worker

Appendix 2B Paragraph Reading

Paragraph reading task

Learners are presented with the following text (from Boyer 2005:) and asked to read it aloud. They are permitted to read it silently first and ask questions.

National Parks

As the world's population has expanded, a lot of land has been cleared for farming, housing and mining. The rapid development of railways, roads and industry into sparsely populated areas, has caused animals and birds to vanish as their natural habitats have been destroyed. Farmers and land developers have often left large areas of land scarred and damaged.

As the mismanagement of large areas of land throughout the world increased, far-sighted people began to see that action was needed to prevent many of the world's animals from vanishing. Campaigns were started to protect the earth's natural environment from further damage. In 1872, Yellowstone National Park, in the United States of America, became the world's first managed National Park. Since that time, National Parks have been established in many other countries to protect the marvels of our natural world.

Appendix 2C Giving Directions

Giving Directions

This task aims to simulate a relatively informal communicative situation. The learner is asked to tell the interviewer how to get to her place. Both have a map (see page 2). Below is an example of the types of questions and answers anticipated during the exchange.

Learner

Start at Victoria Park Market
Turn right
Go straight ahead
Turn left
At the police station
No past the police station

First street
Go straight ahead
Past the Caltex station
Turn right at the Albert Hotel
Go across Second Street
Stay on First Road.
Turn left at the fish and chip shop.
Now you're on Third Street.
Go past the second-hand shop.
My place is next door,
Next to the second-hand shop.

Interviewer

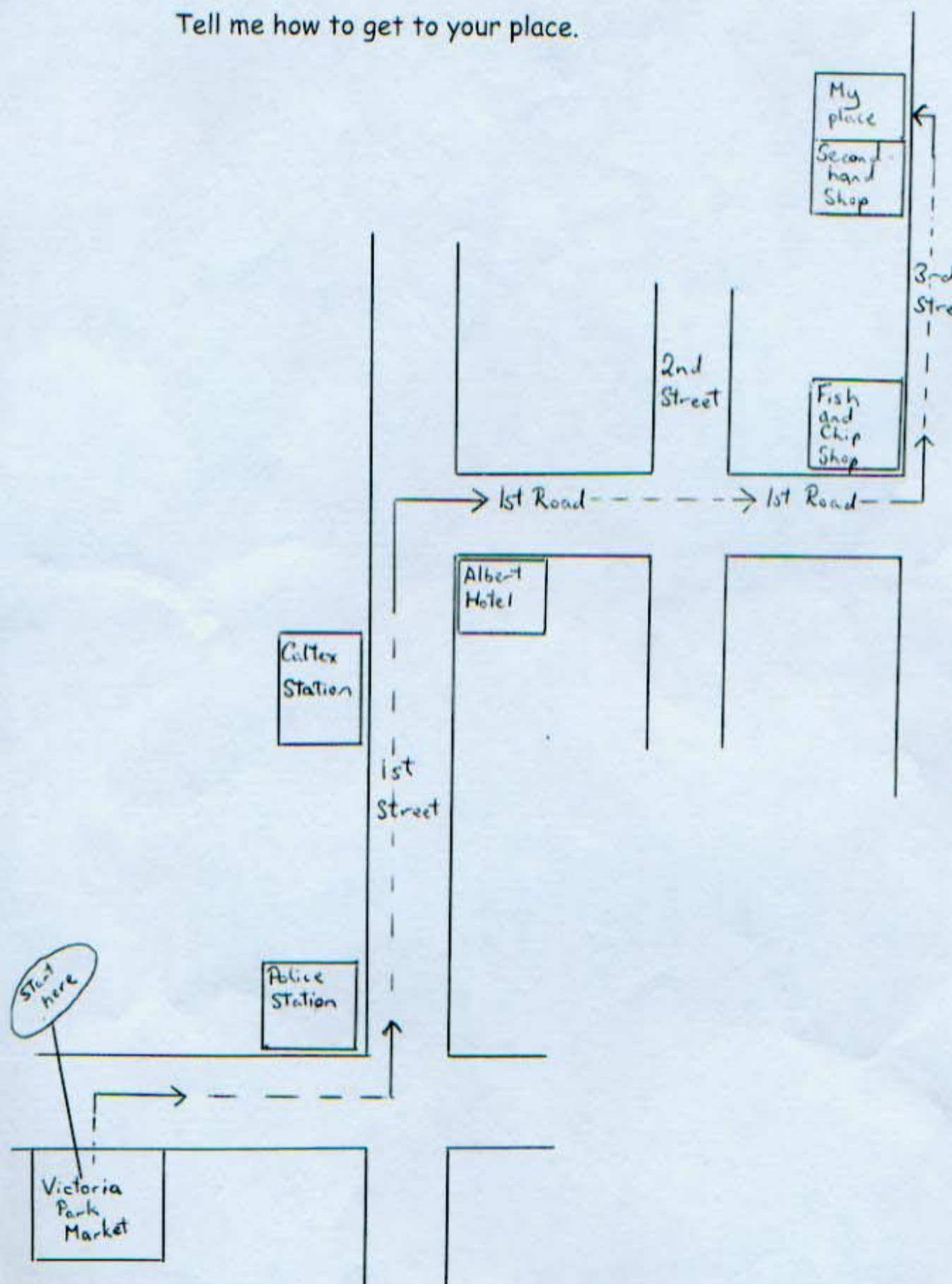
Where do I start?

Where?
Before the police station?

OK What street am I on?
good, now what?

Giving Directions

Tell me how to get to your place.



Appendix 2D Sounds and Spelling

Instructions: Say the underlined words in these sentences out loud. Tell me how you think it might be pronounced and why. I will then tell you the correct pronunciation and you can try and repeat it.

1. The Post Office traced the missing letter.
2. It was autumn so they raked the leaves.
3. The pipe ruptured, sending water everywhere.
4. In this case it is the father who nourishes the young.
5. He was unhappy with the job so he tendered his resignation.
6. They didn't know if they could trust him so they questioned his allegiances.
7. The police dogs tracked the criminal.
8. He always winces when he eats lemons.
9. He drank a lot of beer before he had finally slaked his thirst.
10. The ghosts came and spirited him away into the night.
11. I've got a picket fence in front of my house.
12. First he makes her angry then he placates her.
13. Parasites are those who don't pay their way.
14. Thatched roofs are made of straw.
15. A hatchet is a small axe.
16. A good teacher encourages her students.
17. He raves on about how good he is.
18. The madman rages on forever.
19. He never has any luck. He's jinxed.
20. He always meddles in other people's affairs.
21. He fantasises about the day he will be rich.
22. He fantasised about the day he would be rich.
23. He's a dangerous driver because his concentration always lapses.
24. He had no clothes on. He was completely naked.
25. The wicked witch cooked her magic potion.

Critical Listening

Each student did a slightly different task as it was customised to represent the difficulties of the individual student. The first three items were the same for all students and were taken from a range of different students' tapes. The other items were taken from the recordings of the particular student for whom the task was designed. Learners were presented with the items (as shown below, but larger and spaced out to allow for room to write), they heard two versions, one acceptable and one not. They were first asked if they were the same. If they heard a difference they were told to show where it was and explain it. Upon request they were allowed to listen again.

Ay

- | | |
|--------------------------------|----------------------------|
| 1. He asked questions. | He asked questions. |
| 2. They thanked him. | They thanked him. |
| 3. She told stories. | She told stories. |
| 4. They thanked him. | They thanked him. |
| 5. We discovered perfection. | We discovered perfection. |
| 6. Saved money. | Saved money. |
| 7. He loves secrets. | He loves secrets. |
| 8. Push and shove. | Push and shove. |
| 9. Fern fronds. | Fern fronds. |
| 10. Experienced climbers. | Experienced climbers. |
| 11. Silk stockings and tights. | Silk stockings and tights. |
| 12. Fine lines. | Fine lines. |

Bea

- | | |
|--------------------------------|----------------------------|
| 1. He asked questions. | He asked questions. |
| 2. They thanked him. | They thanked him. |
| 3. She told stories. | She told stories. |
| 4. Saved money. | Saved money. |
| 5. You liked him. | You liked him. |
| 6. She jumps. | She jumps. |
| 7. He wants victory. | He wants victory. |
| 8. Now and then. | Now and then. |
| 9. Push and shove. | Push and shove. |
| 10. Perfect timing. | Perfect timing. |
| 11. Silk stockings and tights. | Silk stockings and tights. |

Cee

- | | |
|--------------------------------|----------------------------|
| 1. He asked questions. | He asked questions. |
| 2. They thanked him. | They thanked him. |
| 3. She told stories. | She told stories. |
| 4. You liked him. | You liked him. |
| 5. He loves secrets. | He loves secrets. |
| 6. It works well. | It works well. |
| 7. He thinks slowly. | He thinks slowly. |
| 8. He wants victory. | He wants victory. |
| 9. Push and shove. | Push and shove. |
| 10. It's difficult. | It's difficult. |
| 11. Perfect timing. | Perfect timing. |
| 12. Experienced climbers. | Experienced climbers. |
| 13. He wasn't thankful. | He wasn't thankful. |
| 14. Silk stockings and tights. | Silk stockings and tights. |

Dee

- | | |
|--------------------------------|----------------------------|
| 1. He asked questions. | He asked questions. |
| 2. They thanked him. | They thanked him. |
| 3. She told stories. | She told stories. |
| 4. We discovered perfection. | We discovered perfection. |
| 5. You liked him. | You liked him. |
| 6. She builds houses. | She builds houses. |
| 7. He races dogs. | He races dogs. |
| 8. Lemons and apples. | Lemons and apples. |
| 9. Push and shove. | Push and shove. |
| 10. Pictures and texts. | Pictures and texts. |
| 11. Wrong count. | Wrong count. |
| 12. Silk stockings and tights. | Silk stockings and tights. |

Interview Questions

The aim of the interviews is to explore learners' previous conceptions of phonology and the ways in which it has been explained to them. In particular there will be a focus on the metalanguage which they use and how they interpret the metalanguage which teachers use.

Learners will be asked to talk about their language learning experiences and discuss which things were helpful and which were not.

In talking about the teaching done as a part of this project they will also be asked to describe how they understood it and explain which things were most helpful. They might also talk about any change in attitude and how they think their pronunciation has improved.

The questions will vary according to the stage of the project and will tend to arise spontaneously. Thus it is not possible to determine them at this stage, except to say that they will be broadly framed to capture the information described above.

Lesson 1: Plan and materials

Lesson Outline

Pronunciation focus introduced through listening: (See OHT on page 2)

‘Books and Computers’ (Unit 6; Understanding English Pronunciation) (Boyer 2005)

Pre-listening: What’s better – books or computers?

Elicit good things and bad things about computers – on board.

Listen: Does she talk about any of these good things or bad things?

2nd listening:

1. What kind of memories does she talk about? – childhood memories
2. What did students do in the past? – looked in books for solutions.
3. What do students do in schools today? – often look to computers for information
4. Why is it difficult to imagine a world without computers? – used so much.

Elicit answers and record pronunciation errors on board.

Hand out text

Time: 15 - Explicit pronunciation focus begins

Explain focus of final consonant initial consonant. Listen again for more examples.

Time: 25

Students listen and repeat.

Teacher corrects as errors are made and explains how sounds are joined.

Time: 35

A specific focus on pronunciation of ‘and’ with reference to the examples in the text.

Time: 45

Students then listen and repeat the text, recording themselves.

Time: 55

They then play back and compare. The teacher then provides further input and examples.

Time: 75

Then students record the whole text and compare it with the original.

Time: 90

Group discussion of the lesson and their understanding of it.

Listening Text (Divided into short phrases and presented on OHT)

Do you have childhood memories of school rooms full of books or rooms full of computers? In the past students would look in books for solutions to their questions, but in schools today, students often look to computers for information. Computer technology has opened up a whole new world of communication and educational opportunities. In fact, computers are now used so much it’s difficult to imagine a world without them.

When the first automatic electronic computers were introduced during the 1940’s, one computer took up a whole room and could be used by only a few skilled technicians. Now computers are so user-friendly, they are routinely used in offices and homes, as well as schools and universities. In fact, computers have become so crucial to business and education that some people have the view that modern society is becoming too dependent on computer technology for its own good.

OHT (reduced)

Books or Computers?



Good things?

Bad things?

Listen. Does she agree?

Listen again

1. What kind of memories does she talk about?
2. What did students do in the past?
3. What do students do in schools today?
4. Why is it difficult to imagine a world without computers?

Outline plan of lesson two

Revision of previous week.

‘first word’, ‘second letter’ (written on board to start)

Feedback re any observations during the week.

Time: 10

More speaking practice with other examples: Animals on OHT. (See page 2)

Time: 20

Lang lab: Listen and record.

Time: 30

Class: play back and compare

Time: 45

Further practice with card game

Time: 75

Re-test: speaking and listening

Time: 90

Group discussion of the lesson and progress made.

Rules for animal game and star game

The animal game involves adjectives plus animals. The pronunciation focus is on epenthesis for the context of a word final consonant followed by a word initial consonant. The lexical focus is on the distinction between the adjective and the comparative, e.g. ‘a drunk snail’ versus ‘a drunker snail’.

The star game involves word final consonants and the effect that absence and epenthesis can have on the meaning, e.g. star, start, starts, starter, starters.

This game is best played with four or five players.

For each game there is a double set of cards so that each one occurs twice. At the moment there are 64 cards ($x2 = 128$) in the animal game and 40 cards ($x2 = 80$) in the star game. The object of the game is to find the matching pairs.

Student Handout explaining the game (reduced to save space)

Rules for animal game

The object of the game is to find the matching pairs.

- To begin with, shuffle the pack and deal seven cards to each student.
- Put the rest of the pack in the middle.
- Players look at their cards to see if they have two cards the same.
- If they do, they have to say what is on the card before showing them to the other players who then must agree that they pronounced it correctly.
- Those two cards are then put to one side.
- Then the same player reads out what is on one of her/his cards.
- The other players then look to see if they have a matching card.
- Any player who has a matching card must read out what is on the card.
- The cards are then shown to confirm that they are the same.
- If they are the same, the cards are put to one side and the initiating (starting) player continues with his or her turn.
- If they are not the same, the player who made the mistake must pick up two cards.
- If no one has a matching card, the initiating player picks up a card and the turn goes to the player on his or her left.
- The winner is the first player with no cards left.

Sample of cards as shown on OHT

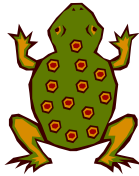
A drunk snail



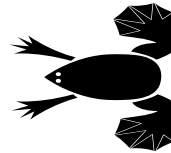
A drunker snail



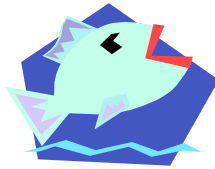
A soft toad



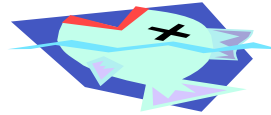
A softer toad



A flat fish



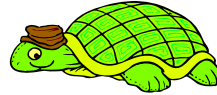
A flatter fish



A hot turtle



A hotter turtle



A mad dog



A madder dog



A fierce tiger



A fiercer tiger



The remaining items were: a loud parrot, a louder parrot, a quiet bat, a quieter bat, a smug bug, a smuggler bug, a wet bird, a wetter bird, a fat cat, a fatter cat, an old deer, an older deer, a mild bull, a milder bull, a stout pig, a stouter pig, a smart fox, a smarter fox, fit pigeon, a cute kiwi, a cuter kiwi, a fast kea (a kea is a native New Zealand alpine parrot), a faster kea, a big bee, a bigger bee, a sick cow, a sicker cow, a wild horse, a wilder horse, a sad spider, a sadder spider, a kind wasp, a kinder wasp, an odd frog, an odder frog, a cold trout, a colder trout, a tough fly, a tougher fly, a large lizard, a larger lizard, a sharp crayfish, a sharper crayfish, a sweet zebra, a sweeter zebra, a meek lion, a meeker lion, a weak rabbit, a weaker rabbit, a wide sheep, a wider sheep.

These items were chosen according to the difficulty of the phonetic contexts as identified in study one. The pictures have all come from clip art. Even though one might cast doubt on the need for adult students to practice the particular lexical items and question their face validity, the fact is that they did provide a coherent lexical grouping and the students found the motivation of the game and the need to focus on pronunciation more than enough to overcome this. There were also a number of adjectives which they were not familiar with, and they were keen to learn them.

Appendix 2I Lesson 3: Plan and Materials

Lesson 3: Health and Happiness

Lesson Outline

Time:0

Pronunciation focus introduced through listening: (See OHT on page 2)

‘Health and Happiness’ (Unit 7; Understanding English Pronunciation: Boyer 2005)

Pre-listening: What are the keys to health and happiness?

Elicit and record on board, noting examples of epenthesis and absence

Listen and see if she agrees with you.

2nd listening:

1. What do we have to do to stay healthy and happy? – keep our lives in balance.
2. How many years has Chinese philosophy spanned? - thousands of years
3. What does Yang represent? – the active elements of the universe
4. What does Yin represent? – the passive elements.
5. Name some examples of things which need to be balanced. – all aspects, work and rest, balanced exercise.
6. What do people do wrong? – deadlines, work to excess, eat fast-food, don’t get enough rest or recreation, believe access to wealth is the answer.

Elicit answers and record pronunciation errors on board.

Hand out text

Time: 15

Explicit pronunciation focus begins

Explain focus of final consonants. Elicit which individual and clusters of consonants they find difficult. Listen again for more examples.

Time: 25

Students listen and repeat. (Choral repetition)

Teacher corrects as errors are made and explains how sounds are joined.

Time: 40

Students then listen and repeat the text (phrase by phrase), recording themselves and playing back to compare.

Time: 55

The whole class then listens to some of each student’s phrases and provides feedback.

The teacher then provides further input and examples.

Time: 75

Then students read out the whole text and their peers correct them as they go.

Time: 90

Group discussion of the lesson and their understanding of it.

The listening text:

Health and Happiness

Health experts suggest that to stay healthy and happy, it’s important to keep our lives in balance. Chinese philosophy, which has spanned thousands of years, uses the principles of yin and yang to explain the importance of balance in life. Explained simply, yang represents the active elements of the universe, whereas the yin represents the passive elements. This expresses the importance of balance in all aspects of living. Today health experts agree that it’s important to have a balanced

life. For example, they've said it's necessary to have a balance between work and rest and to have a balanced exercise program. However, I'm sure you'd agree that in our busy world it's not always easy to get and keep balance in our lives.

Due to business or study deadlines, many people work to excess; leaving little time at the end of their busy day to spend with family and friends. They eat fast-food and don't get enough rest or recreation and then suffer badly from the effects of stress. It's sad that this situation often happens when people believe that access to wealth is the answer to happiness instead of understanding the importance of balanced living.

Language Lab: (The text was presented in phrases for repetition)

You will hear each of these phrases on the tape. Listen and repeat. Record yourself. Play it back and listen first to the model and then your voice. Keep trying until you are happy it sounds the same.

OHT: (reduced)

What are the keys to health and happiness?



Listen and see if she agrees with you.

1. What do we have to do to stay healthy and happy?
2. How many years has Chinese philosophy spanned?
3. What does Yang represent?
4. What does Yin represent?
5. Name some examples of things which need to be balanced.
6. What do people do wrong?

Appendix 2J Lesson 4: Plan and Materials

Lesson Four: Plan Outline

Time: 0

- Revision of previous week.
- Health and happiness; any new words?
- Feedback re any observations during the week (students had been asked to listen to how codas were pronounced)

Time: 10

More speaking practice with other examples: Words and pics from star game on OHT.
(see page 2)

Time: 20

Lang lab: Listen and record. Words from OHT (see below)

Time: 30

Class: play back and compare

Time: 45

Further practice with card game

(Note rules are the same as for animal game in lesson 2)

Time: 75

Re-test: speaking and listening

Time: 90

Group discussion of the lesson and progress made.

Listen to each pair of words, repeat them, record yourself.

star	start	way	ways
start	starts	waste	wastes
starts	starters	waste	waster
starter	starters	waster	wasters
start	starter	bee	bees
day	date	bean	beans
date	dates	ask	asks
date	dated .	ask	asker
lie	lies	ask	asked
line	lines	asker	askers
fact	factor	save	savour
facts	factors	savour	savoured
time	times	save	saved
timer	timers		

Sample of cards used for star game, as shown on OHT.

star



start



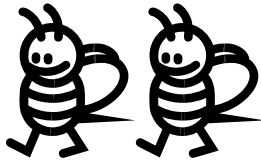
waste



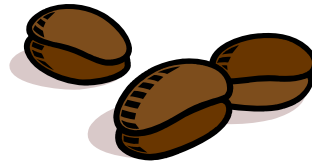
waster



bees



beans



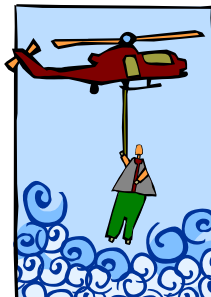
save



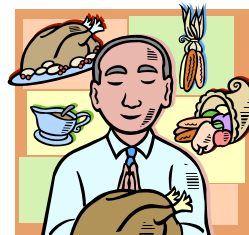
savour



saved



savoured



Lesson 5. Outline Plan:

Get students to discuss what they have understood so far.

Time 10

Part one: past tense

Listen and complete chart (see ‘Worksheet One’ below)

Learners work out pattern.

Time: 25

Practice with cards (see below)

Time: 35

Write down more words

Time 40

Revise rules.

Time 45

Part 2: 3rd person s (see ‘Worksheet Two’ below)

Same procedure

Discussion

Time 80

Test again.

Worksheet One

Listen to the final sounds of these words and write them in the correct column.

laughed	smiled	cried	shouted	screamed
grinned	smirked	snapped	raged	raved
chided	wincing	sobbed	cheered	hugged
grouched	seethed	relished	gazed	banged

/t/	/d/	/id/
joked	enjoyed	hated

Look at the final sound before /t/, /d/ or /id/. Can you work out a pattern?

Cards: You have some cards each. Take turns to say the word on the top card to your partner. Write t, d, or id on the back. Then make three piles. Practise each one at a time.

[These are the words written on the cards:

looked, walked, knocked, jumped, stopped, helped, promised, licked, sipped, missed, watched, wished, mixed, introduced, forced, taxed, lashed, ditched, hissed, lapped, rubbed, hugged, judged, pulled, hummed, banned, winged, breathed, lived, surprised, explained, phoned, arrived, suffered, refused, disappeared, discovered, layered, died, waved, visited, attended, instructed, created, rested, decided, hated, disappointed, expected, concluded]

Lesson 6 Outline plan

Revise past tenses from last week (Refer to last week's worksheet)

Time 5

Revise final 's' (Refer to last week's worksheet)

Time 10

Practise final 's' (Refer to last week's worksheet)

Time 20

Test

Time 30

Critical listening: Listening to differences, saying which one they hear

Listen to different versions of listening test

Time 60

Language Lab;

Practice with speaking and listening test

Time 80

Final test

Appendix 3A Overview of Tests used in Study Three

Tough Phrases Test. Record these phrases on your tape. <table border="0"> <tr><td>He asked questions.</td><td>Here and now.</td></tr> <tr><td>They thanked him.</td><td>Now and then.</td></tr> <tr><td>She told stories.</td><td>Push and shove.</td></tr> <tr><td>We discovered perfection.</td><td>Pictures and texts.</td></tr> <tr><td>Saved money.</td><td>Wrong count.</td></tr> <tr><td>You liked him.</td><td>It's difficult.</td></tr> <tr><td>He tempted fate.</td><td>A grand plan.</td></tr> <tr><td>She waited patiently.</td><td>Fern fronds.</td></tr> <tr><td>He loves secrets.</td><td>Times tables</td></tr> <tr><td>She builds houses.</td><td>Five lives.</td></tr> <tr><td>It works well.</td><td>Perfect timing.</td></tr> <tr><td>He thinks slowly.</td><td>Experienced climbers.</td></tr> <tr><td>She jumps.</td><td>Intermediate students.</td></tr> <tr><td>He races dogs.</td><td>Film strip</td></tr> <tr><td>He wants victory.</td><td>Headlights</td></tr> <tr><td>He finds happiness.</td><td>He wasn't thankful.</td></tr> <tr><td>Find a job.</td><td>Silk stockings and tights.</td></tr> <tr><td>Hand out.</td><td>Wildlife sanctuary</td></tr> <tr><td>Told off.</td><td>Tourist attractions</td></tr> <tr><td>Lemons and apples.</td><td>Fine lines.</td></tr> </table>	He asked questions.	Here and now.	They thanked him.	Now and then.	She told stories.	Push and shove.	We discovered perfection.	Pictures and texts.	Saved money.	Wrong count.	You liked him.	It's difficult.	He tempted fate.	A grand plan.	She waited patiently.	Fern fronds.	He loves secrets.	Times tables	She builds houses.	Five lives.	It works well.	Perfect timing.	He thinks slowly.	Experienced climbers.	She jumps.	Intermediate students.	He races dogs.	Film strip	He wants victory.	Headlights	He finds happiness.	He wasn't thankful.	Find a job.	Silk stockings and tights.	Hand out.	Wildlife sanctuary	Told off.	Tourist attractions	Lemons and apples.	Fine lines.	Listening discrimination test (15 items) <i>These items are used: jest/jester, drunk/drunken, think/thinker, grand/grander, wild/wilder, soft/softer, just thought/just a thought, drunk snail/drunken snail, think positive/think a positive, grand plan/grander plan, wild horse/wilder horse, soft toad/softer toad, keep secret/keep a secret, fierce tiger/fiercer tiger, it's clearing/it's a clearing.</i> You will hear these groups of words. Say which one is different. Or if they all sound like the same word tick 'same'. You will hear each group three times. Tick an answer after each time. If you don't know, tick don't know. Your answer might change each time. That is fine. Example: 1. want 2. want 3. wanted (The third one is different, so tick three) Which word is different?
He asked questions.	Here and now.																																								
They thanked him.	Now and then.																																								
She told stories.	Push and shove.																																								
We discovered perfection.	Pictures and texts.																																								
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Hand out.	Wildlife sanctuary																																								
Told off.	Tourist attractions																																								
Lemons and apples.	Fine lines.																																								
Drunk Snail Test. Words have been taken from this list and distributed evenly across the three sections of the test, according to level of difficulty and phonological context (approximately). There are 54 items in total, 27 of which will be taught. /ts/ + C It's difficult, it's definite, that's too light, that's too late, it's short, it's shut, /st/ + C (or /s/ + C) Just think, first thing, fast kea, past caring, fierce tiger, peace time /ld/ + C Childhood, wildlife, old deer, cold housing, cold trout, told tales CC + C x 2 Kind wasp, stop and wait, grand piano, hand pump, wild horse, old house, mild bull, chilled beer, soft toad, lift top, drunk snail, think small C + C (or C + CC) x 2 Loud parrot, made pudding, Flat fish, fat finger, cute kiwi, late comer, odd frog, bad fright, tough fly, safe flat, sharp crayfish, top cruiser C or CC + pause x 2 just, must, second, weekend, past, last, fact, sacked, looked, booked, text, next,	Group 1. 1..... 2..... 3..... Same..... Don't know..... 1..... 2..... 3..... Same..... Don't know..... 1..... 2..... 3..... Same..... Don't know..... Group 2. 1..... 2..... 3..... Same..... Don't know..... 1..... 2..... 3..... Same..... Don't know..... 1..... 2..... 3..... Same..... Don't know.....																																								
Part a. Listen and repeat (students will listen and repeat, recording their answers) It's difficult, it's definite, Just think, first thing, Childhood, wildlife, Kind wasp, stop and wait, mild bull, chilled beer, Loud parrot, made pudding, odd frog, bad fright, just, must, fact, sacked. Part b. Read the words and phrases. (stressed syllables will be underlined, dots used to show unstressed syllables, joining lines used) that's too light, that's too late, fast kea, past caring, old deer, cold housing, grand piano, hand pump, soft toad, lift top, Flat fish, fat finger, tough fly, safe flat, second, weekend, looked, booked. Part c. Read these words and phrases: it's short, it's shut, fierce tiger, peace time, cold trout, told tales, wild horse, old house, drunk snail, think small, cute kiwi, late comer, sharp crayfish, top cruiser, past, last, text, next.	Critical Listening for Interview <i>You will hear students saying these phrases. You will hear each phrase twice. When you listen, decide if they are the same each time. If they are different, how are they different? Does one sound better than the other?</i> <table border="0"> <tr><td>1. She asked questions.</td><td>She asked questions.</td></tr> <tr><td>2. They thanked him.</td><td>They thanked him.</td></tr> <tr><td>3. She told stories.</td><td>She told stories.</td></tr> <tr><td>4. We discovered perfection.</td><td>We discovered perfection.</td></tr> <tr><td>5. Experienced climbers.</td><td>Experienced climbers.</td></tr> <tr><td>6. It works well.</td><td>It works well.</td></tr> <tr><td>7. He thinks slowly.</td><td>He thinks slowly.</td></tr> <tr><td>8. He wants victory.</td><td>He wants victory.</td></tr> <tr><td>9. Push and shove.</td><td>Push and shove.</td></tr> <tr><td>10. It's difficult.</td><td>It's difficult.</td></tr> <tr><td>11. Now and then.</td><td>Now and then.</td></tr> <tr><td>12. Perfect timing.</td><td>Perfect timing.</td></tr> </table>	1. She asked questions.	She asked questions.	2. They thanked him.	They thanked him.	3. She told stories.	She told stories.	4. We discovered perfection.	We discovered perfection.	5. Experienced climbers.	Experienced climbers.	6. It works well.	It works well.	7. He thinks slowly.	He thinks slowly.	8. He wants victory.	He wants victory.	9. Push and shove.	Push and shove.	10. It's difficult.	It's difficult.	11. Now and then.	Now and then.	12. Perfect timing.	Perfect timing.																
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12. Perfect timing.	Perfect timing.																																								

Appendix 3B Drunk Snail Test

Drunk Snail Test

Note: The participants knew this as Part Two, Part One being the tough phrases test of Appendix 1B. The double squiggly underlining shown in part b has been used here for ease of presentation but in the original this was in fact drawn in by hand as a curved line.

Part Two

Part 2 A. You will hear these words on your tape. Press record and play. Say the word or words after you hear them. Please speak loudly enough to record them.

1) It's difficult	10) Chilled beer
2) It's definite	11) Loud parrot
3) Just think	12) Made pudding
4) First thing	13) Odd frog
5) Childhood	14) Bad fright
6) Wildlife	15) Just
7) Kind wasp	16) Must
8) Stop and wait	17) Fact
9) Mild bull	18) Sacked

Part 2B Read these words and phrases on to the tape. Remember to press record.

1) It's <u>s</u> too light	10) lift <u>t</u> op
2) It's <u>s</u> too late	11) flat <u>f</u> ish
3) fast <u>k</u> ea	12) fat <u>f</u> inger
4) past <u>c</u> aring	13) tough <u>f</u> ly
5) old <u>d</u> eer	14) safe <u>f</u> lat
6) cold <u>h</u> ousing	15) <u>s</u> econd
7) grand <u>p</u> iano	16) <u>w</u> eekend
8) hand <u>p</u> ump	17) <u>l</u> ooked
9) soft <u>t</u> oad	18) <u>b</u> ooked

Part 2C. Read these words and phrases on to the tape. Remember to press record.

1) it's short	10) think small
2) it's shut	11) cute kiwi
3) fierce tiger	12) late comer
4) peace time	13) sharp crayfish
5) cold trout	14) top cruiser
6) told tales	15) past
7) wild horse	16) last
8) old house	17) text
9) drunk snail	18) next

Below is the worksheet given to participants. See page three for the script.

Which word is different?

You will hear these groups of words. Say which one is different. Or if they all sound like the same word tick 'same'. You will hear each group three times. Tick an answer after each time. If you don't know, tick don't know. Your answer might change each time. That is fine.

Group 1.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 2.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 3.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 4.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 5.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 6.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 7.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 8.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 9.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 10.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 11.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 12.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 13.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 14.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

Group 15.

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

1..... 2..... 3..... Same..... Don't know.....

These are the words and phrases that were said:

1. just thought/just a thought/ just thought
2. a drunk snail/ a drunk snail /a drunker snail
3. a grand plan/a grander plan / a grand plan
4. a wilder horse/ a wild horse/ a wild horse
5. a soft toad/a softer toad / a softer toad
6. keep secret/keep a secret/ keep secret
7. fiercer tiger/ fierce tiger/ fierce tiger
8. it's a clearing /it's clearing/ it's a clearing
9. baked fish/baked a fish / baked fish
10. a hard day/ a harder day / a harder day
11. bank cheque/ bank cheque / bank a cheque
12. a sadder picture / a sad picture/ a sadder picture
13. it's sport/it's a sport / it's sport
14. the heat works/the heater works /the heater works
15. fat's bad for you/fat's are bad for you/ fat's bad for you

Critical Listening Task

You will hear these phrases twice. As you listen decide:

Are they the same?

If not, how are they different?

Is one better than the other?

- | | |
|-----------------------------|--------------------------|
| 1. He asked questions | He asked questions |
| 2. They thanked him | They thanked him |
| 3. She told stories | She told stories |
| 4. We discovered perfection | We discovered perfection |
| 5. Experienced climbers | Experienced climbers |
| 6. It works well | It works well |
| 7. He thinks slowly | He thinks slowly |
| 8. He wants victory | He wants victory |
| 9. Push and shove | Push and shove |
| 10. It's difficult | It's difficult |
| 11. Now and then | Now and then |
| 12. Perfect timing | Perfect timing |

Appendix 3E Items for Critical Listening

Critical Listening

During the diagnostic test participants were also asked to record the following words. These recordings, along with other items from the tough phrases test, were used for critical listening in class.

past fact book text	rule looked child think just	10. would look 11. just think 12. it's too light 13. it's shut 14. childhood.
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Appendix 3F Items Taught by Condition

The words and phrases taught are presented below for the four conditions. It will be recalled from section 5.3.3 that A1 and B1 were presentation stages of the lesson and A2 and B2 were the listening practice stages. They have been presented in this format to create an overall impression of how the items were presented in the different conditions. The rationale for this is explained in appendices 3B – 3E.

Word inventory for all four conditions			
A1: Condition 1	A1: Condition 2	A1: Condition 3	A1: Condition 4
Black	black	Blacker	blacker
Flat	blacker	Flatter	black
Grand	flat	Grander	flatter
Past	flatter	Pasta	flat
Fact	grand	Factor	grander
Weak	grander	Weaker	grand
Blacker	Past*	Black	Pasta*
Flatter	Pasta*	Flat	Past*
Grander	Fact*	Grand	Factor*
Pasta	Factor*	Past	Fact*
Factor	Book*	Fact	book@*
Weaker	book@*	Weak	Book*
A2	1 of 3 is different		1 of 3 is different
Looked	Text text@ text*	Looked	Text text@ text*
Text	Ruler rule rule*	Text	Ruler rule rule*
Ruler	Looked looked looked@*	Ruler	Looked looked looked@*
Child	Child@ child child*	Child	Child@ child child*
Thinker	Think think thinker*	Thinker	Think think thinker*
Just	Just just@ just*	Just	Just just@ just*
Faster	Fast fast faster	Faster	Fast fast faster
Colder	Colder cold cold	Colder	Colder cold cold
Sick	Sick sicker sick	Sick	Sick sicker sick
Wild	Wild wilder wild	Wild	Wild wilder wild
Softer	Soft softer soft	Softer	Soft softer soft
Fiercer	Fiercer fierce fierce	Fiercer	Fiercer fierce fierce
Tougher	Tough tougher tough	Tougher	Tough tougher tough
Smug	Smug smuggler smug	Smug	Smug smuggler smug
Hotter	Hotter hot hot	Hotter	Hotter hot hot
B1			
Black bear	Black bear	Blacker bear	Blacker bear
Drunk snail	Blacker bear	Drunker snail	Black bear
Fast kea	Drunk snail	Faster kea	Drunker snail
Would look	Drunker snail	Black bear	Drunk snail
Just think	Fast kea	Drunk snail	Faster kea
It's difficult	Faster kea	Fast kea	Fast kea
Blacker bear	Would look would@ look*	Would look	would@ look Would look *
Drunker snail	Just think just@ think*	Just think	just@ think Just think*
Faster kea	It's difficult It's@ difficult*	It's difficult	It's@ difficult It's difficult *
B2	1 of 3 is different		1 of 3 is different
It's difficult	It's difficult It's@ difficult*	It's difficult	It's difficult It's@ difficult*
Just think	Just think just@ think*	Just think	Just think just@ think*
It's too light	It's too light It's@ too light*	It's too light	It's too light It's@ too light*

It's shut	It's shut It's@ shut*	It's shut	It's shut It's@ shut*
Childhood	Childhood child@hood*	Childhood	Childhood child@hood*
Would look	Would look would@ look*	Would look	Would look would@ look*
Drunk snail	Drunk snail drunker snail	Drunk snail	Drunk snail drunker snail
Odd frog	Odd frog odder frog	Odd frog	Odd frog odder frog
Mild bull	Mild bull milder bull	Mild bull	Mild bull milder bull
Kind wasp	Kind wasp kinder wasp	Kind wasp	Kind wasp kinder wasp
Loud parrot	Loud parrot louder parrot	Loud parrot	Loud parrot louder parrot
Old deer	Old deer older deer	Old deer	Old deer older deer
Tough fly	Tough fly tougher fly	Tough fly	Tough fly tougher fly
Cute kiwi	Cute kiwi cuter kiwi	Cute kiwi	Cute kiwi cuter kiwi
Sharp crayfish	Sharp crayfish sharper crayfish	Sharp crayfish	Sharp crayfish sharper crayfish

*These items are taken from students recordings.

Condition 1; ML-/CL-

Language items presented through teacher recordings only

Part A1 Introduction

Group 1: ML-/CL- (language items presented through teacher recordings)

Part A1 (single words) Introduction

The basic unit of English pronunciation is the syllable. What is the smallest syllable? What must there be in every syllable? How many consonants can there be before the vowel? How many consonants can there be after the vowel?

Listen to this word, black (on OHT). It has one syllable. It has this pattern; CCVC. Work in groups to find examples of these patterns, and write down other patterns you can think of: V CV VC CVC VCC CCV CVCC CCVCC

Listen to these other words. They all have one syllable. [flat, grand, past, fact, weak]. What's the pattern? Listen to this word, blacker (on OHT). It has two syllables. What is the pattern for the second syllable? Listen to these words with two syllables: blacker, flatter, grander, pasta, factor, weaker. Count the syllables as you listen.

A2: Listening practice

Listen. What word did you hear? How many syllables? What was the pattern? [After each word, the teacher gives yes/no feedback and then says the word again] (words used: looked, text, ruler, child, thinker, just, faster, colder, sick, wild, softer, fiercer, tougher, smug, hotter)

A3: Speaking Practice – listen and repeat

[Teacher says the words used in A1 and A2, getting learners to repeat and gives feedback by saying, no that's two syllables or that's only one syllable, words are not contrasted]

Part B

B1 Introduction

Now listen to these groups of words and count the number of syllables. Black bear, [on board]. Notice there are two syllables Notice the pattern [on OHT]. Remember to use the right number of syllables. Here are some more examples; drunk snail, fast kea, would look, just think, it's difficult. Count the number of syllables. Notice this one, blacker bear, makes it a comparative. Notice it has three syllables. Listen to some more examples like this; drunker snail, faster kea. Count the syllables. Notice these are comparatives, so if you add an extra syllable you will change the grammar.

B2 Listening practice

Listen to this. What do you hear? How many syllables does it have?

[After each phrase, the teacher gives yes/no feedback and then says the phrase again.] (phrases used; It's difficult, Just think, That's too light, It's shut, childhood, would look, drunk snail, odd frog, mild bull, kind wasp, loud parrot, old deer, tough fly, cute kiwi, sharp crayfish)

B3: Speaking Practice – listen and repeat

[Teacher says the phrases used in B1 and B2, getting learners to repeat and gives feedback by saying, no that's three syllables or that's only two syllables, words are not contrasted]

Condition 2; ML-/CL+

Items presented through recordings of both learners and the teacher.

Part A1 Introduction (single words)

The basic unit of English pronunciation is the syllable. What is the smallest syllable? What must there be in every syllable? How many consonants can there be before the vowel? How many consonants can there be after the vowel?

Listen to this word, black (on OHT). It has one syllable. It has this pattern; CCVC. Work in groups to find examples of these patterns, and write down other patterns you can think of: V CV VC CVC VCC CCV CVCC CCVCC

Listen to this word, blacker [on OHT]. It has two syllables. What is the pattern for the second syllable? Listen to these other words. Some have two syllables. Black - blacker, flat - flatter, grand - grander [on OHT compared]. What is the pattern? Count the syllables as you listen.

Now listen to these students. Which word did they say? How many syllables did they say? What was the pattern? [On the tape, one says 'past', and one says 'pasta'. Both words on OHT and students listen again to hear the difference. This is followed by; fact - factor, book - booker. The schwa symbol is used to show the extra vowel. These groups of words are also shown at the same time as hearing them].

A2 Listening Discrimination Practice

Now listen: Which word is different? [After each one, the teacher gives yes/no feedback, asks how many syllables there were in the one which was different, and then models the contrast. The first six are recordings from students. The rest are from the teacher.]

text	text@	text
ruler	rule	rule
looked	looked	looked@
child@	child	child
think	think	thinker
just	just@	just
fast	fast	faster
colder	cold	cold
sick	sicker	sick
wild	wilder	wild
soft	softer	softer
fiercer	fierce	fierce
tough	tougher	tougher
smug	smugger	smug
hotter	hot	hot

A3: Speaking Practice – listen and repeat

[Teacher says the words used in A1 and A2, getting learners to repeat and gives feedback by saying, no that's two syllables or that's only one syllable, words are presented in contrasting pairs]

Part B

B1 Introduction

Now listen to these groups of words and count the number of syllables. Black bear, [on board]. Notice there are two syllables. Compare it with this one, Blacker bear [on board]. Notice there are three syllables. Notice the extra syllable makes it a comparative. Remember to use the right number of syllables. Count the number of syllables [presented in contrasting pairs, on board]; black bear – blacker bear, drunk snail – drunker snail, fast kea – faster kea.

Now listen to these students. What did they say? Count the syllables for each one [On the tape, one says ‘would look’, and one says ‘would@ look’. Written on board]. So the first one said 2 syllables and the second one said three syllables. [Students listen again to hear the difference. This is followed by; just think – just@ think, it’s difficult – it’s@ difficult. The schwa symbol is used to show the extra vowel. These groups of words are also put on the board at the same time as hearing them according to the number of syllables].

B2 Listening discrimination practice

Now listen: Which phrase is different? [After each one, the teacher gives yes/no feedback, asks how many syllables there were in the one which was different, writes them on the board and then models the contrast.]

Listen to these, which one is different:

It’s difficult	It’s difficult	It’s@ difficult
Just think	Just@ think	Just think
That’s@ too light	That’s too light	That’s too light
It’s shut	It’s@ shut	It’s shut
child@hood	childhood	childhood
would look	would look	would@ look
drunk snail	drunker snail	drunk snail
odd frog	odd frog	odder frog
mild bull	milder bull	milder bull
kinder wasp	kind wasp	kind wasp
louder parrot	loud parrot	loud parrot
old deer	older deer	old deer
tougher fly	tough fly	tough fly
cute kiwi	cute kiwi	cuter kiwi
sharper crayfish	sharp crayfish	sharp crayfish

B3 Speaking Practice: Listen and repeat.

[teacher says the phrases from B1 and B2, getting learners to repeat and gives feedback by saying, no that’s three syllables or that’s only two syllables, etc. phrases are presented in contrasting pairs]

Condition 3; ML+/CL-

Language items presented through teacher recordings only

Part A1 Introduction

Listen to this word, blacker [on OHT]. Notice the first part is louder: blacker [underlined on OHT] That's a syllable, but notice there's a second part [a dot made under er] it's very short but it's a syllable too. We can use this symbol to show it, [schwa on OHT]. Notice these words all have one part which is louder, and a second part too, i.e. 2 syllables. Listen to these words with two syllables; blacker, flatter, grander, pasta, factor, weaker [on the OHT along with underlining and dots].

Now listen to some with just one syllable; black. How does the 'k' sound to you? Notice how it is short, or quiet. It can be quite hard in English pronunciation to say the ends of words in the right way. If you make the last sound too long and loud I think you are saying an extra syllable which makes it a different word. So I might think you are saying 'blacker' when you want to say 'black' Listen to some more examples ; black, flat, grand, past, weak. [also on OHT and underlined] Notice that the meaning changes depending on the number of syllables you say.

A2: Listening practice

Listen. What word do you hear? [After each item the teacher writes the word (he hears the student say) on the board and gives yes/no feedback and then says the word again showing the stressed and unstressed words on the board] (Words used: looked, text, ruler, child, thinker, just, faster, colder, sick, wild, softer, fiercer, tougher, smug, hotter)

A3: Speaking Practice – listen and repeat

[teacher says these words (all those in A1 and A2), getting learners to repeat and gives feedback by saying, no here's the stressed syllable but there's no second syllable here – pointing to underlining and dots on board, when you said it I heard this one, words are not contrasted]

Part B

B1 Introduction

Now listen to what happens when we have two words together. 'Blacker bear' Notice the sound of the 'k' and the extra syllable. Listen to some more examples like this; drunker snail, faster kea.

This is not hard for you to say, but if you want to say this: 'black bear', you have to be careful. If you make the last sound too long and loud I think you are saying an extra syllable which makes it a different word; blacker bear.

One thing that can help you to get this right is to join sounds at the end of one word with the beginning of the next. We usually do this in English and it makes it easier to say [joining lines on OHT to show this].

Listen carefully to this sound [pointing to k in black] and notice how it joins onto the next one, black bear. Here are some more examples; drunk snail, fast kea, would look, just think, it's difficult.

B2 Listening practice

Listen to this. What do you hear? [After each item the teacher writes the phrase (he hears the student say) on the board and gives yes/no feedback and then says the phrase again showing the stressed and unstressed words on the board and showing how the sounds join] (phrases used; It's difficult, Just think, That's too light, It's shut, childhood, would look, drunk snail, odd frog, mild bull, kind wasp, loud parrot, old deer, tough fly, cute kiwi, sharp crayfish)

B3 Speaking Practice: Listen and repeat.

[teacher says the phrases used in B1 and B2, getting learners to repeat and gives feedback by saying, "no here's the stressed syllable but there's no second syllable here" – pointing to underlining and dots on board, "when you said it I heard this one," or may say things like, "make the k quieter," or "join the k with the b", showing how to do this on the board, words are not contrasted]

Condition 4; ML+/CL+

Some phrases are from native speakers and some are from learners

Part A1 Introduction

Listen to this word, blacker [on OHT]. Notice the first part is louder: blacker [underlined on board] that's a syllable, but notice there's a second part [a dot made under er] it's very short but it's a syllable too. We can use this symbol to show it, [schwa on board]. Compare: blacker, black [pointing to the difference on OHT]. How does the 'k' sound to you? Is it different in black and blacker? Notice how in 'black' it is short, or quiet. It can be quite hard in English pronunciation to say the ends of words in the right way. If you make the last sound too long and loud I think you are saying an extra syllable which makes it a different word. So I might think you are saying 'blacker' when you want to say 'black' Listen to the difference; blacker – black, flatter – flat, grander – grand [on OHT along with underlining and dots]. Now listen to these students. Which word did they say? [On the tape, one says 'past', and one says 'pasta'. The difference then shown on the OHT and students listen again to hear the difference. This is followed by; fact – factor, book – booker. The schwa symbol is used to show the extra vowel. These groups of words are also put on the board at the same time as hearing them, using underlining and dots as above]. So we have one syllable which is louder followed by a second one which is very small; pasta compared with one which has just the one loud syllable; past. Notice that the meaning changes depending on the number of syllables you say.

A2 Listening Discrimination Practice

Now listen: Which word is different? [T puts the two on the board after listening to each one. Models and underlines the difference to show the contrast. The first six are recordings from students. The rest are read out by the teacher.]

text	text@	text
ruler	rule	rule
looked	looked	looked@
child@	child	child
think	think	thinker
just	just@	just
fast	fast	faster
colder	cold	cold
sick	sicker	sick
wild	wilder	wild
soft	softer	softer
fiercer	fierce	fierce
tough	tougher	tougher
smug	smugger	smug
hotter	hot	hot

A3: Speaking Practice – listen and repeat

[teacher says these words in contrasting pairs (all those in A1 and A2), getting learners to repeat and gives feedback by saying, 'No, here's the stressed syllable but there's no second syllable here – pointing to underlining and dots on board, when you said it I heard this one, words are then modelled again and contrasted]

Part B B1 Introduction

Now listen to what happens when we have two words together. 'Blacker bear' Notice the sound of the 'k' and the extra syllable. This is not hard for you to say, but if you want to say this: 'black bear', you have to be careful. If you make the last sound too

long and loud I think you are saying an extra syllable which makes it a different word; blacker bear. So you can say 'blacker bear' or 'black bear' [on OHT, showing underlining and dots]. So to change from blacker to black, notice the k is short and quiet. If I say it louder and longer it changes back to blacker. To you it might sound like a small difference but it changes the meaning.

One thing that can help you to get this right is to join sounds at the end of one word with the beginning of the next. We usually do this in English and it makes it easier to say. [Joining lines on OHT to show this] Listen carefully to this sound [pointing to k in black] and notice how it joins onto the next one, black bear, and compare it with; blacker bear

Here are some more examples. Listen to the difference; blacker bear – black bear, drunker snail – drunk snail, faster kea – fast kea [put on the board at the same time along with underlining and dots, and also showing joining]. Now listen to these students. What did they say? [On the tape, one says 'would look', and one says 'would@ look'. The difference then shown on the board and students listen again to hear the difference. This is followed by; just think – just@ think, it's difficult – it's@ difficult. The schwa symbol is used to show the extra vowel. These groups of words are also put on the board at the same time as hearing them, using underlining and dots, and joining, as above]. Notice that the meaning changes depending on the number of syllables you say.

B2 Listening discrimination practice

Now listen: Which phrase is different? [T puts the two on the board after listening to each one. Models and underlines the difference to show the contrast, showing joining. The first six are recordings from students. The rest are read out by the teacher.] Listen to these, which one is different:

It's difficult	It's difficult	It's@ difficult
Just think	Just@ think	Just think
That's@ too light	That's too light	That's too light
It's shut	It's@ shut	It's shut
child@hood	childhood	childhood
would look	would look	would@ look
drunk snail	drunker snail	drunk snail
odd frog	odd frog	odder frog
mild bull	milder bull	milder bull
kinder wasp	kind wasp	kind wasp
louder parrot	loud parrot	loud parrot
old deer	older deer	old deer
tougher fly	tough fly	tough fly
cute kiwi	cute kiwi	cuter kiwi
sharper crayfish	sharp crayfish	sharp crayfish

B3: Speaking Practice – listen and repeat

[teacher says these words in contrasting pairs (all those in B1 and B2), getting learners to repeat and gives feedback by saying, 'No, here's the stressed syllable but there's no second syllable here – pointing to underlining and dots on board and joining - , when you said it I heard this one, or may say things like, "make the k quieter," or "join the k with the b", showing how to do this on the board, words are words are then modelled again and contrasted]

Appendix 3K Description and Rationale for Listening and Speaking Practice Stages; Comparison of Conditions

Part A2 Listening; Condition 1				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
Looked, text, ruler, child, thinker, just, faster, colder, sick, wild, softer, fiercer, tougher, smug, hotter (each word is heard three times)	Looked CVCC Text CVCCC Ruler CVCV Child CVCC Thinker CVCCV Just CVCC Faster CVCCV Colder CVCCV Sick CVC Wild CVCC Softer CVCCV Fiercer CVCV Tougher CVCV Smug CCVC Hotter CVCV	What word did you hear? How many syllables? (Listening only – not saying the words)	If right word, yes, how many syllables? If right – yes only one vowel, point to V in ‘looked CVCC’. Listen two more times to check. If wrong word, no, listen again. If still wrong, show right word and CVCC How many syllables? If right – yes only one vowel, point to V in ‘looked CVCC’. Listen again to check.	Syllables have been defined in terms of CV pattern, so this is referred to in deciding the number of syllables. Contrast not allowed Initially learners are given the opportunity to listen without seeing the words. The word is shown once it has been recognized, or after the second hearing if still not recognized. This way each item is modelled three times.
Part A2 Listening; Condition 2				
	Text CVCCC Textə CVCCCV Rule CVC Ruler CVCV Looked CVCC Lookə CVCCV Child CVCC Childə CVCCV Think CVCC Thinkə CVCCV Just CVCC Justə CVCCV Fast CVCC Fəstə CVCCV Cold CVCC Kəldə CVCCV Sick CVC Sɪkə CVCV Wild CVCC Wɪldə CVCCV Soft CVCC Sɒftə CVCCV Fierce CVC Fɪərsə CVCV Tough CVC Taʊtʃə CVCV Smug CCVC Smʌgə CCVCV Hot CVC Hɒtə CVCV	You will hear three students trying to say the same word. Which one is not correct? (from no. 7) You will hear two words the same and one different. Which word is different?	Which word is not correct/different? If right, yes, how many syllables did it have? If right, yes, listen again to check. Then show OHT, comparing the two. Point to extra V. Listen one last time. If wrong, listen again. Which word is not correct/different? If right now, yes, how many syllables did it have? If right, yes, then show OHT, comparing the two, point to extra V. Listen one last time. If still not right after second listening, show OHT comparing the two to elicit correct answer – or provide, point to extra V. Listen one last time.	Syllables have been defined in terms of CV pattern, so this is referred to in deciding the number of syllables. Contrast is allowed here. Initially learners are given the opportunity to listen without seeing the words. Once they have heard the difference the words are then shown. If they can’t hear the difference after the second hearing they are then shown. This way each contrast is modelled three times.

Part A2 Listening; Condition 3				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
Looked Text Ruler Child Thinker Just Faster Colder Sick Wild Softer Fiercer Tougher Smug hotter	<u>Looked</u> <u>Text</u> <u>Ruler</u> <u>Child</u> <u>Thinker</u> <u>Just</u> <u>Faster</u> <u>Colder</u> <u>Sick</u> <u>Wild</u> <u>Softer</u> <u>Fiercer</u> <u>Tougher</u> <u>Smug</u> <u>hotter</u>	What do you hear? (After each item)	If said right, yes, notice the stress (showing and pointing to OHT), all one syllable (or; notice there is a stressed syllable followed by a second quieter syllable). Notice the sound of the final 't' (or whatever consonant it is). Listen two more times to check. If said wrong, no, this is what I heard you say ('T writes on board showing the extra vowel). Is that what you meant? Listen again, if said right, yes, notice the stress (showing and pointing to OHT), all one syllable (or; notice there is a stressed syllable followed by a second quieter syllable). Notice the sound of the final 't' (or whatever consonant it is). Listen again to check. If still wrong, notice the stress (showing and pointing to OHT), all one syllable (or; notice there is a stressed syllable followed by a second quieter syllable). Notice the sound of the final 't' (or whatever consonant it is). Listen again to check.	The focus is not on counting the syllables as in conditions one and two, but rather on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position. The aim is to use the metalanguage developed by the learners. Initially learners are given the opportunity to listen without seeing the words. The word is shown once it has been recognized, or after the second hearing if still not recognized. This way each item is modelled three times. Contrast is not allowed.
Part A2 Listening; Condition 4				
Text <u>Rule</u> <u>Looked</u> <u>Child</u> <u>Think</u> <u>Just</u> <u>Fast</u> <u>Cold</u> <u>Sick</u> <u>Wild</u> <u>Soft</u> <u>Fierce</u> <u>Tough</u> <u>Smug</u> <u>Hot</u>	<u>Text</u> <u>Rule</u> <u>Looked</u> <u>Child</u> <u>Think</u> <u>Just</u> <u>Fast</u> <u>Cold</u> <u>Sick</u> <u>Wild</u> <u>Soft</u> <u>Fierce</u> <u>Tough</u> <u>Smug</u> <u>Hot</u>	You will hear three students trying to say the same word. Which one is not correct? Why not? (from no. 7) You will hear two words the same and one different. Which word is different?	Which word is not correct/different? If right, yes, listen again to check. How was it wrong/different? (then show OHT comparing the two. Point to extra schwa) How did this 't' (pointing to final 't' or final consonant) sound to you? Listen one last time. If wrong, listen again. Which word is not correct/different? If right now, yes, How was it wrong/different? (then show OHT comparing the two. Point to extra schwa) How did this 't' (pointing to final 't' or final consonant) sound to you? Listen one last time. If still not right after second listening, show OHT comparing the two. Point to extra schwa, 'I heard an extra vowel here. How did this 't' (pointing to final 't' or final consonant) sound to you? Listen one last time.	The focus is not on counting the syllables as in conditions one and two, but rather on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position. The aim is to use the metalanguage developed by the learners. Initially learners are given the opportunity to listen without seeing the words. Once they have heard the difference the words are then shown. If they can't hear the difference after the second hearing they are then shown. This way each contrast is modelled three times. Contrast is allowed.

Part A3 Speaking Practice: Listen and Repeat - Condition 1				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
All words from A1 and A2. Three times	OHT from A1 and A2	Repeat	If correct, 'yes' practice two more times then go on to next item. If incorrect, no, that's two syllables, just say one syllable. (Point to 'black' on OHT), try again, total of three attempts before moving onto the next word.	Syllables have been defined, therefore feedback on incorrect utterances is provided in terms of the number of syllables the learner has pronounced. Contrast not allowed
Part A3 Speaking Practice: Listen and Repeat - Condition 2				
All pairs of words from A1 and A2. Three times	OHT from A1 and A2 (items presented in pairs) black – blacker etc	Repeat	If correct, practice two more times then go on to next pair. If incorrect, no, you said two syllables here, just say one syllable. (Point to OHT, comparing the two), try again, total of three attempts before moving onto the next word.	Syllables have been defined, therefore feedback on incorrect utterances is provided in terms of the number of syllables the learner has pronounced. Contrast is allowed here.
Part A3 Speaking Practice: Listen and Repeat - Condition 3				
All words from A1 and A2. Three times	OHT from A1 and A2	Repeat	If correct, 'yes' practice two more times then go on to next item. If incorrect, no, I heard an extra vowel here (showing where extra vowel was said on OHT with stressed syllables underlined and dots showing unstressed syllables). Try to make the 'k' quieter (e.g. with 'black')	The focus is on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position. The aim is to use the metalanguage developed by the learners, especially in pronouncing final consonants. Contrast is not allowed.
Part A3 Speaking Practice: Listen and Repeat - Condition 4				
All pairs of words from A1 and A2. Three times	OHT from A1 and A2 (items presented in pairs) black – blacker etc	Repeat	If correct, 'yes' practice two more times then go on to next pair. If incorrect, no, I heard an extra vowel here so they both sounded the same (showing where extra vowel was said on OHT with stressed syllables underlined and dots showing unstressed syllables). In this one try to make the 'k' quieter (e.g. with 'black')	The focus is on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position. The aim is to use the metalanguage developed by the learners, especially in pronouncing final consonants. Contrast is allowed.

Part B2 Listening; Condition 1				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
Phrases: (each word is heard three times) It's difficult Just think It's too light It's shut Childhood Would look Drunk snail Odd frog Mild bull Kind wasp Loud parrot Old deer Tough fly Cute kiwi Sharp crayfish	It's difficult VCC CVCVCVCC etc	What did you hear? How many syllables? (Listening only – not saying the words)	If right, yes, how many syllables? If right – yes 4 syllables, point to V's in 'It's difficult VCC CVCVCVCC'. Listen two more times to check. If wrong word, no, listen again. If still wrong, show right phrase and CV How many syllables? If right – yes 4 syllables, point to V's in 'It's difficult VCC CVCVCVCC'. Listen again to check.	Syllables have been defined in terms of CV pattern, so this is referred to in deciding the number of syllables. Contrast not allowed Initially learners are given the opportunity to listen without seeing the words. The phrase is shown once it has been recognized, or after the second hearing if still not recognized. This way each item is modelled three times.
Part B2 Listening; Condition 2				
It's difficult It's @ difficult* Just think just @ think* It's too light It's @ too light* It's shut It's @ shut* Childhood child @ hood* Would look would @ look* Drunk snail drunker snail Odd frog odder frog Mild bull milder bull Kind wasp kinder wasp Loud parrot louder parrot Old deer older deer Tough fly tougher fly Cute kiwi cuter kiwi Sharp crayfish sharper crayfish	It's difficult VCC CVCVCVCC It's @ difficult VCCV CVCVCVCC etc	You will hear three students trying to say the same phrase. Which one is not correct? (from no. 7) You will hear two phrases the same and one different. Which one is different?	Which phrase is not correct/different? If right, yes, how many syllables did it have? If right, yes, listen again to check. Then show OHT, comparing the two. Point to extra V. Listen one last time. If wrong, listen again. Which phrase is not correct/different? If right now, yes, how many syllables did it have? If right, yes, then show OHT, comparing the two, point to extra V. Listen one last time. If still not right after second listening, show OHT comparing the two to elicit correct answer – or provide, point to extra V. Listen one last time.	Syllables have been defined in terms of CV pattern, so this is referred to in deciding the number of syllables. Contrast is allowed here. Initially learners are given the opportunity to listen without seeing the phrases. Once they have heard the difference the phrases are then shown. If they can't hear the difference after the second hearing they are then shown. This way each contrast is modelled three times.

Part B2 Listening; Condition 3				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
It's difficult Just think It's too light It's shut Childhood Would look Drunk snail Odd frog Mild bull Kind wasp Loud parrot Old deer Tough fly Cute kiwi Sharp crayfish	It's <u>difficult</u> etc	What do you hear? (After each item)	If said right, yes, notice the stress (showing and pointing to OHT). Notice the sound of the final 'ts' and how it joins on to the 'd'. Listen two more times to check. If said wrong, no, this is what I heard you say ('T' writes on board showing the extra vowel). Is that what you meant? Listen again, if said right, yes, notice the stress (showing and pointing to OHT). Notice the sound of the final 'ts' and how it joins on to the 'd'. Listen again to check. If still wrong, notice the stress (showing and pointing to OHT). Notice the sound of the final 'ts' and how it joins on to the 'd'. Listen again to check.	The focus is not on counting the syllables as in conditions one and two, but rather on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position and the way codas and onsets are joined. The aim is to use the metalanguage developed by the learners. Initially learners are given the opportunity to listen without seeing the words. The phrase is shown once it has been recognized, or after the second hearing if still not recognized. This way each item is modelled three times. Contrast is not allowed.
Part B2 Listening; Condition 4				
(one is said twice) It's difficult It's @ difficult* Just think just @ think* It's too light It's @ too light* It's shut It's @ shut* Childhood child @ hood* Would look would @ look* Drunk snail drunker snail Odd frog odder frog Mild bull milder bull Kind wasp kinder wasp Loud parrot louder parrot Old deer older deer Tough fly tougher fly Cute kiwi cuter kiwi Sharp crayfish sharper crayfish		You will hear three students trying to say the same phrase. Which one is not correct? Why not? (from no. 7) You will hear two phrases the same and one different. Which one is different? How did it sound to you?	Which phrase is not correct/different? If right, yes, listen again to check. How was it wrong/different? (then show OHT showing stress patterns and comparing the two. Point to extra schwa in one and joining in the other) How did this 's' (pointing to final 's' or final consonant) sound to you? Listen one last time. If wrong, listen again. Which phrase is not correct/different? If right now, yes, How was it wrong/different? (then show OHT showing stress patterns and comparing the two. Point to extra schwa in one and joining in the other) How did this 's' (pointing to final 's' or final consonant) sound to you? Listen one last time. If still not right after second listening, show OHT showing stress patterns and comparing the two. Point to extra schwa in one and joining in the other) 'I heard an extra vowel here. How did this 's' (pointing to final 's' or final consonant) sound to you? Listen one last time.	The focus is not on counting the syllables as in conditions one and two, but rather on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position and the way codas and onsets are joined. The aim is to use the metalanguage developed by the learners. Initially learners are given the opportunity to listen without seeing the phrases. Once they have heard the difference the phrases are then shown. If they can't hear the difference after the second hearing they are then shown. This way each contrast is modelled three times. Contrast is allowed.

Part B3 Speaking Practice: Listen and Repeat - Condition 1				
Student hears from tape	Student sees	Elicited	Feedback	Rationale
All phrases from B1 and B2. Three times	OHT from B1 and B2	Repeat	If correct, 'yes' practice two more times then go on to next item. If incorrect, no, that's 3 syllables, just say 2 syllables. (Point to 'black bear' on OHT) be careful not to use the comparative by mistake, try again, total of three attempts before moving onto the next phrase.	Syllables have been defined, therefore feedback on incorrect utterances is provided in terms of the number of syllables the learner has pronounced. The importance of extra syllables for grammar is stressed. Contrast not allowed
Part B3 Speaking Practice: Listen and Repeat - Condition 2				
All pairs of phrases from B1 and B2. Three times	OHT from B1 and B2 (items presented in pairs) black bear – blacker bear etc	Repeat	If correct, 'yes' practice two more times then go on to next item. If incorrect, no, that's 3 syllables, just say 2 syllables here. (Point to comparison on OHT) be careful not to use the comparative by mistake, try again, total of three attempts before moving onto the next phrase.	Syllables have been defined, therefore feedback on incorrect utterances is provided in terms of the number of syllables the learner has pronounced. The importance of extra syllables for grammar is stressed. Contrast is allowed here.
Part B3 Speaking Practice: Listen and Repeat - Condition 3				
All phrases from B1 and B2. Three times	OHT from B1 and B2	Repeat	If correct, 'yes' practice two more times then go on to next item. If incorrect, no. I heard an extra vowel here (showing where extra vowel was said on OHT with joining marked, stressed syllables underlined and dots showing unstressed syllables). Try to make the 'k' quieter (e.g. with 'black bear') and remember to join the k onto the b (don't stop after the k) Try again. Yes, practice again. No, that 'k' is still too loud, to me it still sounds like an extra vowel. Try again.	The focus is on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position and how they sound when followed by another consonant. The aim is to use the metalanguage developed by the learners, especially in pronouncing final consonants. Contrast is not allowed.
Part B3 Speaking Practice: Listen and Repeat - Condition 4				
All pairs of phrases from B1 and B2. Three times	OHT from B1 and B2 (items presented in pairs) blacker bear – black bear etc	Repeat	If correct, 'yes' practice two more times then go on to next pair. If incorrect, no. I heard an extra vowel here so they both sounded the same (showing where extra vowel was said on OHT with joining marked, stressed syllables underlined and dots showing unstressed syllables). In this one try to make the 'k' quieter (e.g. with 'black bear') and remember to join the k onto the b (don't stop after the k) Try again. Yes, practice again. No, that 'k' is still too loud, to me it still sounds like an extra vowel. Try again.	The focus is on becoming aware of when the native speaker interprets the final consonants as being followed by an extra vowel – and consequently an extra syllable. Thus the importance of stressed versus unstressed syllables is underlined as is the pronunciation of consonants in syllable coda position. The aim is to use the metalanguage developed by the learners, especially in pronouncing final consonants. Contrast is allowed.

Appendix 3L Individual Results on Speaking Tests

Results on Speaking Tests (number of errors) by condition and student

Test 1 = Tough Phrases Test

Test 2 = Drunk Snail Test

Results on speaking tests for students receiving condition 1; individually and as a group										
Student	1 pre	1 post	2a pre	2a post	2b pre	2b post	2c pre	2c post	Sum pre	Sumpost
1A	30	28	8	7	7	7	14	10	59	52
1B	29	25	9	7	5	4	7	7	50	43
1C	23	23	7	4	6	5	7	8	43	40
1D	22*	9	2	4	0	1	2	2	26	16
1E	12	9	1	1	1	2	2	1	16	13
1F	12	12	7	6	2	5	2	2	23	25
Cond 1	128	106	34	29	21	24	34	30	217	189
Mean	21.33	17.67	5.67	4.83	3.5	4.0	5.67	5.0	36.17	31.5

Results on speaking tests for students receiving condition 2; individually and as a group										
Student	1 pre	1 post	2a pre	2a post	2b pre	2b post	2c pre	2c post	Sum pre	Sumpost
2A	31	24	8	4	9	7	17	13	65	48
2B	19	10	9	7	4	3	3	2	35	22
2C	18	10	4	5	3	3	1	6	26	24
2D	17	11	3	0	3	2	4	3	27	16
2E	15	11	6	6	2	1	5	5	28	23
2F	11	10	2	1	8	2	6	6	27	19
Cond 2	111	76	32	23	29	18	36	35	208	152
Mean	18.5	12.67	5.33	3.83	4.83	3.0	6.0	5.83	34.67	25.33

Results on speaking tests for students receiving condition 3; individually and as a group										
Student	1 pre	1 post	2a pre	2a post	2b pre	2b post	2c pre	2c post	Sum pre	Sumpost
3A	26	17	4	1	5	3	6	1	41	22
3B	21	16	9	3	3	3	3	3	36	25
3C	18	7	8	2	4	0	8	0	38	9
3D	18	11	8	0	6	1	11	0	43	12
3E	16	16	0	2	2	1	5	1	23	20
3F	13	5	3	2	1	0	1	1	18	8
Cond 3	112	72	32	10	21	8	34	6	199	96
Mean	18.67	12.0	5.33	1.67	3.5	1.33	5.67	1.0	33.17	16.0

Results on speaking tests for students receiving condition 3; individually and as a group										
Student	1 pre	1 post	2a pre	2a post	2b pre	2b post	2c pre	2c post	Sum pre	Sumpost
4A	21	12	10	3	6	2	2	0	39	17
4B	21	17	6	1	10	6	8	8	45	32
4C	17	11	4	1	1	0	4	3	26	15
4D	15	7	7	1	1	0	8	1	31	9
4E	14	7	4	1	6	2	8	3	32	13
4F	12	1	5	0	4	0	4	2	25	3
Cond 4	100	55	36	7	28	10	34	17	198	89
Mean	16.67	9.17	6.0	1.17	4.67	1.67	5.67	2.83	33.0	14.83

*1D the first pre-test appears to be out of synch with the others

Appendix 3M Individual Results on Listening Test

Results on Listening Discrimination Task

It will be recalled that participants heard each group of items three times (Refer to section 5.4.2). Below is the record of the individual scores achieved after each listening.

Listening Discrimination Task						
Number. correct after each listening pre and post test; by student and condition						
	Pre Test: score out of 15			Post Test: score out of 15		
Condition	First	Second	Third	First	Second	Third
1	7	5	5	4	5	6
1	5	3	3	6	6	4
1	1	2	4	2	3	3
1	6	6	8	6	6	4
1	6	8	7	10	9	8
1	9	8	8	9	9	9
Mean	5.67	5.33	5.83	6.33	5.67	5.67
2	3	5	3	6	10	10
2	9	9	8	14	14	14
2	6	7	7	11	11	11
2	4	4	4	9	9	9
2	8	5	8	15	15	15
2	4	6	6	8	9	8
Mean	5.67	6.00	6.00	10.50	11.33	11.17
3	5	5	5	7	7	7
3	5	5	6	10	10	10
3	0	5	7	8	8	8
3	6	7	9	5	8	7
3	4	4	4	6	6	7
3	1	2	3	5	7	5
Mean	3.50	4.67	5.67	6.83	7.67	7.33
4	4	4	5	7	12	12
4	1	2	1	6	2	5
4	5	9	9	12	12	12
4	5	7	6	10	13	13
4	7	7	8	10	12	11
4	3	6	6	9	13	13
Mean	4.17	5.83	5.83	9.00	10.67	11.00

Appendix 3N Individual Results on Critical Listening

Critical Listening

It will be remembered from section 5.4.3 the responses were coded as follows

1 = 'same'

2 = 'different' but chose the wrong one as better, or couldn't say which was better.

3 = 'different' chose right one as better but the wrong place of error and/or wrong explanation.

4 = 'different' chose right one as better but no place of error (or too vague about it to be sure), no explanation or vague explanation (e.g. stress, intonation) This is the 'maybe' category.

5 = 'different' chose right one as better and pinpointed place of error but no explanation.

6 = 'different' chose right one as better and pinpointed place of error with vague explanation (perhaps repeating it with the extra schwa but it's still hard to be sure that they really know what they're saying)

7 = 'different' chose right one as better and pinpointed place of error and provided explanation.

The individual responses on each of the 12 items are recorded below.

Condition 1. Interviews for listening. Pre- and Post												
Q	1A		1B		1C		1D		1E		1F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	3	2	1	2	1	3	2	2	2	4	3	3
2	3	4	3	4	1	2	4	4	2	2	2	2
3	2	2	3	1	3	3	4	2	1	4	3	4
4	2	1	1	1	1	1	4	1	2	1	7	7
5	4	3	1	1	3	3	1	6	3	4	4	7
6	4	3	1	3	6	6	3	6	4	4	7	7
7	1	2	1	1	1	1	6	4	1	2	7	1
8	3	1	1	1	3	2	1	2	3	2	2	1
9	2	2	1	2	2	1	1	2	2	4	5	7
10	1	2	1	1	1	1	2	1	1	1	3	1
11	6	6	1	1	7	7	6	4	2	2	6	7
12	2	3	1	4	1	2	6	4	4	4	4	7

Condition 2. Interviews for listening. Pre- and Post												
Q	2A		2B		2C		2D		2E		2F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	4	2	3	3	2	2	3	3	1	3	2	3
2	4	7	2	1	4	2	2	1	2	1	2	4
3	2	7	3	3	4	2	3	3	1	1	1	3
4	3	7	1	1	1	7	1	7	2	1	1	7
5	3	3	3	3	2	3	1	7	3	3	3	3
6	4	2	3	1	4	2	1	7	1	3	7	7
7	2	7	2	6	1	1	1	7	1	1	1	1
8	3	7	1	7	1	7	1	7	1	1	4	3
9	2	2	2	2	3	3	3	2	7	7	1	3
10	2	7	1	7	1	1	3	7	1	1	1	1
11	2	7	1	1	4	7	1	7	7	7	2	7
12	2	2	3	7	1	1	4	7	1	1	1	7

Condition 3. Interviews for listening. Pre- and Post												
Q	3A		3B		3C		3D		3E		3F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	1	2	2	1	3	3	1	2	2	1	2	1
2	6	2	7	7	3	4	6	2	2	2	2	7
3	4	2	3	3	3	3	1	7	2	2	3	7
4	4	4	2	1	4	3	4	1	1	1	3	1
5	4	4	3	1	2	3	3	3	3	3	3	2
6	4	4	4	1	4	7	4	4	4	7	3	3
7	3	2	2	1	2	2	2	6	1	1	2	6
8	2	4	2	1	4	7	1	1	1	1	1	1
9	2	4	2	2	3	7	7	7	2	4	3	7
10	4	1	2	1	1	7	1	1	1	1	1	7
11	6	7	2	2	3	7	7	7	1	7	2	7
12	6	7	2	2	2	4	2	7	1	7	4	7
Condition 4. Interviews for listening. Pre- and Post												
Q	4A		4B		4C		4D		4E		4F	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	1	3	2	3	3	2	3	3	2	7	2	2
2	2	1	2	4	2	1	1	7	2	7	2	2
3	1	7	3	3	1	2	2	2	2	7	3	7
4	7	7	4	4	1	1	2	1	1	2	5	7
5	2	7	3	3	3	1	3	1	3	7	3	7
6	4	1	4	4	7	7	6	7	4	7	4	7
7	1	4	1	2	1	2	1	7	1	1	1	7
8	1	1	2	1	1	1	1	7	3	7	1	7
9	3	1	3	1	7	7	2	7	3	7	2	7
10	1	1	1	7	1	1	4	7	1	3	1	7
11	2	1	2	7	7	7	2	7	2	7	4	7
12	1	1	1	7	1	2	2	7	4	7	1	7

It will also be remembered that the coded responses were then grouped to form the following categories as measures of concept formation; No = 1, 2, 3, Maybe = 4, Probably = 5, 6, Yes = 7. These results were presented graphically in Figure 5.3. The mean scores are presented in the table below:

Mean scores out of 12 by condition and time for each category:									
	Condition 1		Condition 2		Condition 3		Condition 4		
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Yes	0.67	1.17	0.5	4.5	0.5	3.5	0.67	6	
Probably	1.17	0.67	0	0.17	0.67	0.33	0.33	0	
Maybe	1.5	2.33	1.5	0.17	2.17	1.5	1.33	0.67	
No	8.67	7.83	10	7.17	8.67	6.67	9.67	5.33	