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An Investigation of the Relationship Between Input Type and Output Modification in English as a Second Language.

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An investigation of the relationship between input type and output modification in English as a Second Language

Macdonald, Doris M. V., Ph.D.
The Louisiana State University and Agricultural and Mechanical Col., 1991

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AN INVESTIGATION OF THE RELATIONSHIP
BETWEEN INPUT TYPE AND OUTPUT MODIFICATION IN
ENGLISH AS A SECOND LANGUAGE

A Dissertation

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in

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by

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Abstract

Proposals regarding the beneficial effects of elements of modified interaction such as clarification requests and confirmation checks on SLA have been taken up by a number of researchers who have found evidence for their existence in discourse involving NNSs. These investigators have assumed that the presence of such interactional features are beneficial to language learning, yet there is little empirical evidence to support a causal relationship between the presence of these discourse features and change in the performance of the learner toward target-language forms. Furthermore, the potential benefits of modified interactions have not been evaluated against other classroom practices.

This study examines the English pronunciation of Chinese L1 learners following four classroom-like interventions reflecting current pedagogical practice: teacher-led drill; directed self-study in a language lab setting; time alone for revision and reflection; and interactions involving clarification requests. NS naive listeners judged whether the L2 learners’ pronunciation was more or less target-like before, immediately after, and at a later point in time after one of the four learning events. In addition to the question of whether conversational modifications could be shown to affect the spoken performance of ESL learners, four effects of the different input types on the spoken output of the learners were found: immediate improvement; delayed improvement; residual improvement; and restructured improvement.

There was no overwhelming evidence for the effect of one learning event over another, which prompted the investigation of the effects of input type in
terms of individual learner behavior. While no generalizations are made in terms of group effects the "no difference" result makes one point clear—there is no evidence of acquisition of native-like phonological form as a result of language use in modified interaction.

While this result has obvious implications for the current SLA theory regarding the effects of negotiated interaction, it has also led to some observations about the classroom learning events examined which are discussed. In addition to making these general observations, this study addresses some of the limitations of the study and suggests how they might be accommodated in further research.
Chapter One

Introduction

The ultimate goal of second language acquisition research is to come to an understanding of what is acquired (and what is not acquired) and the mechanisms which bring second language knowledge about (Gass, 1988, p. 198).

Attempts to formalize the mechanisms fostering the development of second language knowledge are often confounded by the fact that “the language teacher and the researcher share the same goal: understanding what is involved in the process of second language acquisition” (Seliger & Long, 1983, p. viii), yet their perspectives on that goal have often differed. In language pedagogy, a methodology, a classroom approach, a philosophy or a technique might well be given the status of theory, often because they work—learners appear to be successful. Certain researchers, on the other hand, regard the study of second language development to be essentially a question relating to the nature of language, therefore a problem for mainstream linguistic analyses. Recently, though, the focus of second language acquisition research has been to attempt to account for the phenomenon of acquisition as it relates to the second language classroom.

While learning can occur in a number of environments and under various conditions, the classroom provides a research setting which is at the same time quasi-naturalistic and quasi-experimental (Seliger & Long, 1983, p. viii). This
approach to language research recognizes the link between language learning and teaching, often focusing on the learner, examining the language of learners in an attempt to understand what it is about their learning environments and experiences that lead to second language acquisition (SLA). The original research I will be reporting was undertaken within a classroom-based research framework. Yet, this recent research perspective brings with it a history in both first language (L1) and second language (L2) teaching and learning in which the mechanisms Gass mentions for developing second language knowledge have meant different things at different times.

The Early Modern Period

Language teaching in the U.S. underwent a radical change during the decade of World War II. Prior to this time, there were two dominant approaches to language teaching. The Grammar-Translation approach focused on writing, grammatical structure, vocabulary, and translation, and was ensconced within an academic setting. Foreign language-learning took place through instruction in grammar, mainly for the purposes of translation and literary study in the foreign language. The Direct Method, on the other hand, eliminated the use of the learner’s first language, focusing on clarity of expression and pronunciation in the language being learned. Today’s Berlitz Schools evolved out of the Direct Method, and are perhaps its most widely-recognized descendants. With the Second World War came an immediate need for personnel with foreign language training, and in response the Armed Forces developed a language training method, with parallels to the Direct Method.
The "Army Method" was intensive, emphasizing oral-aural proficiency, and in some ways democratizing the study of foreign languages, claiming that second languages could be learned by ordinary (i.e. non-academic) learners in shorter periods of time than had been previously thought possible. The linguists working to develop grammars and pedagogical approaches to language were of the structuralist/descriptivist school for whom

the command of a language is not a matter of knowledge: the speakers are quite unable to describe the habits that make up their language. The command of a language is a matter of practice. . . . Language learning is overlearning: anything else is of no use. (Bloomfield, 1942, p. 12)

Bloomfield's own "informant method" involved native speaking informants as classroom resources and relied on intensive learner contact with the target language and extensive oral practice.

At the same time that these innovations in language teaching focused on developing the foreign language abilities of a large and heterogeneous group, Armed Forces personnel, they also provided a role for linguists in looking at language learning, and had a great effect on the ways in which linguists and educators began to look at language teaching. The post-war years also saw English emerging as an international language, requiring English as a Second Language (ESL) and English as a Foreign Language (EFL) teachers and methodologies.

In explaining the nature of the language teaching developments that followed the war, eventually leading to the emergence of audiolingualism in the 1960s, we must keep in mind the state of linguistic and psychological theory in this country.
at the time. The linguist’s focus was on the descriptive analysis of language, with a Bloomfieldian view of the process of language learning and of the primacy of the spoken language. Behaviorist psychology, which emphasized a view of all learning as habit formation or skill learning, also contributed to this perspective on language learning as the product of practice. Behaviorism promoted the belief that linguistic processes were instantiations of verbal behavior that could be investigated and learned in the same terms as any other human behavior.

By the early 1960s, these structural and behaviorist views of language and the language learning process had been adapted, along with some aspects of the Direct Method, and built into audiolingual methodology (ALM) (Brooks, 1964; Carroll, 1964; Omaggio, 1986; Rivers, 1964; 1968). ALM focused on spoken language and on language learning as “basically a process of mechanical habit formation. Good habits are formed by giving correct responses rather than by making mistakes. . . . by memorizing dialogues and performing pattern drills” (Rivers, 1964, p. 19). Mastering a language was represented to educators as the process of acquiring a set of appropriate language stimulus-response chains with drills forming a major part of the audiolingual classroom activity. As Carroll (1964) noted: “In view of the large number of new habits that must be made as highly automatic as possible, successful second language learning requires a considerable investment of time, a major proportion of which must be spent in repetitive drill” (p. 43). The enthusiasm with which L2 teachers had originally received this revolutionary method eventually weakened. First, the method did not produce the fluent bilingual speakers it had promised by the end of instruction. Second, teachers and students seemed to find the avoidance of grammar discussion
frustrating and, in the end, time consuming. Moreover, the continuous repetition and memorization was monotonous work, and even the meaningful and contextualized aspects of the drills were eliminated by the repetition.

Despite the disenchantment with ALM and the ensuing focus on the naturally communicative function of language in language learning, audiolingual style exercises exist in present pedagogy in the forms of practice and pattern drills in many second language course books. Recent texts such as those by Gilbert (1984) and Prator and Robinett (1985) make extensive use of teacher-led, self-study, and cassette-taped drills for pronunciation and listening comprehension practice. The listen-and-repeat practice drills of these current materials are not far derived from the practice and pattern drills of ALM.

**Communicative Competence in a Second Language**

During the time that audiolingualism was waning, Chomsky (1965) proposed his concept of language with a rigid distinction between linguistic competence and performance. Linguistic competence, reflecting the linguistic knowledge of fluent speakers of a language, might be considered to reflect a speaker's language capacity irrespective of his production or comprehension. But for the language teacher, an abstract concept of competence cannot, by its nature, be used to measure language ability. In response to the Chomskyan notion of language, and working from an anthropological/sociolinguistic framework, Hymes (1972) introduced the concept of *communicative competence* to include the intuitive awareness that native speakers (NSs) have to use language appropriately. This competence is the knowledge of “when to speak, when not, and . . . what to talk
about with whom, when, where, [and] in what manner’’ (p. 277).

Communicative competence implies linguistic competence, but its primary focus is the intuitive understanding of the social and cultural rules and meanings inherent in any utterance. Savignon (1987) further defines the concept as “the ability to negotiate meaning—to successfully combine knowledge of linguistic, sociolinguistic and discourse rules in communicative interactions” (p. 235). She advocates instruction using diverse strategies and techniques designed to involve learners in a dynamic and interactive process of communication, where the experience involves the whole learner, including affective and physical as well as cognitive components. The refinement of Hymes’ initial concept, which provided a pragmatic alternative to Chomskyan linguistics, has altered the way SLA researchers approach the second language learning process and its outcomes. Indeed, in many ways, acquisition of an L2 has come to mean acquisition of communicative competence in that language.

Canale and Swain (1980) propose grammatical competence, sociolinguistic competence and strategic competence as the three key components of communicative competence in an L2. Traditional language teaching methods such as grammar-translation tended to concentrate almost exclusively on the development of grammatical competence. By presenting a set of grammar and pronunciation rules to be learned, such approaches sought to enable learners to produce grammatically and phonologically accurate sentences in the language being studied. This, in itself, is not a necessarily undesirable goal. However, it ignores the fact that in real-world communication, sentences are not uttered in isolation, but are said within a particular context that dictates which forms are
appropriate or inappropriate.

The ability to determine what is appropriate in a given situation is known as sociolinguistic competence. Consider the following examples:

(1) Open the door!

(2) Would you open the door?

These are both grammatically correct sentences intended to get someone to do something. However, a mature NS of English would recognize at once that, while utterance (1) might be perfectly acceptable for a parent or teacher to use when addressing a child, it would be inappropriate for a child to address a parent or teacher in this manner. At the same time, utterance (2), a polite (indirect) request if uttered with normal question intonation, might be understood as an impatient demand or a reprimand if said in a different tone. These differences are not inherent in the grammatical form or the vocabulary of the utterance, rather they reside in the social, personal, and temporal contexts of their uttering.

Recent teaching methods have attempted to address this problem with functional/notional approaches to teaching an L2 (Finocchiaro & Brumfit, 1983). In this approach the second language is presented as a series of functional categories such as apologies, greetings, making excuses and making requests, along with the particular grammatical elements needed to construct utterances expressing these functions. The primary objection that has been raised with respect to this approach is that, although it is possible to teach a number of ways of expressing a particular function such as apologizing, there are no definitive rules to explain when one way is more appropriate than another. Tarone and Yule (1989) note that
When asked if some expression is appropriate or not, language teachers inevitably reply with some version of "it depends on the context." This is an intuitive recognition that communicative function cannot be isolated from sociocultural context and, consequently, that functional values cannot be assigned to linguistic expressions in isolation. (p. 18)

It is apparent that the system of rules for appropriate language use is of such complexity that it poses a potentially overwhelming challenge to the L2 learner. Indeed, it may be nearly impossible for anyone but a NS to master all the rules, and even then NS performance may not be perfect. Having observed this, we must consider that communicative competence for the L2 speaker is somewhat different from that of the NS. Recognizing this dilemma, Canale and Swain (1980) posit the third component of communicative competence, strategic competence.

Strategic competence is the ability to use communication strategies in order to get information across to a listener and to interpret correctly information received from a speaker. Some of the communication strategies that might be employed by L2 learners are: paraphrasing the message, simplifying the grammatical structure of the message, substituting general lexical items for more specific ones, expanding the message (e.g. circumlocution), and other interactive coping strategies. Because these strategies are basically compensatory in nature in that they are employed to make up for perceived or real imperfection in some aspect of the L2, their use is more frequent with beginning learners of the second language. As learners become more grammatically and sociolinguistically competent in the L2, their reliance on their strategic competence is less frequent.
It is worth noting that throughout the period during which communicative competence became a widely-used concept in writings on second language acquisition, the term used to describe the L2 acquirer’s version of the second language was “interlanguage.” This term for the transitional system used by the learner, is normally understood to capture the fact that any learner’s L2 use is generally systematic, but is subject to change and variation as the learner develops his or her ability in the L2. Much of the literature reported in the following pages is essentially concerned with the ways in which the learner’s interlanguage develops toward the target language.

Having reached a point in the history of L2 teaching and learning where we now focus on language in use, it would be valuable to look more carefully into some of the salient perspectives on language acquisition which assume this more pragmatic conception of what language is. The focus on language used for communication has prompted researchers to examine certain aspects of communicative language use—specifically, the uses and functions of input to the learner.

**Krashen and SLA Theory**

One of the most widely known and, perhaps, most widely challenged theories of SLA has been posited by Krashen (1981; 1982; Krashen & Terrell, 1983). The theoretical model is based on five hypotheses proposed by Krashen as fundamentals in understanding the process of learning a second language which have, despite their shortcomings, made an impact on subsequent research and theory.
The first hypothesis concerns the distinction between acquisition and learning as the two distinct ways in which adults can develop competence in an L2.

The first way is via language *acquisition*, that is, by using language for real communication. Language acquisition is the “natural” way to develop linguistic ability, and is a subconscious process . . . the second way to develop competence in a second language is by language *learning*.

Language learning is “knowing about” language, or “formal knowledge” of a language. While acquisition is subconscious, learning is conscious.

Learning refers to “explicit” knowledge of rules, being aware of them and being able to talk about them. This kind of knowledge is quite different from language acquisition, which could be termed “implicit.” (Krashen & Terrell, 1983, p. 26)

Thus, according to the Acquisition-Learning Hypothesis, second language acquisition occurs much as does child L1 acquisition, subconsciously and naturally. In essence, acquisition is the “picking up” of a language. Learning, on the other hand, is done consciously, through explicit teaching of the rules of a language, thereby increasing knowledge about the language. According to Krashen (1982), the two activities, acquisition and learning, are exclusive and non-transferable. Thus, learned knowledge cannot later become acquired knowledge.

In research into L1 acquisition, Brown (1973) has noted that children acquire language without a great deal of explicit correction of formal (grammatical) mistakes, while they do receive correction when it is the meaning of their utterances that is unclear. Such evidence in these clearly more natural acquisition settings, where real communication is the key, help support Krashen’s claims for
the acquisition-learning distinction. Krashen further employs the distinction to make rather large claims about the efficacy of formal language instruction. If teaching involves formal explication of rules and explicit correction, it benefits learning only, hence formal teaching can have no effect on the acquisition process, which depends on subconscious and implicit knowledge. The implications of such claims have had an understandably large effect on L2 classrooms, where efforts have been made to make the L2 environment as “natural” as possible.

Krashen’s second hypothesis states that there is a natural order of acquisition for grammatical morphemes. While this Natural Order Hypothesis does not hold that every learner will acquire every morpheme in a lock-step order, it assumes that groups of inflectional morphemes will be acquired before others. For example, the progressive -ing, plural -s, and copula to be will generally be acquired before the progressive auxiliary and the articles a and the.

Initial evidence for this natural order comes from child L1 acquisition studies (Bailey, Madden, & Krashen, 1978; Brown & Hanlon, 1970; deVilliers & deVilliers, 1973; Dulay & Burt, 1974; Wode, 1978) which find that both longitudinally and cross-sectionally, order of acquisition and order of difficulty are similar and follow the same general pattern. Dulay and Burt (1974; 1975) report that children acquiring English as an L2 also appear to show the same order of difficulty for inflectional morphemes and function words. Much of the order of acquisition research has been carried out using the Bilingual Syntax Measure (BSM), an elicitation instrument developed by Burt, Dulay, and Hernandez (1973). The BSM consists of a series of pictures which learners describe, producing what the researchers consider reflects natural speech. From this corpus, all the
obligatory contexts (those instances where the use of the linguistic item is required in NS speech) for the grammatical morphemes are identified and learners are scored according to whether they correctly supply the item in question. Accuracy scores from this count are ranked, and the resulting accuracy order is equated with acquisition order by virtue of the fact that a higher accurate-use score reflects earlier acquisition of the item. Further research has found that the elicitation instrument itself has an effect on the apparent order of acquisition. Larsen-Freeman (1976) found that when focusing on oral production this ordering held, but that a different order was found when the elicitation tasks involved listening, reading and writing. Krashen explains these contradictory results with the Monitor Hypothesis.

"This hypothesis states that conscious learning has an extremely limited function in adult second language performance: it can only be used as a Monitor, or an editor" (Krashen & Terrell, 1983, p. 30). Thus, utterances produced in an L2 initiate in the acquired system, and the learned system only plays a part at a later point in the production process, when learners have time to think about rules, when they are focusing on the form rather than the message of their utterances, and when they know the rule. Furthermore, conscious learning has only this corrective function and does not play a part in initiating L2 production. Results such as those found by Larsen-Freeman (1976) are claimed to have produced differing acquisition orders because the learners were making use of the Monitor, hence were not reflecting the true state of the learners’ acquired system.

The fourth hypothesis holds that language is acquired when learners understand input that is part of the next stage in the acquisition order. This kind
of input functions in the acquisition process when "an acquirer can 'move' from a stage \( i \) (where \( i \) is the acquirer's level of competence) to a stage \( i + 1 \) (where \( i + 1 \) is the stage immediately following \( i \) along some natural order) by understanding language containing \( i + 1 \)" (Krashen & Terrell, p. 32). In essence, \( i + 1 \) is input to the learner which has been modified so that it may be understood. Within Krashen's theory, this is called comprehensible input, a concept which has been taken up and widely applied by SLA theorists.

Within the realm of comprehensible input are input types which have been identified as caretaker speech, motherese, foreigner talk, and teacher talk. While I will discuss these types of modified input in the next section, it is important to note here that they are relevant to the Input Hypothesis as they provide learners with input that is (a) focused on communication rather than form, and (b) specifically targeted to be comprehensible to the interlocutor, that is, input that is aimed at the \( i + 1 \).

The final hypothesis in Krashen's theory is the Affective Filter Hypothesis. This states that attitudinal variables affecting L2 acquisition relate to language acquisition and not to language learning. Some of the positive attitudinal variables are positive self-image, low anxiety levels, and, often, integrative motivation.² Learners with positive attitudes are believed to have lower affective filters, making them more receptive to the input they receive, and encouraging them to interact with confidence to create situations where they can get more input.
Reactions to Krashen's Hypotheses

One of the more controversial issues raised by Krashen's theory is the distinction he makes in his first hypothesis, that of acquisition versus learning. More narrowly, it is the exclusivity he proposes for each of these processes and the inability of learned knowledge to permeate the acquired system which has been questioned. A number of studies posit a greater role for interaction between the two language knowledge systems Krashen proposes, and this interaction is based on automaticity. Stevick (1980) proposes learning as related to secondary memory, where material is stored but can be lost if not used occasionally, and acquisition as related to tertiary memory, where material is stored permanently, whether used or not. Stevick argues that material in secondary memory, when used for communication, may be transferred to tertiary memory, resulting in learned knowledge becoming acquired knowledge.

Bialystok (1981) uses the terms implicit (similar to acquired) and explicit (similar to learned) to refer to the types of knowledge and cites evidence that knowledge can either be represented immediately as implicit, or that explicit knowledge can, with practice, become part of the implicit knowledge system. McLaughlin (1978) proposes that SLA involves moving from controlled to automatic processing of knowledge. Controlled processes require active attention and are associated with short-term memory, while automatic processes, associated with long-term memory, take time to develop, but once developed they do not require attention.

In L2 learning . . . the initial stage will require moment-to-moment decisions, and controlled processes will be adopted and used to perform accurately,
though slowly. As the situation becomes more familiar, always requiring the same sequence of processing operations, automatic processes will develop, attention demands will be eased, and controlled operations can be carried out in parallel with automatic processes as performance improves. In other words, controlled processes lay down the "stepping stones" for automatic processing as the learner moves to more and more difficult levels. (p. 319)

Practice, that is, enough use of the L2, thus leads to acquisition in the normal course of events, and a distinction between acquisition and learning is not necessary. Rather, "learned" (controlled) processes become "acquired" (automatic) as a matter of course. Sharwood-Smith (1981) sums up the psycholinguistic perspective which serves best to disempower Krashen's first hypothesis: "... most spontaneous performance is attained by dint of practice. In the course of actually performing in the target language, the learner gains the necessary control over its structures such that he or she can use them quickly without reflection" (p. 166). Finally, this perspective on the interaction between acquisition and learning validates the function of learned knowledge in the process of acquisition—knowledge that has been learned indeed does have an integral function in the acquisition process, in a capacity greater than solely as the Monitor which Krashen proposes.

With respect to the role of instruction in acquisition, the studies mentioned above imply that instruction can provide learners with the focus they need to practice, hence automatize, and thereby acquire the language. Long (1983a) cites a number of empirical studies showing that instruction in conscious rule learning did result in successful L2 communicative competence for many learners. The
studies examined provide evidence of a positive role for instruction for both child and adult SLA and for a variety of target languages. This is especially interesting in light of the claim Krashen makes as to the limited benefits of instruction to L1 acquisition in children. Furthermore, the research demonstrates improved performance on the kinds of tests that Krashen suggests should be used to tap acquisition, as well as on the discrete-point tests that tap learned knowledge. Thus, if instruction positively affects scores on acquisition-focused evaluation instruments, we must conclude that instruction affects the acquisition knowledge system.

Some of the limitations of the Natural Order Hypothesis have already been mentioned, but it is worth noting that the natural order of morpheme acquisition upon which a large part of Krashen’s formulations rest, refers to a very small part of the language system being acquired. It is this focus on inflectional morphology as one of the bases for his theory that forces us to examine the Input Hypothesis more closely. Chaudron (1985), for example, notes that in order to examine the SLA process, we must be able to identify what constitutes \( i \) and \( i + 1 \). We must assume that, for Krashen, the "+ 1" represents another stage in the order of morpheme acquisition, that is, the acquisition of the next morpheme in a preordained sequence. White (1987) points out a number of drawbacks to the theory: 1) it does not take into account the internally driven aspect of language acquisition, the changes in the learner’s grammar which can emerge as a result of the learner’s current state of knowledge; 2) the input hypothesis ignores the fact that input modified for comprehensibility is manipulated input, with potential implications far worse than those made for the manipulated input instruction may
provide (e.g. how can we avoid input modified to \( i - 1 \)?); and, 3) the indeterminacy (according to Krashen) of the input the learner needs to trigger L2 development can be identified with the incorporation of a detailed theory of language.

Schumann (1983) asserts that Krashen and McLaughlin are basing their arguments on their personal language learning experiences, and that, for a learner who had shared the kinds of experiences Krashen had in learning an L2, the Monitor Model captures the experience accurately. On the other hand, a learner believing his successful L2 experiences were the result of formal learning would be drawn toward McLaughlin's point of view.

Krashen and McLaughlin's views can coexist as two different paintings of the language learning experience—as reality symbolized in two different ways. Viewers can choose between the two on an aesthetic basis, favoring the painting which they find to be phenomenologically true to their experience. Neither position is correct; they are simply alternate representations of reality. (Schumann, 1983, p. 55)

It is clear, even from the mention of these few theoretical perspectives thus far, that SLA researchers cannot agree upon a single, unified framework for looking at the process of language acquisition. Researchers do not necessarily choose to disagree, simply for the sake of argument; rather, as Schumann notes, their viewpoints may derive from their own individual, personal language learning experiences. This being the case, we must remember that, for the language learners we study, no single theory will be the ultimate key to the language learning process for all learners. Notwithstanding the controversy over competing
models, White (1987) notes that "Krashen's emphasis on the input hypothesis has been useful in drawing our attention to the role of input, and to the degree to which acquisition is dependent on the learner" (p. 108). It is, I believe, the recognition that some kinds of input may have a greater role to play in SLA than others, and the ensuing recognition of the learner as an essential part of the acquisition mechanism that has provided a base for much of the recent interesting research in SLA. Although Krashen's model for L2 acquisition addresses a number of the problems of acquisition, his formulations regarding these problems must be challenged because they are not stated in a way that one could know exactly what it would take to disprove them. Nevertheless, the concept of comprehensible input has proved to be a viable one and has gained the status of a given in SLA research. The debate now, to a great deal fostered by the indeterminacy of Krashen's formulations, concerns what to identify as input, and how to provide it, or to provide situations for learners to create it for themselves.

**Simplified Registers and Foreigner Talk**

In an attempt to identify the kinds of input available to learners, Ferguson has examined what he refers to as simplified registers in studies of child L1 acquisition (1964) and with respect to non-native speakers (NNS) of English (1971; 1975). He notes that

... many, perhaps all, speech communities have registers of a special kind for use with people who are regarded for one reason or another as unable to readily understand the normal speech of the community (e.g. babies, foreigners, deaf people). These forms of speech are generally felt by their
users to be simplified versions of the language, hence easier to understand, and they are often regarded as imitation of the way the person addressed uses the language himself. (Ferguson, 1974, p. 143)

As the study of child L1 acquisition is not at issue here, I will state only that many of the simplified features that have been associated with what has been variously labelled "baby talk," "motherese," and "caretaker talk" (Cross, 1977; Gleason, 1973; Newport, 1976; Snow & Ferguson, 1977; Weeks, 1971) are found also in "foreigner talk"—that is, speech aimed at NNS.

Linguistic characteristics specific to English foreigner talk in contrast to standard English include adjustments to phonology, lexis, morphology, and syntax. Phonologically, foreigner talk is characterized as slower, louder, and more clearly enunciated, including more use of pauses and more emphatic stress and intonation. There is some evidence of vowel insertion after final consonants, producing forms like talkie, workee, and slippa outa. Lexical modifications include frequent substitutions—savvy for understand, next day for tomorrow, bang-bang for gun; the use of synonyms such as take or have replacing carry; and analytic paraphrases (which place for where, same as for like).

Grammatical features of foreigner talk include omissions, expansions, and replacements or rearrangements. Items often omitted include the definite article the, the verb to be, conjunctions, inflectional suffixes and stem changes signalling case, person, tense and number resulting in examples like no see for haven't seen. Expansions are most frequently evidenced with insertion of the pronoun you in imperative statements and with the use of tag questions. There is a tendency to replace all negative constructions with no and to use the accusative form of
personal pronouns, resulting in utterances such as *me no want*, and *him no have*. The same kind of analytic paraphrasing exhibited with lexical modifications is found with the possessives in foreigner talk, with *my brother* or *your sister* replaced by *brother me* and *sister you*. The data also show a foreigner talk preference to rely on phonology in questioning, replacing inverted question forms with intonation alone.

Ferguson’s research was carried out on a very small and informal basis, with a data base that consisted of over forty NSs demonstrating how they might talk to NNSs of English, and literary evidence of foreigner talk. Nevertheless, further studies (Meisel, 1977; Snow, Van Eeden, & Muysken, 1981) have confirmed the results in studies of spontaneous NS-NNS interactions in natural settings such as in stores, at work, with children at play, and at government offices. Furthermore, foreigner talk has been suggested to function not only to promote communication, but also as an implicit teaching device (Hatch, 1983).

The phenomena of simplified registers has also been identified in NS-NS speech. Longhurst and Siegel (1973) examined adult speakers’ verbal modifications in an experimental setting involving interference with the speech signal. Speakers describing nonsense drawings to listeners who could not see the drawings, but who were required to choose a matching drawing, were found to modify their verbal behavior significantly when listeners made incorrect choices. An interesting parallel to foreigner talk is found, in that the three significant strategies used by these speakers faced with an interlocutor who apparently did not understand them were (1) elaborated descriptions, (2) redundancy, especially in lexical choice as rated by measures of type/token ratios, and (3) slower speech.
Considering the evidence of simplified registers directed at NNSs in both natural and experimental settings and their demonstrated appearance in NS speech where it is important to be understood, it seems logical to assume that the speech of L2 teachers, who often experience daily intensive contact with L2 speakers would demonstrate certain of the features of foreigner talk.

Researchers investigating the same kinds of phenomena as are found in foreigner talk have discovered that teachers used simpler syntax when talking to their students and employed interactional adjustments such as repetition, expansions, and prompting, these interactional adjustments being similar to those found in caretaker talk (Gaies, 1977; 1979). Henzl (1979) looked at teacher talk as a function of the proficiency level of students and found that teachers made phonological adjustments especially with low-level students, in addition, they employed lexical substitution and adjusted the mean length of their utterances. As we might expect, there is generally no evidence for ungrammatical speech modifications, perhaps because the interactive situations permitting ungrammaticality are not often present in the classroom. We might expect that when the classroom focus is on unstructured interaction, or on conversation, evidence for more of the ungrammatical speech modifications may turn up.

After identifying the linguistic characteristics of modified input, researchers have expanded and refined their perceptions of the functions, forms, and limitations of such input to learners. Most notably, they have come to recognize that the way in which input is modified for learners has a powerful effect on their learning outcomes.
The Interaction Studies

Wagner-Gough and Hatch (1975) were among the first to apply Hymes' (1972) call for language research incorporating the object of study within the communicative context. That is, while language learning, whether first or second, had been studied as a product, with an eye to examining learner performance in terms of form, it was time to explain the process of language learning within the context of the notion of communicative competence and to look at how learner language works in actual communicative situations. The use of more complete conversational data involving learners is now a fundamental characteristic of much classroom-oriented SLA research.

Thus, having begun to look at learner language in the larger context of conversational interaction between native speakers and non-native speakers, we have also begun to think not only in terms of what learners demonstrate that they know, but also in terms of how learners get what they know from all they are exposed to in the course of verbal interaction. We have been encouraged to look toward "the influence of the learning environment on learners' developing competence in a second language" (Gass & Madden, 1985, p. 3), and to limit our investigations of learner behavior in terms of what knowledge and capabilities they should have in preference for looking at what they do have and trying to discover how they acquired or learned them. Broadly, then, we are less concerned with the performance of the learner relative to a potential performance, the fully acquired target-language (TL) system, and are more interested in examining the learner's performance relative to the type of TL made available to him. Our focus is on the L2 input to the learner, on how the learner creates situations for getting input,
and on how he uses the input made available to him. As Long (1985) notes, we “have begun to study the effects of different kinds of input and conversational experience on second language (SL) development” (p. 377).

Perhaps the most powerful theory available to us now in SLA takes as its starting point the role of modified input in L2 learning. Long (1981a) points out that many of the formal modifications we identify as modified input are not evidenced with regularity in a number of SLA studies, or when they are, they are variable in their occurrence. Therefore, there must be some additional mechanism on which to focus in examining the types and effects of input available to and used by learners. According to Long, it is not only input to, but also interaction with the learner that we must study, and furthermore, that the distinction between interaction with and input to NNS “is important both theoretically, in order better to understand the second language acquisition (SLA) process, and in practice, when considering what is necessary and efficient in [L2] instruction” (p. 259).

Long further clarifies his distinction as follows: Input refers to the linguistic forms used, and interaction refers to the functions served by those forms, such as expansion, repetition, and clarification (p. 259). Thus, input refers to such elements of language use as lexical frequency, use of the copula, and length and number of T-units, while interaction refers to distribution of sentence types (questions, statements, imperatives) and use of confirmation checks, comprehension checks, clarification requests, self- and other-repetitions, and expansions. These interactional modifications are asserted to be essential to the SLA process in that they facilitate the negotiation of meaning. Before discussing the effects of the use of these interactional elements, we should have a clear idea what they consist of.
Unless otherwise noted, these definitions are taken from Long (1983b, pp. 136-138) and are defined in the context of NS-NNS conversational exchanges. Confirmation checks are conversational devices which one speaker uses "immediately following an utterance by the interlocutor which are designed to elicit confirmation that the utterance has been correctly heard or understood." So, in the following exchange, a book? constitutes a confirmation check:

NNS: I went to the mall and bought a book
NS: a book?
NNS: yeah

These confirmation checks are conversational moves undertaken by the listener, in this example, the NS.

Another type of modification to interaction is a question uttered by the message sender in order to ensure that his or her message is being comprehended by the listener. Expressions of this type, such as OK? and do you understand? are called comprehension checks and are often used by the NS to ensure that the NNS is following the conversation and have been posited to demonstrate an effort to try to maintain communication. The present studies are not concerned with the phenomenon of comprehension checks.

In a study of effects of confirmation checks on the pronunciation of young children, Weiner and Ostrowski (1979) found that interactions involving communication failure resulted in a higher frequency of correction by the children. Two weeks after collecting a corpus of the children's pronunciation on a picture naming task, the subjects were asked to perform portions of the task again, but were prompted by a researcher asking Did you say (picture name)?: The
researcher's pronunciation of the picture name was either correct pronunciation, pronunciation modelled on the subject's mispronunciation, or a misarticulation which differed from the subject's misarticulation. This third instance resulted in the children's production with fewer articulation errors. It is concluded that, since this final type of prompt exemplifies a breakdown in communication whose final result was a more target-like pronunciation by the children, it is the perception of being misunderstood which motivates the subjects to change their sound production. It is this kind of negotiation for meaning that Long holds to be essential to the acquisition of an L2.

Clarification requests can be any expression uttered by the NS to show that he or she may not have understood what the NNS said. These are usually questions on the order of what?, excuse me?, and could you repeat that?, but may also appear as statements such as I don't understand, or say that again, please. While their form is variable, clarification requests function to let the NNS know that something he or she has said has not been understood.

The following extract (Pica, 1987, p. 6; 1988, p. 47) illustrates the use of clarification requests (in italics) in NS-NNS discourse:

NNS: and they have the chwach there
NS: the what?
NNS: the chwach I know someone that—
NS: what does it mean?
NNS: like um like American people they always go there every Sunday
NS: yes?
NNS: you know every morning that there pr- that—the American
people get dressed up to go to um chwach

NS: oh to church_______I see

Clearly, the NS indicates that there are problems with the NNSs original message, which persist after a second attempt by the NNS to clarify. Note, too that the second clarification request is more precise as to the problem the NS is encountering. While the what? may have been triggered by a number of factors including ambient noise, the NS’s inattention, or the NNS low volume level, what does it mean? specifically points to the nature of the comprehension problem. Again, we find evidence for conversational adjustments being used for the negotiation of meaning.

In addition to Long’s definition, Schachter (1986) refers to the interactive modifications as “metalinguistic input” to the learner, providing the learner with the information that “her utterance was in some way insufficient, deviant, unacceptable, or not understandable to the native speaker” (p. 215). The functions of these interactional modifications are not limited to speech involving NNS interlocutors.

Looking at evidence from NS-NS conversations, Christian (1983) defines a clarification request as “a special type of request for information, one which seems to indicate a problem [on the part of the requester] in processing the previous utterance,” (p. 260). These requests differ from other types of requests in a number of ways. First, requests for clarification can occur almost anywhere within the discourse, but are locally restricted to a turn immediately following the utterance being questioned. Second, “the requester assumes the speaker is able to provide the missing information” (p. 260). Third, clarification requests are
functionally different from other requests in that normal constraints on indirectness and politeness commonly maintained in standard requests are not adhered to in clarification requests. Standard (indirect) requests usually presuppose some doubt on the part of the speaker as to whether the addressee is capable of fulfilling the request. In contrast, a clarification request is direct because it can be assumed that the addressee is capable of answering a question based on his or her prior utterance, and is further motivated by the desire to be understood. Christian states that the best way for a hearer to be cooperative in these kinds of interactions is by making a clarification request directly.

In children’s L1 development, Gallagher (1977) found that prompts for clarification frequently resulted in formal revision by children, regardless of their stage in language development. During the taping of hour-long spontaneous speech samples from each of eighteen children, the experimenter pretended twenty times to require clarification by asking What?. Children’s revisions in response to this question showed a significantly greater use of revision over repetition. The following extracts demonstrate the types of revision strategies employed by children at all stages of development (C = child; E = experimenter; p. 307).

**Phonetic change:**

C: he kit ball

E: what?

C: he kick ball

**Constituent reduction:**

C: it big ball

E: what?

C: it ball
Constituent substitution: 

C: he kick ball  
E: what?  
C: he kick it

Such evidence in L1 acquirers’ speech leads us to predict that the same effects might be evidenced in interactions with L2 acquirers.

Self- and other-repetitions differ in kind only in who makes them. “They include partial or complete, and exact or semantic repetition (i.e. paraphrase) of any of the speaker’s utterances which occurred within five conversational turns (by both speakers) of the turn containing the repetition.” Long provides a extract exemplifying a number of these interactional modifications:

NS: When did you finish?  
NNS: Um? [clarification request]  
NS: When did you finish? [self-repetition]  
NNS: Ten clock  
NS: Ten o’clock? [confirmation check]  
NNS: Yeah

Long’s (1981a) study examines the performance of sixteen NS-NS dyads and sixteen NS-NNS dyads on six spoken English tasks. The tasks were informal conversation, vicarious narrative, giving instructions for two communication games, playing the first game, playing the second game, and discussing the perceived purpose of the research (p. 267). Upon analyzing his results, Long found that the differences between NS-NS conversations and those of NS-NNS are in the domain of modified interaction rather than modified input, and that, since “interaction features are more sensitive to the communication demands of a conversation” (p.
268) they “prompt consideration of whether modified input, modified interaction, or a combination is necessary for or facilitates SLA” (p. 270). Long asserts the following propositions based on this analysis:

(a) SLA is possible with unmodified input but with modified interaction;
(b) modified interaction with unmodified input facilitates SLA;
(c) SLA is possible with modified input and modified interaction; and
(d) modified input and modified interaction together facilitate SLA (pp. 273–274).

These conclusions, while not rejecting the beneficial effects of modified input, have fostered the current focus on modified interaction, and have provided the analytical framework forming the basis for much research carried out in the past decade.

Keeping in mind the concept of comprehensible input, Long (1983c) further suggests that input becomes comprehensible to learners through modified interactions, where a NS questioning the NNS results in meaning being negotiated jointly by the interlocutors, and also serves to draw the NNS into the conversation, providing him or her with continued opportunities for negotiation. Thus, the comprehensible input necessary for acquisition is provided when NNSs are required to negotiate for meaning in the L2, and evidence of this negotiation of meaning is the presence of the conversational adjustments outlined above.

Following these rather large claims for the benefits of negotiated interaction, Pica and Doughty (1985a) examined the occurrence of these interactional features in classroom settings with the aim of determining what sorts of classroom arrangements and activities foster SLA. Using communicative tasks focusing on
decision-making, they analyzed the input and interactional features of both teacher-
fronted and group (student only) activities. As was expected, more grammatical
input was available in the teacher-led task, most of it produced by the teachers.
Contrary to expectations, the teacher-fronted activity also provided more instances
of conversational adjustments. Yet, as the negotiations were directed at individual
students, they must be seen as beneficial only to those students who participated
or listened, and were not necessarily relevant to individual students. The
prediction would be that, as the group task more closely imitates conversation
itself, the beneficial conversational adjustments might be found there. Still, the
students appeared to have more opportunities for production when involved in the
group task. While the authors do show that small-group activities may be
beneficial in that they provide practice in the target language, there was no
indication that the interactional modifications held to be necessary for acquisition
were generated by students working in groups without an instructor.

These findings have been borne out in Pica and Doughty (1985b). When the
focus is on grammar, on the correctness of form, teacher-fronted activities will
provide more of the grammatically correct input to learners. Yet, if what is really
essential is the negotiation of meaning achieved in interaction involving
conversational adjustments, then the arrangement of learners in groups fostering
such interaction is necessary. Accordingly, research investigating the optimal
conditions, both in group arrangement and in task, for such negotiated interaction
has been undertaken.

With respect to tasks, it was found (Doughty & Pica, 1986) that tasks which
involve a two-way exchange of information are crucial to the creation of
conversational modifications in classroom interaction. In addition, two-way tasks performed in groups or dyads were found to create more situations of modified interaction than the same tasks performed in teacher-fronted activities. Similar results, with task type and group arrangement as essential for the production of elements of modified interaction, have also been reported in Pica and Doughty (1988).

More detailed analyses of the social structure of the classroom have also been investigated with an eye to the presence or absence of modified interaction relative to the participant status of the interlocutors (Pica, 1987). Since the key to the kinds of modifications discussed thus far is their occurrence within an interaction, that is, with the participation of at least two speakers, it was felt that the structure of the classroom, with unequal status between students and teacher may hinder the opportunities to negotiate interactions.

It is worth noting that these studies are moving away from looking at NS-NNS interactions to examining NNS-NNS interactions. If we assume that small group tasks are more beneficial than teacher-led tasks for developing communicative ability, then we must begin to look at the interactions as they would occur in the classroom. Porter (1986) reports that, in NNS-NNS pairs, learners got more and better-quality input when paired with higher proficiency learners. She cites Krashen (1982) in stating that intermediate-proficiency learners would be in ideal input situations if paired with high-proficiency learners, as they would be in ideal positions for receiving $i + 1^5$.

Porter (1986) found that the pairing of NNSs with other NNSs with the same L1 resulted in production of more of the conversational devices which Long
(1981a) posits to be beneficial to SLA. She concludes that since these devices promote acquisition of the target language, and since there are more of them in NNS-NNS discourse, then the more beneficial learning environment would be one involving NNSs talking to other NNSs. While this brings into question the availability of grammatical and sociocultural input to the learner, it does support the idea that for communicative practice (though not necessarily grammatical or sociolinguistic practice), NNS-NNS pairings may be preferable. What must not be overlooked, however, is the fact that a NNS having only other NNSs as interlocutors may not be in the most optimal condition for the acquisition of many features of the language.6

The basic assumption throughout these studies has been the acceptance of the "current second language acquisition theory [which] holds that modifications in the interactional structure of conversation are important to second language comprehension and, in turn, to the acquisition process itself" (Pica & Doughty, 1988, p. 54). Accordingly, the objects of study have necessarily been the presence or absence of the elements identified as interactional modifications in conversations involving NNSs. Moreover, it is the quantity of these conversational adjustments that has been in question, without empirical or anecdotal evidence as to the effects on the learner. Fillmore (1979) suggests that the proposals to maximize the presence of negotiation in NNS interactions is in conflict with other general learner strategies. With regard to social interaction outside the classroom, she suggests that learners adopt the following strategies:

1. Join a group and act as if you understand what’s going on, even if you don’t.
(2) Give the impression—with a few well-chosen words—that you can speak the language.

(3) Count on your friends for help.

Fillmore is, in fact, suggesting that the learner avoid situations of negotiation and pretend that input is comprehensible even if it is not. Aston (1986) points out that the existence of conversational adjustments (which he calls "trouble-shooting procedures") in interactions may be related to perceived difficulty of the interaction.

Trouble-shooting may therefore be at a maximum in "difficult" interactions, but this does not seem to imply that the more negotiation takes place, the merrier from an acquisitional point of view. Certainly in some cases negotiation can be seen to produce comprehensible input to the learner, by establishing utterance value. Moreover, as trouble-shooting procedures may also be seen as concerned with maintaining rapport, they presumably have a role in creating a context for acquisition by lowering the "affective filter". Nevertheless, a greater frequency of such procedures would not entail that the context created thereby is a better one acquisitionally: rather a greater frequency could imply a greater effort to maintain rapport and thus greater difficulty in keeping the filter lowered—i.e. that the context is one in which acquisition is more difficult. (p. 140)

Thus, it is not simply the frequency of conversational adjustments that may make a difference to SLA, but their function within the conversation. The tabulation of specified conversational elements tells only half the story. What is missing from these studies is an investigation of what the learner does in reaction to the noted
conversational adjustments, whether at the local discourse level, or at the global acquisition level. As Corder (1967/1981) noted over twenty years ago:

The simple fact of presenting a certain linguistic form to a learner in the classroom does not necessarily qualify it for the status of input, for the reason that input is ‘what goes in’ not what is available for going in, and we may reasonably suppose that it is the learner who controls this input, or more properly his intake. (1981, p. 9)

To get a complete picture of the function of input in SLA, we are forced to look beyond the input environment to try to discover what the learner makes of the vast available input. Moreover, if what we are concerned with are the communicative abilities of the learner, then we need to evaluate the learner in communicative situations in the L2. It has been noted that communicative L2 teaching necessarily focuses on the participation of the learner and has been developing with this perspective since the early 1970s. Interestingly, and perhaps to our discredit as researchers, this focus on the learner has only recently become an integral part of some SLA research.

The Role of Comprehensible Output

While the fact that comprehensible input plays a role in SLA is not controversial, it has been suggested (Swain, 1985) that there is an equal role to be played by comprehensible output. Swain suggests that the role of comprehensible input and the emphasis on interactions promoting negotiation of meaning has been overstated, and that it is the comprehensible output of the learner which plays just as important a role as the comprehensible input to the learner. Swain’s study
examines features of the communicative competence—grammatical, discourse, and sociolinguistic (Canale & Swain, 1980)—exhibited by French L2 students in an immersion setting. She concludes that input is essential to grammatical acquisition not because it focuses on meaning or requires an exchange of information (although it does serve these purposes), but because it frees the learner to focus on form. If this is the case, then we must posit a mechanism by which other aspects of the language (specifically for Swain, the development of communicative competence) are acquired.

Swain asserts that comprehensible output is a crucial requirement in providing the learner with opportunities to use his or her own linguistic resources in a meaningful way, to test out his or her own hypotheses about the TL, and to move "from a purely semantic analysis of the language to a syntactic one" (p. 252). Whereas a learner can comprehend a message without having to analyze the structure of the message, when producing comprehensible output, the learner is forced to impose some syntactic structure on the message, thereby testing his or her hypotheses about the language. It is helpful to keep in mind that a focus on interactional modification must necessarily involve both conversational participants and the contributions they make within an interaction.

Gass and Varonis (1985) propose that the role of the interlocutor and the familiarity with both the interlocutor and the task affect the amount of conversational negotiation being done by the NNSs. This conversational negotiation is identified as modified interaction. They propose, too, that it is in NNS-NNS pairs that the greatest opportunities for comprehensible input, and for producing comprehensible output may be achieved.
In looking at such NNS-NNS conversations, Gass and Varonis (1989) find evidence to concur with Long (1981a) and Porter (1986) that such conversational pairings result in higher frequencies of interactive modifications. In addition, they find evidence that these interactions foster negotiation of meaning and result in speakers making repair toward the target. They provide the most powerful evidence thus far that it may be the actual modified repetition by the learner in response to a conversational adjustment that forces him to focus on form and to incorporate this form into his later utterances, thereby providing a situation for comprehensible output.

Phonetic modifications of two types were found in the Gass and Varonis study: prompted repair, in which the interaction takes on the qualities of pronunciation instruction with one NNS modelling and repeating a problematic utterance; and lapsed repair where the problem utterance is modelled once in a confirmation check, and is not incorporated in its corrected form until a number of turns later. Syntactic modifications result from both modelling and elements of negotiation, in this case self-repair. Lexical modifications were observed involving both explicit correction when the interlocutor provided the proper lexical item; and implicitly, with a target-like form being provided in response to a question, but which is incorporated by the questioner as the correct form. This last observation may lend credence to the notion that it is through meaningful interactions that acquisition is achieved. The speakers were not focusing on the form of the message, rather on the message's communicative content.

The Gass and Varonis (1989) data also include four instances of what they call "incorrections," in which one of the NNSs offered an incorrect repair, yet in
none of these instances was the incorrect repair form accepted by the other NNS. While persuasive, this study is admittedly limited in that it did not provide for any follow-up examination of the learners’ performance, that is, there was no investigation of whether these demonstrated repairs resulted in lasting changes to the system.

In view of the claim for comprehensible output as a necessary condition for SLA, Pica, Holliday, Lewis and Morgenthaler (1989) describe how NNSs respond to signals from NSs indicating difficulty in understanding. This study looked at intermediate learners interacting with NSs across three different tasks:

(a) An “information-gap” task in which the NSs were required to reproduce a picture drawn by the NNS on the basis of the NNS’s description (see Doughty & Pica, 1986 on information-gap tasks);

(b) A “jigsaw” task wherein the NS and NNS each had different pieces of a sequence of pictures and had to take turns describing what they had in order to reproduce the master sequence, and;

(c) An open discussion on the language-learning contributions of the two other tasks.

Four hypotheses (H) are made with respect to NNS production of comprehensible output:

H 1: Opportunities given by NSs for NNSs to make their output comprehensible would be greatest in the information-gap picture drawing task, less so in the jigsaw picture sequencing task, and least during discussion of task contributions toward language learning.

H 2: The proportion of NS clarification requests to confirmation checks
would be greatest on the information-gap task, less so for the jigsaw task, and least during discussion.

H 3: NNSs’ production of comprehensible output by modifying interlanguage sounds, morphosyntax, and lexis would be greatest in the information-gap task, less so in the jigsaw task, and least during discussion.

H 4: NNSs would be more likely to modify interlanguage sounds, morphosyntax, and lexis when NSs asked clarification requests than when they sought confirmation of NNS production through linguistic models (p. 69).

Their results confirm Hypotheses 1 and 4, but demonstrate that the type of task does not have a significant influence on either the type of signal (clarification request or confirmation check) used by the NSs, or on the amount and kind of modifications to output made by the NNSs. The findings in favor of Hypothesis 1 reconfirm results found in Doughty and Pica (1986) for the effect of task-type in promoting situations for greater negotiation of meaning, hence greater acquisition.

We must note that determining what is comprehensible input to the learner is a matter of looking at the learner’s responses to input. Long (1981b) has suggested that speech addressed to a NNS “which is marked by the modifications associated with FTD [foreigner talk discourse] and which is responded to appropriately by the learner will be assumed to have been comprehensible input” (p. 137). Yet, Hawkins (1985) asserts that what is often labelled an appropriate response may, in fact, not signal comprehension on the part of the utterer of the response. A discourse analysis of her data shows that NNSs’ apparently appropriate responses did not necessarily signal comprehension. In fact, upon
retrospection, the NNSs indicated that they were responding to something other than what the NS was questioning. That is, what they took to be the problematic part of the message was not what the NS appeared to have a problem with. The implications of these results raise the question of the validity of the input/interaction perspective. The fact that modifications do occur, or that some occur more often than others, does not mean that they are necessarily beneficial to the learner. "Describing these modifications is one thing; it is quite another to say how they affect the SLA process for the learner" (Hawkins, 1985, p. 177).

Hawkins (1985) and Aston (1986) iterate my own queries regarding the input and interaction studies, none of which pertains to all the studies, but which, rather, reflect the general scope of these investigations:

Why do so many of these studies focus on minimal utterances of NSs? If our mandate is to examine the L2 development of learners, we should be focusing our investigations more clearly on what the learner does, both independently and as a result of NS input. Admittedly, many of the output studies have begun to focus on what the learner produces within the discourse situation, but without extending this research over time to get a better picture of the true incorporation of observed changes in learner performance.

Who identifies, evaluates, and counts these conversational variables? In most cases, the researchers are responsible for judging what does and does not count as important. Hawkins (1985) begins to address this problem by having NNSs give retrospective accounts of what they thought was going on in their conversations. Having NSs who are representative of the NNSs' audience decide whether they can perceive any change in NNSs' spoken performance might be another method
of resolving this issue.

Finally, and perhaps most crucial to the validity of the interactional framework, why is there no empirical evidence indicating that the negotiated interactions do, in fact, prompt learners toward more target-like L2 production?

**Individual Differences in Language Learning**

In any investigation of learner behavior, we must not lose sight of the fact that, although we may try to identify learners as members of some group, whether by proficiency, extent of instruction, gender, and so on, learners are individuals and their learning outcomes can be vastly different as a result of individual differences. Earlier, I cited Schumann (1983) with respect to the apparent divergence in SLA theory. Another observation following from his argument is that teachers should be aware of the influence their own L2 learning experiences have on their views of the learning process, and recognize that their students’ own prior language learning experiences may affect their individual performance. This individual experience factor often confounds researchers attempting to make generalizations about SLA and teachers attempting to address the individual needs in the context of the classroom.

A number of features have been identified in an attempt to capture the influence of personal differences on the learning of an L2 (Ellis, 1990; Fillmore, 1979; Rubin, 1975; Skehan, 1989). Some relate to individual personality factors such as motivation and extroversion versus introversion; others to cognitive factors, such as intelligence and field dependence versus independence; and still others relating specifically to language learning strategies.
It is important to keep in mind that any single teaching or learning event may be seen by one learner as productive and by another as detrimental. One learner may consider a certain classroom activity or interactive event as non-threatening, while for another learner the same event may be construed as a threat to face. Perhaps the most interesting area of study into learner differences is in the area of language learning strategies. The research is, as Skehan (1989) puts it, "... at an embryonic stage. Conflicting results and methodologies proliferate. There are few hard findings" (p. 98), but even the descriptive studies can provide insight into how individual learners differ in their approach to learning an L2.

Naiman, Fröhlich, Stern and Todesco (1978) and Pickett (1978) have identified a number of learner strategies or techniques. For example, in vocabulary learning, some students reported that they learned by making and memorizing lists, others claimed to learn vocabulary merely by listening for it in context, still others claimed to use various practice techniques including self-drill, reading, and games. For any learner who is used to one of these learning techniques, a new and different technique may be met with more or less of an effect than expected or desired.

Fillmore (1979) found that the desire for socialization was a major individual variable influencing L2 learning. But her research involved a small subject population engaged in informal language learning. In formal learning environments, considerations of individual cognitive and metacognitive strategies such as personal learning styles may be more fruitful. Nevertheless, it would be imprudent to ignore the fact that language is a major tool for socialization, and that strategies which are sensitive to aspects of socialization can prove beneficial.
in terms of language acquisition.

While individual learner differences have been shown to be a major factor in the successful acquisition of an L2, the realities of the classroom are such that individual needs cannot, for the most part, be addressed effectively. We are required to impose upon the individual learner group characteristics which allow us to identify some of the learners' fundamental needs as regards their L2 learning experience.

**Addressing Learners' Needs: The Foreign TA Problem**

In recent years, the U.S. university setting has provided a new population of learners with specific and often urgent L2 needs. The problem is generally perceived to be that foreign or international teaching assistants (ITAs) cannot communicate effectively enough in English to be able to carry out instructional duties (Bailey, 1984). The solution has been to provide courses intended to improve the spoken English abilities and the instructional capabilities of the ITAs (Bailey, Pialorsi, & Zukowski/Faust, 1984; Chism, 1987). Specially designed course materials are commercially available with a specific focus on the language learning and instructor training needs of ITAs (Byrd, Constantinides, & Pennington, 1989; Pica, Barnes, & Fingers, 1990). A number of studies have investigated the specific linguistic aspects of the ITAs' use of English which might prove problematic for American undergraduates (Davies, Tyler & Koran, 1989; Douglas & Selinker, 1989; Rounds, 1987). In addition, there have been a number of studies investigating the communicative effectiveness of these students with consideration of the pedagogical tasks facing them (Powers, 1991; Yule,

Thus, this learner population has been identified as requiring special L2 instructional skills that differ from those of most typical L2 learners, and the fact that they may be required to take on instructional duties soon after arriving lends special urgency to their learning task. In addition, these students may have been provided with as little as two to four weeks or as much as a semester of preparatory instruction before they may have to take on teaching duties. Hence, there is a real and practical need to address the language learning problems of these students expediently, while providing them with the linguistic means to function effectively in their new roles. It is from such a population that my subjects were drawn, and with an awareness of their needs that the experimental task materials were constructed.

The Research Project

While the input/interaction research reviewed above has found its way into classroom application, especially in those classrooms where task-based instruction or a communicative approach to learning have been implemented, much L2 instruction is still carried out within older pedagogical frameworks, whose practical applications may be more amenable to the classroom situation, and perhaps more accessible to teachers. For example, especially in the area of pronunciation and vocabulary, we find many aspects of the audiolingual methodology which revolutionized language teaching in the 1960s. As noted earlier, the use of practice drills is still current in ESL textbooks.

In addition to textbooks featuring drill practice, the audiolingual focus on
lock-step language learning and its relationship to the Direct Method fostered the development of language labs as essential features of the second and foreign language learning experience. In the language lab, students generally listen to target language utterances (words, phrases, sentences, expressions) presented on audiotape and repeat them. The emergence of this self-directed learning tool can be traced back through audiolingualism to the Direct Method, a pedagogical approach which is still current. In some ways, language labs are artifacts of older methods of language teaching which have endured while the methods themselves have not. We need only look at the number and success of commercial self-study materials available which follow this self-paced, listen and repeat pattern (e.g. Berlitz, Audio-Forum). Moreover, the language lab remains a component of many foreign language courses in high schools and universities, and the presence of a language lab is often a well-advertised aspect of private language schools.7

What is important to remember is that, while SLA theorists have discredited these pedagogical practices on principle, students themselves seek out the opportunities to practice their L2 using just such devices. It is apparent that, while the input/interaction research framework is a powerful one, learners may not be, or may not believe that they are, reaping the benefits in second language competence.

SLA research has reached the stage where we have identified potentially beneficial phenomena for acquisition, but where “the study of [these] interactive features in L2 classrooms has yet to demonstrate clear effects either on immediate or on long-term acquisition of the target language” (Chaudron, 1988, p. 190). Thus we have a theory that is treated as powerful and productive but which has
yet to be tested in any controlled way. In order to better serve L2 learners, and to accomplish the goal which Gass (1988, p. 198) articulates, research “[comparing] learning outcomes between grossly categorized ‘methods’ [with] more narrowly focused research on particular instructional variables seems necessary to ascertain the specific formal or social-interaction factors that lead to successful L2 acquisition” (Chaudron, 1988, p. 166).

The studies reported in the following pages, one a briefly reported pilot study, and the second a more detailed report of a major study, were undertaken with the above-noted research challenges in mind. They focus specifically on the potential effects of different types of input on the L2 spoken performance of learners. In addition, they examine these potential effects over time, in an attempt to determine whether there are any substantial long-term effects which we might consider to be indicative of acquisition having taken place.

The pilot study (Study 1) examines the effects of clarification requests and confirmation checks on the spoken performance of NNSs in a practice videotaping session with NS interlocutors. The following four research questions were being investigated: (Throughout these studies, T1 indicates Time 1, an initial time of learner production; T2 indicates Time 2, a time of learner production subsequent to T1; and T3 indicates Time 3, a final time of learner production, subsequent to both T1 and T2.)

1. Is there an immediate effect on the spoken performance of the L2 learner? That is, to what extent is the T2 pronunciation perceived to be more target-like than the T1 pronunciation subsequent to a modified interaction event?
2. Is there a delayed effect on the spoken performance of the L2 learner? That is, to what extent is the T₃ pronunciation perceived to be more target-like than the T₁ pronunciation subsequent to a modified interaction event?

3. Is there a residual effect on the spoken performance of the L2 learner? That is, in those cases where the T₂ pronunciation is perceived to be more target-like than the T₁ pronunciation, to what extent is the T₃ pronunciation also perceived to be more target-like than the T₁ pronunciation subsequent to a modified interaction event?

4. Is there a restructured effect on the spoken performance of the L2 learner? That is, in those cases where the T₂ pronunciation is perceived to be less target-like pronunciation, to what extent is the T₃ pronunciation perceived to be more target-like than the T₁ pronunciation subsequent to a modified interaction event?

While the study shows that modified interaction, in the form of clarification requests and confirmation checks results in modified output by the learner, the modifications were made in the direction away from the target form almost as often as toward it. This study finds minimal evidence of the four effects outlined above, none of which occur with enough frequency or consistency to be conclusive. The report of this study appears as Chapter Two.

The major study, reported in the remainder of this dissertation, takes a very narrow look at the same aspect of English L2 performance—pronunciation—with a focus on the pronunciation of key vocabulary by NNSs. In it, the same research questions were explored, but were extended to examine the effects of four different classroom practices on the spoken performance of these English L2
speakers. The pronunciation of learners before, immediately after, and at a longer interval after their undergoing four classroom-like learning events is examined. The classroom-like events (here referred to as interventions) being examined are:

I. teacher-led vocabulary practice drill;
II. self-study vocabulary practice;
III. no aggressive intervention, rather, time alone for self-reflection, and;
IV. practice involving modified interaction events.

In accordance with the expanded focus of these different learning events, the research questions have been revised as follows:

1. Is there an immediate effect on the spoken performance of the L2 learner as a result of each of interventions I through IV?
2. Is there a delayed effect on the spoken performance of the L2 learner as a result of each of interventions I through IV?
3. Is there a residual effect on the spoken performance of the L2 learner as a result of each of interventions I through IV?
4. Is there a restructured effect on the spoken performance of the L2 learner as a result of each of interventions I through IV?

Chapter Three consists of a description of the methodology for the major study. The results of the analysis by condition are included as Chapter Four, with a discussion of individual performances in Chapter Five. The concluding chapter includes both general observations from the results and a discussion of some of the limitations of the study.
Notes

1. The common interactive occurrence of "putting your foot in your mouth" might be taken as an example of incomplete mastery of sociolinguistic competence. Since most of us have experienced this event, we might consider the possibility that sociolinguistic competence may not be fully mastered by native speakers either.

2. Integrative motivation refers to the desire of the learner to fit into the culture of the L2, to be like speakers of the L2. This is often the case when learners are involved in L2 learning because they want to learn to communicate in the L2. Instrumental motivation refers to the desire or the need to learn the L2 for practical purposes such as employment.


4. While the seminal work in this area, that being reported here, deals with NS-NNS data, later research will be cited in which there is evidence of these interactional structures occurring with even greater frequency in NNS-NNS discourse. In the course of my discussions I will be referring to the interaction categories variously as modified interactions, negotiation sequences, conversational adjustments, interactional modifications, and interactive modifications, in keeping with the terminology used in the literature.

5. It should be noted that Porter's subjects were all Spanish L1 speakers, and that the homogeneity of this population may have affected her results. Yule, Wetzel, and Kennedy (1991) note in their study involving Spanish, Vietnamese, and Chinese L1 speakers, that the Chinese L1 speakers performed less accurately than did the other L1 groups, despite the fact that they reported more average years studying English. It is worth noting that the different kinds of language learning experiences individual learners have had may affect their L2 performance. Yule and Macdonald (1990) provide evidence contra Porter for the beneficial pairing of lower proficiency learners with higher proficiency learners in tasks where the lower proficiency learners are in the perceived role of dominance.

6. If it were the case that NNS-NNS pairs or groups were the most beneficial situations for learners, it would follow that, for example, ESL students in China would acquire English more easily, more completely, and more often, if given only other NS Chinese as English conversational partners. The expected effect is counterintuitive, given the experiences we have all had with speakers whose only prior English language learning experience has been in their native countries, usually with teachers who have learned English in the same manner. Rather, what one would expect to happen in the kinds of pairings that Porter views as

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beneficial is the reinforcing of non target-like features, especially in pronunciation, rather than the modification of output to a more target-like variety.

7. I have casually observed that many of the students enrolled in Spoken American English classes at L.S.U. make the effort to use the language lab for practice although it is not a requirement for the course.

8. It is worth emphasizing that this study focuses exclusively on the pronunciation of specific vocabulary items. It is not concerned with other general aspects of second language acquisition such as the syntax or the lexicon, nor will it attempt to investigate larger issues within the development of the learner’s representations of the complete L2 sound-system, often described as interlanguage phonology (cf. Ioup & Weinberger, 1987).
Chapter Two

Study 1

This pilot study was undertaken to examine the effects of clarification requests and confirmation checks on the subsequent performance of NNS. As discussed in the last chapter, these types of conversational adjustments are held to be beneficial to the acquisition of English as a second language. While there is a great deal of research which takes as a basic assumption the efficacy of these conversational modifications, there is no published empirical evidence for their usefulness. I hoped that this study would illustrate whether and to what degree these modifications to input affect NNS pronunciation. There were three stages to the study: data gathering, data selection, and NS judgments. Each stage will be described individually below.

Data-gathering

Subjects

Sixteen NNS subjects and sixteen NS subjects volunteered to participate in the data gathering. The NNS subjects were all graduate students taking part in a required preparation course to develop their Spoken English skills sufficiently to enable them to assume instructional duties in a range of departments within the university. Their first languages were, as self-reported, Chinese (Mandarin) (13), Korean (1), Malayalam (1), and Oriya (1). Each subject was asked to prepare a brief presentation to be presented for videotaping with an audience of one (the researcher), and then again a second time with an audience of one (NS listener)
The NS listeners were all undergraduate volunteers recruited because they approximate the student population the subjects are most likely to be teaching. The videotaping was presented as a practice session for the NNS students who were preparing final presentations for videotaping in their regular Spoken American English classes. NS subjects volunteered to participate as audience members, and were told they would be videotaped. The only requirements for their participation was that they were undergraduates and native speakers of American English.

**Procedures**

Each subject presented individually, at times scheduled the week previously. After arriving at the videotaping location, subjects were seated at a table in a recording booth equipped with a window and a powerful table-top microphone. The videotaping equipment (save for the microphone) was situated behind the window, partially hidden. Once the subjects were comfortably seated, with the researcher seated next to them, they began their presentations. The potential artificiality of the event was in part modified by two factors. First, the subjects were accustomed to making presentations for video- and audiotaping, as it is part of their course work in their Spoken American English class. Second, they were asked to consider the event as a practice, or rehearsal for their scheduled, in-class videotaped presentation. Indeed, there were a number of NNS participants who commented on the usefulness of the practice, and who expressed appreciation for having been given an opportunity to practice in this manner. Subjects were also informed that the videotapes might be used for research at a later date, but that
their anonymity would be preserved.

The first videotaping event was set up so that during each presentation, the researcher prompted some form of negotiation by introducing clarification requests and confirmation checks for particularly difficult vocabulary items. Extract 1 is a representative sample of an interaction at a point where clarification was prompted. In these extracts, ‘S’ refers to the NNS subject, and ‘R’ refers to the researcher.

\begin{verbatim}
S: we call the powuh of iks
R: the power? =
S: =the powuh of iks
R: the power of ‘x’?
S: ‘x’, yeh the powuh of iks
R: [ok

Extract 1
\end{verbatim}

When they had finished their presentations, each of the subjects was asked to complete a brief data sheet, and to relax while the researcher left the research area to collect the NS undergraduate. The time which elapsed between the end of the first and the beginning of the second presentation was, on average, fifteen minutes, although one subject had a twenty-five minute wait when the NS listener arrived late.

The second presentation was undertaken under the same physical conditions as the first, but with the NS undergraduate listener as audience member. The NS listeners were given a data sheet to complete which required them to note the
main topic of the talk, to list three to five key words or phrases that were important in the presentation, and to indicate in what kind(s) of class(es) they might expect to hear such a talk. This information sheet also asked the NSs to answer some evaluative questions regarding the performance of the speaker. The NS listeners were also told they could ask questions at any time during the presentation. All the above instructions were provided in the hope that the NS listener would also prompt negotiation sequences such as clarification requests and confirmation checks. Unfortunately, negotiation sequences such as those prompted by the researcher were infrequent in the situation with the NS listeners. While this fact is not critical to the present task—although it would have been interesting to have this data—it does bring into question the assumption that such negotiated interaction is necessarily available to learners in their out-of-class experiences in the L2. If the learners are not being exposed to the input essential to acquisition—that is, modified interaction—in a setting where it has been actively encouraged, it may be the case that they are not exposed to it in their daily interactions in the target language. I will return to this point later.

Data Selection

From the videotaped data gathered in the first taping (with the researcher), fifteen negotiation sequences were chosen for inclusion in the perception task. The following are examples of the type of interactions chosen. Underlined elements were chosen to be judged by the NS listeners:

S: today I'm going to introduce how to solve inkwanties uh in our everyday life
R: s-sol-solve what?=
S: =inkwany, inkwanties
R: inequalities?
S: yeh, in our . . .

Extract 2

S: the serial nitrate
R: wha?
S: plus seriuh, serwer
R: oh, oh, SILVER [nitrate
S: [serwer nitrate

Extract 3

From each of these sequences, the first or primary occurrence of the word or phrase that was negotiated was isolated and recorded. This item was coded as T₁ (Time 1). While every effort was made to select the first occurrence of the item, care was taken to choose items which were not examples of performance slips, that is, of stuttering or known mispronunciation. In most cases, the existence of an immediate, unprompted, self-repair was taken to indicate a perceived performance slip¹. A second occurrence of the same item as found for T₁ was also isolated—this time from its occurrence later in the negotiation sequence, usually only a few turns after T₁, and was coded as T₂ (Time 2). A final token of each item was selected from its occurrence in the interaction with the NS undergraduate listener, and was coded as T₃ (Time 3). Thus, for example, the learner’s pronunciation of a word like “inequalities” was isolated for three
occasions with $T_1$ being its initial occurrence in the first interaction, $T_2$ being its later occurrence in the negotiation sequence during the first interaction, and $T_3$ being its occurrence in the later interaction (after a break) with the NS undergraduate listener.

The resulting corpus from which stimulus tapes were constructed consisted of forty-five items, a $T_1$, a $T_2$, and a $T_3$ token for each of the fifteen linguistic items selected.

Native Speaker Judgement Task

Twenty subjects, all undergraduate volunteers, participated in the judgement task, where they were required to choose which of two tokens of the same word or phrase in a pair sounded closest to natively spoken English. The purpose of this task was to have NSs other than the researcher judge the target-likeness of a NNS utterance before ($T_1$), immediately after ($T_2$), or some time after ($T_3$) a negotiated interaction sequence. Hence, two sets of stimuli were constructed to elicit judgments of either $T_2$ or $T_3$ performance over $T_1$ performance. Each item pair, either $T_1$ paired with $T_2$ or $T_1$ paired with $T_3$, was presented three times: once as it occurred in the negotiation event, $T_1$ followed by $T_2$ ($T_1/T_2$), another time with the second occurrence placed first, $T_2$ followed by $T_1$ ($T_2/T_1$), and a third time randomly either as item pair $T_1/T_2$ or as item pair $T_2/T_1$. Another set of stimuli were constructed with the same randomization procedure, but using $T_1$ and $T_3$ pairs.

The discrimination task was divided between ten NSs judging pairs of words and phrases taken from the $T_1$ and $T_2$ corpus. The other ten NSs judged the items
from the T₁ and T₃ pairs. They were read the following instructions:

You will hear forty-five pairs of words spoken by non-native speakers of English. For each pair, please choose which one sounds closest to a standard English pronunciation. That is, closest to the English you hear every day. If you think the first word or phrase in the pair is closest, then circle “A”, if you think the second is closest, please circle “B”. Do you have any questions about what you are required to do?

Please start the tape when you are ready. You will hear the words “please begin” immediately before the first pair of words. This is your cue to be ready to listen. Thank you.

Once the task had been completed, the NS listeners were free to leave and the results of their choices were tabulated.

Results and Discussion

The results of the NS listeners’ perception task are presented in Table 1. It is important to keep in mind the inference under which the NS judgments are being considered. The inference here is that NS perception of more target-like pronunciation is indicative of the learner’s change in performance toward the target. By the same token, a judgment of less target-like performance is indicative of deterioration in learner production. The numbers represent the raw scores on the perception task, and are presented along with a ratio (%) which represents the number of choices for either T₂ or T₃ out of the total number of times the choice was presented to the entire group of listeners. Each pair occurred three times and was judged by ten NSs resulting in a total of thirty
<table>
<thead>
<tr>
<th>ITEM</th>
<th>T₂</th>
<th>T₃</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. sixty-eight</td>
<td>30</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>93.3%</td>
</tr>
<tr>
<td>2. status</td>
<td>30</td>
<td>29</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>96.6%</td>
</tr>
<tr>
<td>3. viruses</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td></td>
<td>93.3%</td>
<td>93.3%</td>
</tr>
<tr>
<td>4. better</td>
<td>26</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>86.6%</td>
<td>40%</td>
</tr>
<tr>
<td>5. volume of water</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>86.6%</td>
<td>60%</td>
</tr>
<tr>
<td>6. society</td>
<td>24</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>80%</td>
<td>56.6%</td>
</tr>
<tr>
<td>7. silver</td>
<td>20</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>66.6%</td>
<td>60%</td>
</tr>
<tr>
<td>8. odd</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>56.6%</td>
<td>46.6%</td>
</tr>
<tr>
<td>9. distinction</td>
<td>16</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>53.3%</td>
<td>90%</td>
</tr>
<tr>
<td>10. power of x</td>
<td>15</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>40%</td>
</tr>
<tr>
<td>11. inequalities</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>30%</td>
<td>56.6%</td>
</tr>
<tr>
<td>12. agriculture</td>
<td>6</td>
<td>13</td>
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<td></td>
<td>20%</td>
<td>43.3%</td>
</tr>
<tr>
<td>13. posture</td>
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<td>7</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td>14. salt</td>
<td>2</td>
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<tr>
<td>15. velocity</td>
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<td>16</td>
</tr>
<tr>
<td></td>
<td>6.6%</td>
<td>53.3%</td>
</tr>
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</table>

Mean 16.93 18.6
SD 10.049 6.641

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judgments for each pair. The column headed "T2" represents the choices of T2 over T1, and the "T3" column represents the choices of T3 over T1. While the ordering of the pairs on the discrimination task was random, I have arranged the items here in order of the results on the T1/T2 task, looking for positive perceived differences (high number of choices of T2) through zero perceived differences to negative perceived differences (high number of choices of T3).

The most apparent result here is that the modified interaction sequence seems to have prompted changes in learner performance as much away from the target as toward the target for the T1/T2 pairings. Remembering that this pairing was made up of utterances following almost immediately upon one another, within an average of five to six conversational turns, we might expect that some immediate effect would be strong.

Also worthy of note is that there seems to be an initial tendency either toward or away from the target, yet this distinct tendency is lost by T3, resulting in an unstable performance on eleven of the remaining twelve items. Item 13 is the only item to retain a stable negative effect. In discussing these results, it is important to note that we are looking at preferences of one utterance in a pair over another, therefore, a raw score of 15 (50%) represents no specific preference. Hence, a change toward or away from the target is taken to be a score well above or below this baseline. No overall divergence from this baseline was found for either T2 or T3 perceived performance (T2: Mean = 16.933; SD = 10.049; T3: Mean = 18.6; SD = 6.641).

In addition, as was stated in the research questions outlined in the previous chapter, we are looking for four specific effects: an immediate effect where T3
pronunciation is judged to be more target-like than $T_1$; a delayed effect where $T_3$ is judged to be more target-like than $T_1$; a residual effect, where the immediate effect persists to $T_3$; and a restructured effect where a negative immediate effect is present, but where $T_3$ pronunciation is perceived to be more target-like. In the following discussion, strong effects are exhibited in those scores which are at least one standard deviation from the mean. In Table 2 are listed those items for which there was a notable positive perceived effect. The random-level score for Item 9 at $T_2$ has been omitted.

Table 2

<table>
<thead>
<tr>
<th>ITEM</th>
<th>$T_2$</th>
<th>$T_3$</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. sixty-eight</td>
<td>30</td>
<td>28</td>
<td>residual</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>93.3%</td>
<td></td>
</tr>
<tr>
<td>2. status</td>
<td>30</td>
<td>29</td>
<td>residual</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>96.6%</td>
<td></td>
</tr>
<tr>
<td>3. viruses</td>
<td>28</td>
<td>28</td>
<td>residual</td>
</tr>
<tr>
<td></td>
<td>93.3%</td>
<td>93.3%</td>
<td></td>
</tr>
<tr>
<td>9. distinction</td>
<td>27</td>
<td></td>
<td>delayed</td>
</tr>
<tr>
<td></td>
<td>90%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

We find that for items 1 through 3, there is a strong immediate effect of the interaction in the direction of target-like pronunciation. This judged improvement persisted to $T_3$ on items 1 through 3, giving our only clear examples of a residual
effect. It appears that for these items only, the negotiation sequence has been beneficial to pronunciation. The only other positive effect is with item 9, which was judged to have been neither more nor less target-like at T2, yet was judged to have been vastly more target-like at T3.

While the effects I set out to find appear to be infrequent, there are a number of tendencies that are worthy of consideration. Although I was looking for positive effects, that is, perceived performance toward target-like pronunciation, it may be valuable to think of some observed non-effects as negative effects. If we expect to find only strong positive effects, as proponents of negotiated interactions would lead us to believe, then relatively strong negative effects should be equally worthy of discussion. Thus, for items 12 through 15, there is a strong perceived effect away from the target on the T1/T2 pairings—a negative immediate effect. It is interesting, though, that while a positive immediate effect (items 1 through 3) was sustained to a residual effect, only one item (13) sustained a negative residual effect.

One possible candidate for a restructured effect is item 14 where there is a powerful negative perception of T2 relative to T1, yet a stronger positive perception of T3 over T1. Although the strength of the positive perception at T3 is well below that found for items 1 through 3 (in Table 1), it should be noted as evidence that change in pronunciation toward the target may not be seen until some time after the point at which attention was drawn, via a clarification request, to a problematic aspect of the speaker’s pronunciation.

The only consistent strong overall effect is the residual effect found in items 1 through 3, and even this is not a large enough proportion of the subject
population from which to make any claims as to the beneficial effects of modified interaction. What is apparent, however, is the general instability of the learners' pronunciation, with the modified interaction event as one possible source.

**General comments**

When examining the second taping, the one with the NS undergraduates as audience, it was noted that there was no "natural" occurrence of clarification requests or confirmation checks which would indicate negotiation of meaning. That is, there did not seem to be any tendency or desire on the part of the NS undergraduates to request clarification or confirm their comprehension. While it would be nice to suggest that the NS listeners had understood all that was said to them, the videotaped record seems to show that they were puzzled from time to time, but did not speak up. On the other hand, it is certainly the case that these listeners had little to gain or lose by speaking up or keeping silent. This behavior may, unfortunately, carry into the classroom, the very place where the NS student's comprehension of the NNS, often in the position of instructor, is crucial. For learners outside the university setting in which this research was carried out, this lack of opportunity for negotiated meaning may be more common than not. Lightbown (1985) notes that the classroom may, in fact, provide the modified input and interaction which certain learners may have difficulty finding outside the classroom. It may well be the case that in L2 acquisition, as opposed to L1 acquisition, modified interaction is an artifact of the classroom alone, rather than of the general L2 linguistic environment of the learner.

Furthermore, I observed what I will call avoidance-type behavior on the part
of many subjects when faced with a clarification request. This was identified by what appeared to be a conscious change in lexical choice or use of paraphrase instead of a questioned form later in the interaction, and even in the later interaction with the NS undergraduate. It may well be the case that such prompts for clarification, rather than prompting correction of the form being questioned, prompt avoidance of what the learner perceives to be the problematic utterance. It has been noted that the successful response to a request for modification requires that the speaker know what is being questioned in order to modify it (Gass, 1988). I consider this to be a question related to the learner's grammatical knowledge, or his or her ability to perceive his or her own problematic usage, in this case, the learner's less than target-like pronunciation. It is my observation, though yet to be analyzed, that conversational events such as clarification requests may be seen by the learner to constitute a more personal, face-threatening act than merely a request for modification. While the investigation of affective or cultural factors is beyond the scope of this study, the potential for an affective response, whether personally or culturally derived, might be kept in mind when discussing the behavior of NNSs in interactions.

In their review of research into negotiation and conversational modifications, Young and Doughty (1987) note that a great deal of arrangement of specific tasks and interlocutors is required to get the kind of negotiated interaction deemed beneficial for acquisition. "Mere contact with NSs outside of the classroom is not a sufficient condition for NNSs to acquire comprehensible input" (p. 221). While the questions of how, where and why learners can access the interactions

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thought to be conducive to SLA outside an instructional setting is an interesting one, and would be an interesting testing ground for the modified interaction theories, the question must be reserved for a later date.

**Limitations**

Theoretically, since conversational modifications are held to be situations of acquisition, in the same way that drills and pattern practice were in the audiolingual methodology, the object of study should rightly have been the effect of the interactive situation on output. Therefore, rather than looking at the NNSs' performance internal to the interaction as I have done here, what should be examined is the effect of the negotiated interaction, *as a pedagogical tool*, that is, as equivalent to a classroom exercise whose benefits are judged based on performance prior to and after the exercise, not within the exercise itself. Indeed, the wealth of literature on task-based interactions (Doughty & Pica, 1986; Duff, 1986; Gass & Varonis, 1985; Pica & Doughty, 1985a; 1985b; 1988) presupposes that this is the case. Hence the motivation for the major study, in which negotiated interaction is given the status of a learning event by being included as one of the classroom-type interventions whose effects on subsequent performance are testable in the same way as the other, more traditional, classroom practices.

Methodologically, while it was possible to examine objectively the change in performance over time for each of the speakers, I was not able to measure that change against a baseline, a measure of the subject's competence before the conversational event. In light of this, the major study was designed to provide a consistent and equivalent baseline for each speaker, their own $T_1$ performance,
against which subsequent performances were judged. In addition, the pilot had no comparative measure to judge the efficacy of the conversational modifications against other forms of L2 linguistic input. While the results of this study can stand as an exploratory investigation of the effects of modified interaction, they can tell us nothing about the effect this type of input may have relative to the effects of other sources of input.

On the positive side, though, I did find evidence to support a change in perceived performance as a result of a negotiation sequence in some, though not in a large number, of my subjects. Yet the most interesting finding contradicts Gass and Varonis (1989) who found that in phonetic and lexical domains, the large majority of the repairs were in the direction of the target language. I found this to occur barely half the time, in those cases where an immediate effect was found, and not to persist to any great extent, as noted in the presence of only three instances out of fifteen where a residual positive effect was found.

While this study suffered from a major methodological flaw, and seemed to provide little powerful evidence for any of the effects sought in the research questions, it has served to generate two major observations regarding modified interaction. First, from the narrow perspective of productive effects of conversational adjustments, the study shows that there may be less of the kind of improvement toward target-like pronunciation than the qualitative research has heretofore led us to believe. This is evidenced by the likelihood of the L2 speakers to repair their performance away from the target as often as toward it. Second, from the wider perspective of the general environment from which the learners can access input, it appears that exactly the kinds of input held to be
necessary for their acquisition of the L2 may not be available to them. These observations force us to question whether these kinds of interactions are, indeed, necessary and sufficient conditions for L2 acquisition. If we find evidence of acquirers being successful without finding evidence of the types of input deemed to be essential within the modified interaction theory of SLA, then perhaps we need to reevaluate the assumptions this theory makes about the primary necessity of such interactions.
Notes

1. I use the term performance slip to refer to a momentary, productive problem, similar to a slip of the tongue, a hesitation, or a tip-of-the-tongue phenomenon as experienced by any NS or NNS. The presence of a performance slip is not taken to reflect anything of the state of the learner's L2 knowledge system.

2. The technical description of the editing and construction of stimulus tapes is the same as that for the major study and is presented in detail in Chapter Three—Methodology.

3. Hereafter, scores will be reported in raw score figures only (ratio: ____/30).
This research was undertaken in three distinct stages. The first involved the selection and audiotaping of NNS subjects. This will be called the initial data-gathering stage. The second stage, involving only the researcher and the raw data collected in the first stage will be called the data selection stage. Here a number of specific items were selected from the vast spoken corpus of NNS speech for a NS listener judgment task. This NS listener task constituted the third stage in the methodology. Each of these stages will be discussed individually below.

Initial Data-gathering

Subjects

There were 23 NNS subjects and 23 NS subjects in the initial data gathering. The NNS were selected from the international graduate student population enrolled in a Spoken American English class at Louisiana State University. The criteria for selection were: Chinese (Mandarin) L1 as self-reported; and TOEFL scores between 540 and 583, indicative of intermediate to high-intermediate English language proficiency. The subjects were assigned to four treatment conditions (I-IV), three with 6 subjects each and a fourth control group with 5 subjects.\(^1\) As measured by their mean TOEFL scores, the four groups had mean equivalent English language proficiency (I: mean = 561.2; SD = 13.9; II: mean = 563.3; SD = 14.5; III: mean = 567.4; SD = 12.1; IV: mean = 562.8; SD = 12.0). An analysis of variance (ANOVA) was used to ensure that no significant difference
existed between the groups ($F_{[3,19]} = .175; \text{n.s.})$. All subjects participated voluntarily as part of their regular course work and during their scheduled class time.

The 23 NS subjects were undergraduates who volunteered to participate as sole audience members for each of the NNS subjects in one segment of the initial data gathering. The sole criterion for their participation was that they were native English speakers, and efforts were made to ensure that they were representative of the general undergraduate population at L.S.U.—that is, that none of them were non-traditional (mature) students or students who reported consistent or daily interactions with speakers of English as an L2.

Procedures

The NNS task was to present two different mini-lectures on the subject of the metric system, each approximately six minutes long, for audiotaping. The mini-lecture activity is not alien to these students, as a great deal of their class time in their Spoken American English course is devoted to presentations of academic material for both audio- and videotaping. This specific task differed from standard class activities, however, in that all the subjects were provided with identical information for their presentations, and were instructed to focus their presentations to include key vocabulary and phrases.

The first mini-lecture was audiotaped twice for each subject, first alone in a small office, then repeated immediately after an intervention for an audience of a single NS listener. The speakers moved to different, yet similar, rooms for the repeated taping. The interventions, to be discussed in detail below, reflect...
pedagogical practices used in the ESL classroom. Two days later, and under the same physical conditions, the second mini-lecture was recorded. It was presented as a continuation of the first mini-lecture, and was concerned with the same subject matter.

Table 3 illustrates the organization of the distribution of materials, the audiotaping, and the intervention sessions for the NNS subjects. While the entire process took place over the course of eight days, the NNS subjects were required to be present only during their scheduled class time and the NS subjects only on Day 6, at a time mutually agreed upon beforehand.

Table 3
Timeline for initial data gathering

| DAY 1 (Thursday) | Distribution of information packets and instructions to NNS subjects during class time |
| DAY 6 (Tuesday) | First audiotaping of mini-lecture |
|                 | Interventions |
|                 | Repeated audiotaping to NS audience |
|                 | Distribution of information packets for Day 8 |
| DAY 8 (Thursday) | Final audiotaping |

Materials

On Day 1, all participating NNS subjects were given a handout by their instructors. This handout consisted of four pages: one of general instructions;
two with information about the metric system (entitled "An Introduction to the Metric System"), and a fourth page listing the key vocabulary and phrases which the subjects were instructed to focus on in their presentations. Thus, the NNS subjects were given all the information they required to make a brief presentation on this subject, which was familiar to all of them. In addition, they were told to include all of the key vocabulary and phrases in their presentations. A copy of this initial informational handout appears as Appendix A, and the instructions to all NNS subjects were as follows:

In this packet you will find a written text from which to make a brief presentation, or mini-lecture. Your presentation should be no more than 6 minutes long, and will be recorded on an audio tape.

You will be recording the mini-lecture at least twice on Tuesday, Nov. 6th during class time. Think of this presentation as a tape-recording of a lecture to be given to a freshman class—as if you are leaving the tape to be played to the class in your absence. You may organize the presentation any way you wish, providing you follow these guidelines:

1) You MUST NOT READ a prepared text. Instead, think of the attached information as part of the textbook for the course from which you would prepare a classroom lecture.

You must prepare an outline to speak from.

2) You must be sure to include the KEY VOCABULARY, CONCEPTS AND PHRASES which are provided on a separate sheet and marked in bold letters in the written text.

3) Remember that you will be addressing first-year undergraduates whose
familiarity with the subject is limited. Also remember that you will not be present when the tape is played. You have only 6 MINUTES to get your points across clearly.

Included as Appendix B is a copy of the task materials given to the NS subjects who participated as listeners for the repeated audiotaping of the first mini-lecture on Day 6. These listeners were given the following instructions:

You will be listening to a brief presentation about the metric system. Please listen carefully but DO NOT interrupt or ask questions. Please DO NOT use facial expressions to show you do not understand—it may be interpreted as an interruption by the speaker.

While you are listening, please put a check next to any of the following words or phrases that you hear. THANK YOU.

The purpose behind the NS materials was to provide a live audience member who was listening to the NNS presenter with a specific task to perform. While the first taping had no audience member present, the NNS subjects were told to consider the taped product as if it were to be played for a class in the absence of an instructor. Since it was felt that a repeated taping under the same conditions might appear to be of questionable purpose to the NNS subjects, they were provided with an audience of the type they might encounter in a lecture setting, that is, a student who was physically present, yet whose active participation in the lecture was not required. As is often the case in such lecture situations, the students are busy carrying out their own tasks such as taking notes, while the instructor follows his or her own lecturing/instructing agenda. Therefore, the subjects sat in a face-to-face arrangement, the NNS presenter could see that the
NS listener clearly had a task to complete, but could not see the actual materials or identify the specific task which was being performed by the NS listener.

After the initial tapings, interventions, and repeated tapings (with the NS subjects) were completed on Day 6, the NNS subjects were given a second handout, again four pages long and comprised of an instruction page, two pages of information to be presented on the topic "Some Simple Conversions Using the Metric System," and a page containing exactly the same list of key words and phrases as in their initial handout. This second handout is included as Appendix C. The subjects were instructed to return on the following Thursday (Day 8) to tape another mini-lecture, to be presented as a continuation of their first lecture.

When the subjects returned on Day 8, they were asked to present their mini-lecture only once and it was audiorecorded under the same conditions as the initial audiotaping. All tasks involving the NNS population were undertaken during the regular class time when these subjects would normally be in their Spoken American English class. The researcher was not present during any of the audiotapings.

Interventions

There were four intervention conditions in this study, each reflecting some aspect of classroom practices in the field of English as a Second Language and foreign language learning in general. They were: I) a teacher-directed vocabulary-practice drill condition; II) a self-study session condition; III) a no intervention control condition, and; IV) a negotiated interaction condition, prompted by requests for clarification. Conditions I and IV required the
participation of an instructor, not the researcher, who led the drill and prompted for clarification, respectively. While these were instructors of sections of the Spoken American English classes, neither of them were instructors of the particular students in their respective interventions.

The teacher-directed vocabulary drill was limited to ten minutes, during which time the instructor modelled the key vocabulary and phrases and an additional eight sentences using the key vocabulary. The subjects repeated each phrase, word or sentence immediately after hearing the instructor. The instructor was permitted to give any feedback she deemed appropriate. As was noted in the previous chapter, this modelling and repetition has long been a feature of second language teaching practices, where "foreign language learning is [believed to be] basically a mechanical process of habit formation" (Rivers, 1964, p. 19), and the teacher's role is to model the target language, correct learners' performance, and "keep the learner attentive by varying drills and tasks and choosing relevant situations to practice structures." (Richards & Rogers, 1986, p. 56).

The negotiated interaction condition was also limited to ten minutes, and required the subjects to repeat their mini-lecture presentations for an instructor who was trained to prompt for clarification of the key words and phrases. The requests for clarification were of the types: "What?", "Excuse me?", "Sorry, could you repeat that?", and "What was that again?". Many of the interaction sequences involved two clarification requests, that is, the NS utterance followed by a NNS response which was, in turn, followed by a further clarification request. Extract 4 is typical of the Condition IV negotiated interaction involving two clarification requests:

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As was noted in the previous chapter, such clarification requests have been identified in NS-NNS discourse as “indications to the learner that something has gone wrong in the transmission of a message” (Schachter, 1984, p. 172) and in NS-NS conversations as utterances which seem “to indicate a problem in processing the previous utterance” (Christian, 1983, p. 260). As such, they are seen to be mechanisms which focus the learner’s attention on the problematic utterance and somehow provide him with a means of repairing towards the acquisition of the target form. While the instructor participating in this interaction attempted to prompt clarification on as many of the key words and phrases as possible, it was not feasible to ensure that each item in the key vocabulary was prompted.

The self-study intervention condition lasted thirty minutes and required the NNS subjects to listen to a practice tape and repeat the words, phrases and sentences after hearing each of them on the tape. The voice on the tape was that of a NS female ESL instructor unknown to the subjects. While the actual items drilled were the same as those drilled in Condition I, the setting and the subjects’
focus differed in significant ways. The subjects worked on their own in this condition, with neither audience nor teacher present. They were instructed to listen to the prepared tape, on which could be heard instructions for the task, and to simply repeat twice each utterance they heard. They were also provided with a script so that they could read, as well as hear, what they were required to repeat. This intervention required the subjects to practice the entire script of key utterances twice, but they were given no audio feedback as to the correctness of their utterance, nor were they given any opportunity to hear their own utterances on tape in contrast to those of the NS on the tape. This was a simple "listen and repeat" vocabulary practice, of the type that is available to, and often required of, most second language students in language lab settings. This format is commonly presented in commercially promoted self-study tapes for learning foreign languages, such as those produced by the Berlitz Schools. The additional time provided for this intervention (thirty minutes rather than ten) was intended to reflect the fact that a self-study activity has an inherent tendency to last much longer than any activity requiring the presence of an instructor.6

In the control condition, there was no aggressive intervention, although the subjects were given ten minutes (the same amount of time given to Condition I and IV interventions) to look over their notes for the second taping of their mini-lectures. This intervention, too, has its correlate in many second language classrooms where students are given time to revise or reflect on their spoken presentations individually without the benefit of a teacher’s attention, often because the teacher’s classroom agenda does not permit individual attention to every student every day.
Each subject underwent his particular intervention in the same office where he audiotaped his mini-lecture for the first time. After the intervention, each subject moved to another similar office to make his presentation to the NS listener, as described earlier.

Table 4 shows the recorded data gathering process on Day 6 and Day 8, according to the four conditions.

Data Selection

There were no subjects physically present for this stage in the methodology. The audio tapes of the NNS subjects’ performances on all three audiotaped presentations were used as a pool of spoken data from which the researcher selected a number of spoken items for each individual speaker. These items were tokens of each speaker’s production of the key words and phrases at T1, T2, and T3. Taking ten tokens from the three different occasions provided three versions of the speaker’s pronunciation of each of ten different linguistic items which had been targeted as key vocabulary in the materials. For example, the key word “Celsius” was identified in the spoken presentation of a speaker at T1, at T2, and at T3, allowing a comparison of the pronunciation of that utterance on three occasions.

Items were selected on the following bases:

(a) they appeared at all three recording times for each individual speaker;
(b) their recording occurred with least interference from ambient (room) noise, and;
(c) their appearance at all three times was in the same linguistic context.
Table 4

Recorded Data Gathering Design

<table>
<thead>
<tr>
<th></th>
<th>Day 6</th>
<th>Day 8</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>( T_1 )</td>
<td>Intervention</td>
</tr>
<tr>
<td>I</td>
<td>initial taping</td>
<td>individual teacher-fronted vocabulary practice (10 minutes)</td>
</tr>
<tr>
<td></td>
<td>( n=6 )</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>initial taping</td>
<td>individual self-study with tape-recorded vocabulary for practice (30 minutes)</td>
</tr>
<tr>
<td></td>
<td>( n=6 )</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>initial taping</td>
<td>no intervention, reflection-revision time provided (10 minutes)</td>
</tr>
<tr>
<td></td>
<td>( n=5 )</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>initial taping</td>
<td>repeat taping with modified interaction (clarification requests)</td>
</tr>
<tr>
<td></td>
<td>( n=6 )</td>
<td>(10 minutes)</td>
</tr>
</tbody>
</table>

\( T_1, T_2, T_3 = \) time 1, time 2, time 3

I, II, III, IV = Condition I, Condition II, Condition III, Condition IV
For example "one one-thousandth" may have been taken from one speaker's corpus in the context "milli- means one one-thousandth" in all three instances. In another speaker's corpus, this same item may have been taken from the phrase "a millimeter is one one-thousandth of a meter."

This selection process was maintained to minimize the influence of any strong contextual effects on the tokens selected. On those infrequent occasions when a token appeared more than once in the same linguistic context at any single taping time, the first occurrence of the token was selected in order to avoid any accidental biasing on the part of the researcher, regardless of any difference in quality the researcher may have perceived between tokens. In effect, all attempts were made to select items without bias toward a token which sounded more native-like to the researcher.

**Item Selection**

The audiotaped items were edited using the MacSpeech Lab 2.0 software system operating on a Macintosh Plus microcomputer. A TEAC V-707 RX stereo cassette deck was used to play back the recordings. The line was output low-pass filtered at 10,000 Hz using a TTE 411 AFS amplification/filtering system. The resultant signal was digitized at 20,000 samples per second. This filtering was done to reduce the effects of aliasing upon the spectral characteristics of the waveform. Once recorded and stored in memory, the items, which appeared on screen in time waveforms, were visually marked and isolated using markers provided by the software. The items were then normalized with respect to the largest amplitude to remove bias as a result of varying amplitudes. Speakers

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were assigned an identifying letter, A through W for speakers one through twenty-three, respectively. Each utterance for each speaker was numbered one through ten for the ten utterances being selected; and each utterance was coded $T_1$, $T_2$, or $T_3$, reflecting whether they occurred in the first $T_1$ (pre-intervention), repeated $T_2$ (post-intervention), or final $T_3$ (Day 8) taping.

**Randomization and Construction of Stimulus Tapes**

Twenty different stimulus tapes were prepared for the NS listener judgment tasks. The NS judges' task was to listen to pairs of utterances and choose which token of the same utterance in each pair sounded closer to native English pronunciation. The pairs consisted of two tokens of a single word or phrase, each pair reflecting a comparison of a $T_1$ token with a $T_2$ or $T_3$ token. Each pairing randomly appeared in the stimulus task three times. Thus for each utterance there were three occurrences of the pairing comparing $T_1$ performance with $T_2$ performance, and three pairs comparing $T_1$ performance with $T_3$ performance. The pairs appeared three times to eliminate any potential bias.

There was a total of twenty-three speakers from whose recorded speech ten utterances were selected for the task, giving a total of 230 utterances. For any single utterance (item) there were three instantiations appearing in either one of two pairings. Thus, with the two pair types and the 230 base items there was a total of 460 pairs to be judged. As each pair appeared three times in the task as a counterbalance against biased effects, there was a grand total of 1380 ($460 \times 3 = 1380$) pairs to be presented to the NS listeners.

With such a large number of stimuli, it was decided that each NS judgment
task would consist of 69 pairs of items on three pages of 23 item pairs each (one item pair from each speaker per page). The judgment task required the listener to choose either A (first occurrence in the pair) or B (second occurrence in the pair) as sounding the closest to NS English. The item pairs for the stimulus tapes were manually randomized as follows.

Pairs were constructed with a T₁ token followed by a T₂ token, a T₂ token followed by a T₁ token, a T₁ token followed by a T₃ token, or a T₃ token followed by a T₁ token. These were randomly arranged on the twenty tapes so that each NS listener heard each speaker three times, but never heard the same tokens of any item from one speaker in more than one pair. Thus, one NS listener might have heard Speaker A in a T₁ and T₃ contrast pair of the word "celsius"; and heard the same speaker in a T₁ and T₂ contrast pair of the word "temperature"; the final time this particular listener heard speaker A, it might have been T₁ and T₂ contrast pair of the word "fahrenheit". But no NS listener ever heard, for example, Speaker A in a T₁ and T₂ contrast pair of the word "celsius" and the same speaker in a T₁ and T₃ contrast pair of the same word.

The limitations of the spoken corpus were such that certain phrases and words selected were the same for a number of speakers. For example, "celsius" and "metric system" were two items which were selected for more than 70% of the speakers, that is, for 17 of 23 speakers. On those occasions when an item occurred more than once, for example, speaker A's "metric system" and speaker J's "metric system", they were maximally separated by at least seven other items. Appendix D is a representative sample of one of the stimulus response sheets.
Construction of Stimulus Tapes

All stimulus tapes were constructed using the same hardware and software as were used for the selection of items. The first member of an item pair was retrieved from a floppy disk and displayed on screen. Appended to this was a one-second inter-stimulus interval, and, following that, the second member of the item pair. In addition to the one-second interval between members of each pair, a three-second interval was provided between each pair. Each tape also included spoken instructions for the task, instructions to turn the page at the appropriate time, and a final message thanking the NS subjects for their participation.

NS Listener Judgments

Subjects

There were 120 subjects (6 for each of 20 stimulus tapes) for the NS listener judgments, all of whom were undergraduates who volunteered to participate. All were English NSs and were required only to be present for approximately fifteen minutes at a time agreed on prior to participation in the task.

Task

Six subjects were required to listen to each of the twenty stimulus tapes. Their task was to listen to the utterances as they appeared in pairs, and to circle either "A" or "B" to indicate their judgments as to the native-like performance of the speakers. If they felt the first occurrence of an item in a pair was most native-like, they circled "A", if they felt the second occurrence of an item in a pair was most native-like, they circled "B". Each subject listened to the stimulus tape individually, using headphones, in one of the same small offices where the
initial data gathering took place. They were given verbal instructions only to the effect that there were no correct responses, and all other instructions were presented to them aurally on the tape, and as the first page of the response sheets. Their instructions were as follows:

You will hear pairs of words and pairs of phrases spoken by non-native speakers of English. After each pair you are to choose which in each pair sounds closest to native speaker English, that is, which one in each pair sounds closest to the English you hear everyday.

Your answer sheets will have the words and phrases typed on them, with the letters A and B below each.

If you think the FIRST time is closest to native English, then circle A.

If you think the SECOND time is closest to native English, then circle B.

You must choose one or the other in each pair.

You may adjust the volume on the tape player, but DO NOT stop the tape at any time.

Here are three practice pairs. After each pair, please make your choice of either A or B.

While listening, please try to focus on the words and phrases as written and spoken, and NOT on the quality of the sound recording.

1. celsius
   A  B
2. derived units
   A  B

3. metric system
   A  B

You have three pages to complete. At the end of each page you will
hear instructions to turn to the next page.

Please turn the page now and begin.

After completion of this task, the NS subjects were free to leave.

Once six response sheets for each of the twenty stimulus tapes were
completed, the responses were counted and raw scores were tabulated, representing
NS judgments of tokens at T_1 versus T_2, and T_1 versus T_3 as the most like native
English speaker performance. These results and their significance will be
discussed in the next chapter.
Notes

1. This study was not designed with a smaller number of subjects in this condition. A sixth subject was involved, but as the result of a technical problem, there is no taped record of this subject's repeated taping. Although a more balanced picture might have been drawn with data from a sixth subject in this control condition, it was felt that this accidental occurrence would not affect the larger study as a whole. In fact, it was felt that the possibility of an effect resulting from having a sixth subject participate at a different time and under somewhat different conditions should be avoided. The most notable adverse effect would be the NNSs having benefit of discussion of the experience with other participants in advance of presenting, thus it was felt that, as a control, this group could withstand the effect of a smaller population.

2. The information for this was taken from the Encyclopedia Britannica and the Encyclopedia Americana, and, as can be seen in the appendix, comprised a simple overview of the subject matter. The textual material could as easily have been gleaned from an undergraduate textbook of the kind the subject TAs would use in their own classes.

3. Byrd, Hurt, and Constantinides (1988) note that "a distracting feature of the lecturing of foreign teaching assistants (FTAs) is repeated mispronunciation of central vocabulary," and that an essential part of FTA training must be the selection and practice of key vocabulary.

4. It is often the case that international students, used to using the metric system in their home countries, question the use in the United States of a system as difficult as the customary system of measures. They are often surprised, too, to find that their students may have only a very brief acquaintance with the metric system. In part, this observation led me to choose the metric system as the subject matter for the mini-lecture presentations. It is familiar to the subjects, simple enough to talk about on an elementary level, and its applicability to scientific endeavors reflects the kind of teaching these ITAs may be required to do during their tenure at the university.

5. While the audiolingual methodology which encouraged the use of pattern practice has been eclipsed by the now popular communicative methodologies, the basic pattern-drill practice is still a feature of many current ESL and second language textbooks.

6. This extra time component is perhaps better exemplified by the observation that pattern practice activities are often assigned as homework, or as labs conducted separately from actual class time in many foreign language classes.
7. The analog input signals range from -10 Volts to +9.995 Volts, giving a total voltage range of 19.995 Volts. The normalize command "amplifies the segment until the point with the largest value touches either the +10 V or -10 V bound." (Hancock, 1986, p. 44). That is, normalization takes the highest amplitude in a signal and maximally increases it to within the -10 V to +9.995 V window, and all other amplitudes are increased relative to this. For example, if the largest amplitude value were -5 V, the normalization process would amplify this utterance by a factor of 2 (to reach a -10 V maximum), and all other amplitudes would also be increased by 2. Normalization was applied to each item in order to bring all items to within the same amplitude range and to avoid any judgment effects unrelated to the actual pronunciation of utterances.
Chapter Four
Results

The NS listener judgments were counted and tabulated by condition and by individual speaker. As already described, each speaker utterance was present in the judgment task three times in random $T_1$ and $T_2$ pairings and three times in random $T_1$ and $T_3$ pairings, and each item pair was judged by six different listeners. Thus, for each utterance a total of thirty-six judgments were made, eighteen for the $T_1$ and $T_2$ contrasts and eighteen for $T_1$ and $T_3$ contrasts. With ten utterances per speaker, there was a total of 180 judgments of $T_1$ versus $T_2$, and a total of 180 judgments of $T_1$ versus $T_3$, for a total of 360 judgments for any individual speaker. As the judgment task required listeners to choose either $T_2$ or one of the subsequent occurrences of any item as being closer to the target form, and as the focus of this study is to examine the perceived change in performance after an intervening condition, the numbers presented in the following tables reflect the choices of either $T_2$ or $T_3$ over $T_1$. It is worth restating here the four distinct effects sought as outlined in the research questions (RQs), and keeping in mind that these effects are stated positively in that they are intended to measure only the perceived effects of the different input types in a more target-like direction:

RQ1. An immediate effect, being a preference for $T_2$ over $T_1$ tokens of an item;
RQ2. A delayed effect, being a preference for $T_3$ over $T_1$ tokens of an item;
RQ3. A residual effect, being a preference for $T_3$ tokens for those items
which demonstrated a preference at T2, and;

RQ4. A restructured effect, being a preference for T3 tokens for those items which demonstrated a negative immediate effect.

Moreover, the inference underlying the NS judgment task is that the NS perception of the pronunciation of a T2 token as better than a T1 token indicates a change in NNS performance toward the target at T2; and, accordingly, the NS perception of better pronunciation of a T3 token than a T1 token indicates improved performance at T3.

Table 5 presents the results of the judgment task for Condition I. The column headed T2 presents the percentage score of NS judgments for the repeated

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>T2</th>
<th>T3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>53.8</td>
<td>57.7</td>
</tr>
<tr>
<td>B</td>
<td>52.7</td>
<td>50.0</td>
</tr>
<tr>
<td>C</td>
<td>51.1</td>
<td>49.4</td>
</tr>
<tr>
<td>D</td>
<td>37.2</td>
<td>53.8</td>
</tr>
<tr>
<td>E</td>
<td>50.0</td>
<td>46.1</td>
</tr>
<tr>
<td>F</td>
<td>51.6</td>
<td>41.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>49.4</td>
<td>49.7</td>
</tr>
<tr>
<td>SD</td>
<td>5.59</td>
<td>5.29</td>
</tr>
</tbody>
</table>

Table 5
Ratio (%) of Preference for T2 and T3—Condition I
taping and the column headed $T_3$ presents the percentage score of the NS judgments for the final taping.

Table 6 presents the results of the judgment task for Condition II. The column headed $T_2$ presents the percentage score of NS judgments for the repeated taping and the column headed $T_3$ presents the percentage score of the NS judgments for the final taping.

Table 6

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>$T_2$</th>
<th>$T_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>65.0</td>
<td>53.3</td>
</tr>
<tr>
<td>H</td>
<td>66.6</td>
<td>56.6</td>
</tr>
<tr>
<td>I</td>
<td>45.5</td>
<td>41.1</td>
</tr>
<tr>
<td>J</td>
<td>55.0</td>
<td>58.3</td>
</tr>
<tr>
<td>K</td>
<td>60.5</td>
<td>50.0</td>
</tr>
<tr>
<td>L</td>
<td>50.5</td>
<td>56.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>57.2</td>
<td>52.7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7.6</td>
<td>5.83</td>
</tr>
</tbody>
</table>

Table 7 presents the results of the judgment task for Condition III. The column headed $T_2$ presents the percentage score of NS judgments for the repeated taping and the column headed $T_3$ presents the percentage score of the NS
judgments for the final taping.

Table 7

Ratio (\%) of Preference for T_2 and T_3—Condition III

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>T_2</th>
<th>T_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>41.6</td>
<td>60.0</td>
</tr>
<tr>
<td>N</td>
<td>53.6</td>
<td>49.4</td>
</tr>
<tr>
<td>O</td>
<td>41.1</td>
<td>32.2</td>
</tr>
<tr>
<td>P</td>
<td>46.1</td>
<td>41.1</td>
</tr>
<tr>
<td>Q</td>
<td>44.4</td>
<td>37.7</td>
</tr>
<tr>
<td>Mean</td>
<td>45.3</td>
<td>36.8</td>
</tr>
<tr>
<td>SD</td>
<td>4.51</td>
<td>9.72</td>
</tr>
</tbody>
</table>

Table 8 presents the results of the judgment task for Condition IV. The column headed T_2 presents the percentage score of NS judgments for the repeated taping and the column headed T_3 presents the percentage score of the NS judgments for the final taping.

An analysis of variance for the factor of subject group (ANOVA) was conducted using the individual percentage scores of the T_2 responses (Tables 5–8), yielding $F = 3.38$; $df = 3, 19$; $p < .05$, determining that there was a significant difference between at least two of the four conditions. Further, a Tukey’s HSD Test ($Q^* = 9.9$) indicated that the critical difference is exceeded only between
Table 8

Ratio (%) of preference for $T_2$ and $T_3$—Condition IV

<table>
<thead>
<tr>
<th>SPEAKER</th>
<th>$T_2$</th>
<th>$T_3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>51.6</td>
<td>36.1</td>
</tr>
<tr>
<td>S</td>
<td>53.8</td>
<td>59.4</td>
</tr>
<tr>
<td>T</td>
<td>48.3</td>
<td>28.8</td>
</tr>
<tr>
<td>U</td>
<td>55.0</td>
<td>55.0</td>
</tr>
<tr>
<td>V</td>
<td>57.7</td>
<td>57.7</td>
</tr>
<tr>
<td>W</td>
<td>43.8</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Mean 51.7 47.8
SD 4.57 11.45

Condition II and Condition III. The pairwise comparison of means shows that there were no significant differences between Condition I and any other condition, nor between Condition IV and any other condition. While this indicates that, as a group, Condition II performance at $T_2$ was judged to be significantly more target-like than the Condition III performance at $T_2$, there is no indication that any other preference exists with respect to $T_2$ performance.

An analysis of variance for the factor of subject group (ANOVA) was conducted using the individual percentage scores of the $T_3$ responses, (Tables 5–8) yielding $F = .817; \text{n.s.}$, indicating that there was no significant difference between any of the four conditions at $T_3$. It appears that the variance among subjects
within any particular condition is so large that it confounds any measure of variance between the condition groups. While there is little statistical evidence, by condition, of more target-like performance as judged by the NS listeners (with the exception of the $T_2$ difference between Conditions II and III) there are some groups tendencies that bear discussing.

**Observations of Perceived Group Performance**

The following discussion is based on observations of trends and tendencies in the judgments of the NS listeners, with no claims for statistical significance. One group observation to note is the pattern of judgments of target-like pronunciation between the repeated ($T_2$) and the final ($T_3$) taping. In all but one condition there was a decrease in mean preference from $T_2$ to $T_3$. In the case of Condition II, the NS judges found the $T_3$ pronunciation to be only slightly better than the $T_1$ (Mean $= 52.7\%$), whereas the $T_2$ pronunciation had been judged to be much more target-like. It appears that any improvement that may have been effected at $T_2$ has been lost by $T_3$. The same pattern is found in Condition IV, but with the preference for $T_2$ so close to the 50% baseline, and with a decrease to only 47.8% at $T_3$, we must consider this as a virtual "no change" situation, as is the result in Condition I, where there is only a 0.3% increase from $T_2$ to $T_3$. In all, for Conditions I, II, and IV, it is apparent that whatever change in perceived performance is achieved immediately following the interventions, there is no evidence for a residual group effect, nor for a restructured group effect.

The most interesting aspect of this look at change over time between $T_2$ and $T_3$ can be found in Condition III. Note that the judges rated $T_2$ performance to be
worse than T₁, with a mean of 45.3% choosing T₂ over T₁. This trend continues to T₃, where a mean of only 36.8% chose T₁ production over Tᵢ. As we might expect, this result occurred in the no aggressive intervention condition, where subjects were given ten minutes to look over and think about their presentations before performing again, and underwent no controlled linguistic or interactive intervention. The prediction is that this condition, with no intervening linguistic treatment or practice, would result in at least no effect, but the data here show a more powerful effect. When left to their own devices, without NS input, these subjects were judged not only to have not improved, but to have gotten worse. Clearly, the implication is that those learners provided with no L2 input will not generally improve, and in fact, that learners left to their own devices may indeed be practicing their mistakes until they get them perfect.

With respect to the types of effects that the research questions set out to investigate, Table 9 presents the amount and type of effect found in each condition. For example, in Condition I there were three immediate effects, one residual effect, and one restructured effect. In Condition III, there was judged to be only one immediate and one restructured effect. It is worth noting that the two most frequently occurring effects (13 instances out of 16 total observed effects), immediate and residual, are those where at least T₂ performance was judged to be more target-like than Tᵢ, while the effects which depend on target-like T₁ performance without target-like T₂ performance as a precursor are the least common. It may be the case that, for any of the input types to have a positive effect, this effect must be at the least, immediate, but remembering that, in this analysis, an immediate effect is exclusively immediate, and does not include the
Table 9

Distribution of Effect Types by Condition

<table>
<thead>
<tr>
<th></th>
<th>Immediate</th>
<th>Delayed</th>
<th>Residual</th>
<th>Restructured</th>
</tr>
</thead>
<tbody>
<tr>
<td>C I</td>
<td>3</td>
<td>-</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C II</td>
<td>1</td>
<td>1</td>
<td>3*</td>
<td>-</td>
</tr>
<tr>
<td>C III</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>C IV</td>
<td>1</td>
<td>-</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>1</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

* Two speakers counted as exhibiting a residual effect exhibit what I consider to be a “weak” residual effect, that is, their performance at T₃, while judged to be more target-like than that at T₁, was not judged to be as target-like as their performance at T₂.

Persistence of more target-like pronunciation to T₃. That is, it appears that the tendency is for an effect to be perceived at T₂ for there to be an effect at T₃, hence the few examples of a restructured effect. One of the limitations of the present investigation may be that only a true longitudinal study will capture evidence of a restructured effect. I will return to this question later.

It appears that a perceived positive effect (toward target-like pronunciation) at T₂ might be a precondition for a continued positive effect. That is, if we do not observe an initial improvement, we may not expect to find an improvement at a later time. Still, as these observations are only speculative, and based on a very
small sample, I would not want to make any claims as to their validity—they are merely observations. In addition, it is apparent that the Condition III group exhibits less improvement overall, with only two out of five speakers in the group having undergone any change in perceived pronunciation toward the target.

While there appear to be group tendencies in the effects of certain interventions, ultimately, the only significant claim to be made here is that the $T_2$ performance of subjects who underwent the Condition II intervention were judged by NSs to be producing more target-like utterances than those who underwent Condition III. Interestingly, Condition I and Condition IV have shown no overall group result either toward or away from the target. The "no-effect” result of the Condition IV, negotiated interaction, intervention challenges a prevailing theory in SLA, that negotiated interactions are both beneficial and necessary for L2 acquisition. While there are certain limitations to the present study, which I will return to later, there does not appear to be strong evidence for the benefits of negotiated interaction, at least at the group level. Considering the wide within-group variation, it might be fruitful, and would certainly be pedagogically interesting to examine the NS perceptions of the learners’ performance at the individual level. The following chapter is a more speculative, hence, descriptive analysis of the results of the NS perception task.
Chapter Five

Individual Variation

Having analyzed the results at the group level, and finding no strong evidence by condition of any of the four possible effects outlined above, I would now like to take a more narrow focus to consider how the subjects in this study reacted to the different learning experiences they had in Conditions I–IV. As a number of writers on language learning have pointed out (Ellis, 1990; Fillmore, 1979; Naiman, Fröhlich, Siëna & Todesco, 1978; Rubin, 1975; Skehan, 1989; Wenden & Rubin, 1987) the process of second language learning is very much an individual experience, determined in part by the complex interaction of an individual personality, targeted aspects of an L2, and particular learning events. As Selinker (1972) notes, "a theory of second language learning that does not provide a central place for individual differences among learners cannot be considered acceptable" (p. 191, n. 8). Although the present study did not set out to determine the sources of individual variation in the spoken performance of any one learner, given the wide within-group variation and the lack of any powerful group effects, it was felt that it would be worthwhile to examine the judged performance of the NNSs from an individual perspective.

The discussion to follow is descriptive, based on observation, and is representative of the type of discussion to be found in pedagogically focused reviews of what goes on in the L2 classroom. Indeed, second language teachers are typically more concerned with making the same sorts of perceptual judgments as the NS listeners in this study have made. Perceptions of improvement toward
target-like pronunciation (or of backsliding toward non-target like pronunciation) are the basis for both in-class activities and formal evaluation and assessment, and assessment is always about individual performance. Consequently, I will be taking a rather speculative view of how different individuals performed under the four conditions, given the results of the perception judgments.

In addition to some broad categories of individual personality such as extroversion versus introversion, and differing cognitive learning styles, it is important to keep in mind that any single learning event may be perceived by one learner as having a positive personal and linguistic effect, while for another learner, the same event may be viewed as face-threatening or not relevant to language learning. For example, in my discussion of the pilot study I observed what I interpreted to be avoidance behavior on the part of some of the NNSs in the wake of a request for clarification. While this is by no means an objectively ratified observation, it seems to indicate a reticence on the part of some learners who may be interpreting a request for linguistic modification as a challenge to the validity of their prior utterances. Yet, for other learners, or in other situations, this interactive move was met with an attempt to clarify the preceding utterance.

A factor which may influence the perceptions of individual learners at any point in their L2 development is their expectations of what the learning situation should be like. In an attempt to understand how the different individuals involved in this study reacted to the different conditions replicating various classroom learning events, I have represented the results of the perception judgments, by individual, in Figure 1. The baseline is set at 50%, the level which would represent no preference, by the NS perception judges, for the pre-intervention (T₁)
Figure 1. NS judgments of T1/T2 pairs and T1/T3 pairs by individual subject
or the post intervention (T₂ and T₃) pronunciations. When the bars go below the 50% baseline, they indicate the extent to which the T₁ forms were chosen in preference to the T₂ or T₃ forms for each individual subject. When the bars go above the 50% baseline, they represent the extent to which the T₂ and T₃ forms were chosen in preference to the T₁ forms for each individual subject.

One of the first notable aspects of Figure 1 is the fact that no one condition exhibits a unanimous direction of preference for all subjects. This may help to explain why there was no strong tendency found in the earlier analysis of the results by condition. As we might expect, the random assignment of individual subjects to groups did not create, within those groups, a set of individuals who all reacted in a similar way to the learning experience they encountered. Accepting this caveat, we can nevertheless note that there are some differences, by condition, in the number of individuals whose pronunciations at T₁ were preferred over T₂ or T₃, and vice versa.

Condition III has three individuals (Subjects O, P, Q) whose T₁ pronunciations were preferred over T₂, and moreover, were preferred to an even greater extent over T₃. For these three individuals, we can say quite categorically that, in the judgment of the native speakers, their pronunciation generally got worse rather than better after the T₁ point. For these three subjects, the effect of no aggressive intervention (or the silent revision condition) made them less likely to produce target-like pronunciations after the event than before. However, for the other two subjects, this pattern is absent. One subject (N) seems to have improved a little by T₂, but to have returned to virtually no difference by the T₃ point. The final subject in this condition, Subject M, demonstrates a restructured
effect, from being perceived to be less target-like at T₂, but much more target-like by T₃. Indeed, Subject M is the only individual in this Condition who was perceived to be better in the final recording (T₃) than in the initial recording (T₁). It would seem that it is the exceptional case (i.e. only one out of five) that individual students will become more target-like in English pronunciation when simply left to their own devices.

The only other strongly negative effects with regard to the perception of T₃ pronunciation occur under Condition IV, with individual subjects R and T. In this condition, it will be remembered, subjects were prompted with clarification requests during their presentations, in an attempt to replicate the effects associated with proposals regarding the benefits of modified interaction. For these two subjects (R, T), then, the effects of clarification requests on what they said turned out to be negative. Their T₃ pronunciations are deemed to be target-like much less often than their original T₁ pronunciations. As has already been argued with respect to the pilot study, this observed effect for these two individuals is not entirely unpredictable. If a clarification request prompts a speaker to change his pronunciation of an L2 form, it does not necessarily guarantee that the direction of change will be towards a more target-like form. In the case of Subjects R and T, the prompts to change appear to have occasioned a change which resulted in their T₃ pronunciations becoming less target-like than their T₁ pronunciations. It may be that the pattern of clarification request followed by confirmation check, which has been observed in NS/NNS talk, would be more beneficial, since the clarification request points to a need to change, then the confirmation check provides a target for the direction of change to go. I shall return to this
problematic outcome later.

While one subject (W) in condition IV has an initially negative effect from the intervention at \( T_2 \), that effect has disappeared by \( T_3 \). This individual, by exhibiting no difference between his \( T_1 \) and \( T_3 \) levels of target-like pronunciation, does not appear to have reaped any positive benefits from the interaction. In contrast, the remaining three individuals (S, U, V) in this condition demonstrate a consistent and positive effect at \( T_2 \) and \( T_3 \). For these individuals, the prompts to change their pronunciations during the interactive presentation have resulted in more target-like forms by the \( T_2 \) and, just as important, that increased level of target-like pronunciation has been sustained, or improved on, through the \( T_3 \) point. The residual effect in the performance of these individuals lends some support to those who have claimed that features of modified interaction are beneficial for second language learning. What we should note, however, is that those benefits only seem to accrue to some individuals, but not all, who experience modified interaction. Thus this intervention type was more successful than the no intervention condition, but it clearly is not a uniformly successful process for all participants.

Condition I seems to evidence the fewest changes as a result of an intervention. Designed to replicate the effect of teacher-led drills on the pronunciation of vocabulary items, Condition I is a small version of the kind of exercise which is very common in ESL pronunciation course materials. For one subject (A), this procedure seems to have resulted in a residual effect, with improvement at \( T_2 \) continuing to \( T_3 \). For one other subject (D), there is a perceived improvement towards the target at \( T_3 \), after a substantial decline at \( T_2 \).
This restructured effect, already noted for another subject (M), shows this individual, Subject D, appearing to react to the teacher-led pronunciation drill work by getting worse before he gets better. This phenomenon has been noted before in studies of pronunciation teaching (Yule, Hoffman & Damico, 1987) and has been described in terms of a disruption of established ways of pronouncing leading to a less stable performance, with increased non-target-like forms, before improvement can be observed. This same phenomenon could be posited for a number of the items in Study 1, where the instability of the pronunciation at T, (although in reaction to Condition IV-type input) was the most generalized pattern. One of the advantages of a study such as the one reported here is that it allows us to look at immediate effects and at restructured effects over a longer period of time than was provided in Study 1.

For the other four participants in Condition I, there is little change either toward or away from the target-like pronunciation. The most extreme falling-off in terms of the target pronunciation is seen in Subject F, whose T, performance as judged, substantially negates the minor improvement at T2. In general, then, we would conclude that the teacher-led drill condition is as likely to result in no perceived change, or a change in the direction of less target-like pronunciation, as to bring about positive change, with more target-like forms produced.

Condition II appears to be the one condition evidencing greater changes toward the target-like pronunciation, yet these are not consistent. The intervention in this condition consisted of a self-study session of ‘‘listen and repeat’’ involving the key vocabulary, and we might expect to find some evidence of an immediate change toward the target, if only as a result of practice. Indeed, in five cases
there was improvement toward the target pronunciation at some time after the intervention. Two subjects (G, H) exhibit a significant immediate effect of the intervention with a change toward the target at T₂ with a decreased, yet still positive effect at T₃. For these speakers, we might postulate that while the intervention has brought about a strong immediate change toward target-like production, the change that has persisted over time may reflect more clearly the degree to which a true change has been effected. The residual effect, though weak, may be indicative of some lasting improvement in that the initial practice effect has weakened and the residual effect is representative of a more stable and improved performance. (It may be just as likely to be indicating a slower falling-off in target-like pronunciation, similar to the patterns of Subjects B, C, F, K, and R, but not as far advanced. This possibility would have to be investigated in a longitudinal study.)

Subject K exhibits the same strong improvement at T₂, but this effect does not persist to T₃. Again, this drop in perceived target-like pronunciation at T₃ may indicate that the T₂ pronunciation is more a local effect of recent practice, and that any gains in production deemed to be target-like were short term. For this individual, we might suggest that the entire event, while providing the opportunity for some change in L2 performance, resulted in no long term change. Two other subjects (J, L) seem to have benefitted in an enduring way from this intervention. While the gain Subject L was perceived to have made at T₂ is considerably smaller than that for Subject J, both these individuals exhibit a powerful residual effect at T₃. For these individuals, it appears that the self-study drill has effected a positive change in pronunciation toward the target.
One individual (I) exhibits a pattern similar to that of Subjects O, P, Q, and T, in that his T₁ pronunciation was judged to be better than either his T₂ or his T₃ pronunciations. For this individual, the self-study intervention resulted in his being less likely to produce target-like forms than prior to any intervention. For this individual, the intervention had the same effect as did no intervention for four other individuals (Subjects O, P, Q, T). While it was initially encouraging to find evidence of immediate improvement after the self-study intervention in Subjects G, H, J, K, and, to some degree, L, in this condition, we must keep in mind that this degree of improvement was not maintained for each of these individuals, nor was it consistent throughout the group. The self-study condition provides evidence of more of what we might consider to be local effects of recent practice, as can be seen in the T₂ perceived performance of Subjects G, H, J, and K. Nonetheless, there is evidence in the perceived performance of Subjects I and K (and perhaps of Subjects G and H) that the benefits of learning events of the listen and repeat variety do not accrue to all learners to the same degree.

Keeping in mind that the results discussed throughout are based on the perceptions of the NS judges on a forced-choice stimulus task, we would expect that true random choice would indicate that the NS perceivers were unable to make a choice between any two tokens of an utterance by the NNSs. Were it the case that there was no perceptible difference between any two tokens of an utterance, we would expect to find the NS listener responses to be close to chance (50%). Yet, this expectation of randomness is not borne out. Indeed, there is a tendency toward a great deal of variation in the NS judgments of different NNSs,
indicating that there must be something in the NNS production which inspires the
NS listener judges to choose one of the utterances as better than another.
Prompted by this examination of individual learner performance, an examination of
the extent to which the NS judges' results deviated from random choice (50%) was undertaken. As it can be assumed that perception task scores close to the
50% baseline will not show significant deviation from chance, six individuals were
chosen for inclusion in this analysis (D, G, H, O, R, T) because their performance
at T2 or T3 was judged to have been at the extremes, either toward or away from
the target. One sample t-tests were undertaken, using the NS responses to each
utterance by each speaker. (As noted previously, each speaker provided ten
utterances for judgment, and each of these utterances was judged eighteen times at
T2 and eighteen times at T3.) Table 10 presents the results of the t-tests.
Speakers are identified by letter, followed by their percentage score from the NS
judgments. For speakers D, G, and H, these scores were achieved in the T2
judgment task, and for speakers O, R, and T, these scores were achieved in the T3
judgment task.

Only two of these speakers (O, T) exceeded the critical value, and both
showed a negative deviation from chance at the T3 judgment point. For these two
individuals, the no intervention (for O) and the modified interaction (for T)
conditions turned out to have significantly detrimental effects on pronunciation of
the targeted key vocabulary (as perceived at T3 versus T2). Interestingly, the one
positive change which comes close to significance is for Speaker H at T2. Thus,
the strongest positive individual change comes as a result of the self-study
intervention in Condition II.
Table 10
Results of t-tests on individual variance

<table>
<thead>
<tr>
<th>Speaker</th>
<th>Score</th>
<th>t [df = 9]</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>37.2%</td>
<td>-1.608</td>
</tr>
<tr>
<td>G</td>
<td>65.0%</td>
<td>1.674</td>
</tr>
<tr>
<td>H</td>
<td>66.6%</td>
<td>2.145</td>
</tr>
<tr>
<td>O</td>
<td>32.2%</td>
<td>-2.709*</td>
</tr>
<tr>
<td>R</td>
<td>36.1%</td>
<td>-1.908</td>
</tr>
<tr>
<td>T</td>
<td>28.8%</td>
<td>-4.593*</td>
</tr>
</tbody>
</table>

* p < .05; t_{crit} = 2.262.

Having reported the results of the NS listeners' judgment task by condition and by individual learner, it is apparent that no single intervention was beneficial to all the learners who experienced it. Moreover, the variation in perceived performance by individuals indicates that there may be more of an impact of individual differences than of instructional setting on the acquisition of L2 pronunciation. Whereas instruction in pronunciation has tended to be of the more traditional type (Gilbert, 1984; Prator & Robinett, 1985), or has been rejected in favor of methods encouraging communicative fluency over accuracy, it may be
that we need to address the question of individual differences more narrowly, focusing on detailed aspects of the language to be learned rather than on the broad strategies that have been identified heretofore.

More important with respect to the claims in input/interaction research is the evidence from both the group and individual analyses that there is no significantly perceived benefit to L2 pronunciation from the negotiated interaction sequence. While this is only a narrow examination of the phenomenon, it is, to my knowledge, the only empirical data available comparing the effects of conversational adjustments against other kinds of linguistic input. In the following chapter I will discuss some general observations and implications of these results.
Chapter Six

Concluding Remarks

These studies set out to examine the relationship between certain types of input available to learners of English as a second language and the kinds of modifications learners make to their output after exposure to the various input types. Within the domain of second language pedagogy and acquisition theory, a number of expectations have been generated and encouraged regarding the beneficial effects of specific aspects of input and input contexts to the acquisition of a second language. The pre-existing evidence for the beneficial effects of certain structural input modifications in first language acquisition (Motherese; Baby Talk) (Brown, 1973; Ferguson, 1964; Gleason, 1973; Newport, 1976; Weeks, 1971) provided the impetus for seeking out similar features in speech directed to non-native speakers (Foreigner Talk) (Ferguson, 1975; Meisel, 1977; Snow, Van Eeden, & Muysken, 1981). Upon further examination of native speaker/non-native speaker discourse (Long, 1981a), the claims for modified input were challenged in favor of claims for modified interaction as necessary for the acquisition of a second language.

Proposals regarding the beneficial effects of modified interaction on second language acquisition were taken up by a number of researchers who also found evidence for their existence in discourse involving non-native speakers (e.g. Brock, Crooks, Day, & Long, 1986; Doughty & Pica, 1986; Gass & Varonis, 1985; 1989; Long, 1983b; 1984d; Pica, 1988). These investigators assumed, without question, that the presence of such interactional features meant that they were beneficial to
language learning. In reaction to the intuition that this assumption was indeed tenuous, and encouraged by the lack of empirical evidence for or against this assumption (Chaudron, 1988), I undertook to test, in a very narrow domain, the effects on learners of an interactional learning event as against other, more traditional learning situations.

In addition to the broad question of whether conversational modifications could be shown to affect the spoken performance of learners of English as a second language, my investigation was constrained by four local research questions (RQs) made with respect to the four intervention conditions:

RQ1. Is there an immediate effect, being a preference for \( T_2 \) over \( T_1 \) tokens of an item?

RQ2. Is there a delayed effect, being a preference for \( T_3 \) over \( T_1 \) tokens of an item?

RQ3. Is there a residual effect, being a preference for \( T_3 \) tokens for those items which demonstrated a preference at \( T_2 \) (immediate effect)?

RQ4. Is there a restructured effect, being a preference for \( T_3 \) tokens for those items which demonstrated a negative immediate effect?

The only significant result was a perceived more target-like performance at \( T_2 \) by non-native speaking (NNS) subjects who underwent the self-study intervention as compared to those who underwent no aggressive intervention. This lack of overwhelming evidence for the effect of one learning event over another prompted the investigation of the effects of input type in terms of individual learner behavior.

This analysis by individual confirms what a number of second language
acquisition (SLA) researchers have noted (e.g. Fillmore, 1979; Naiman, Fröhlich, Stern, & Todesco, 1978; Skehan, 1989; Rubin, 1975), that is, that language learning is affected by individual differences as well as by instruction. While no generalizations can be made in terms of group effects from my results, my "no difference" result makes one point overwhelmingly clear—the different learning events produced no overall perceived change toward target-like pronunciation. More specifically, there is no evidence of acquisition of native-like phonological form as a result of language use in modified interaction.

While this result has obvious implications for the current SLA theory regarding the effects of negotiated interaction, it has also led to some observations about the classroom learning events examined which bear discussing. In addition to these general observations, I would like to address some of the limitations of the major study and suggest how they might be accommodated in further research.

Observations Regarding Learning Events

The effects of self-study

In my analysis of the group effects of the four intervention conditions, there is the statistical observation that Condition II (self-study) performance at T₂ was substantially different from that of Condition III (no intervention) at T₂. It might be helpful to think of these two conditions as two forms of self-study learning events, Condition II being directed self-study and Condition III being undirected self-study. I make this distinction to account for the fact that although there was no instructor present in either condition, there is an effect which is similar to the kinds of effects we expect after instruction following the more structured,
classroom-like activity (see Long, 1983a for other evidence of the benefits of instruction). This result confirms general expectations about language teaching, indicating that there is some positive change in the performance of NNSs immediately following an episode of structured and focused language practice. When left undirected, individually reflecting on prior performance (and perhaps practicing) without any opportunity for feedback or target language input, as was the case in Condition III, self-study may have detrimental effects on learners’ pronunciation.

It is interesting to note, though, that the practice session involving teacher-led drill (Condition I) resulted in virtually no change at all in the perceived pronunciation of that group of learners. Considering that much of L2 pronunciation and listening comprehension instruction is carried out in similar NS-led drill activities, this result is somewhat disturbing. We are led to question whether these activities will indeed have any effect on the learner, whether beneficial or detrimental. Considering the limited number of subjects in the intervention groups, this may not be a generalizable observation. There may also have been affective variables at play in the teacher-led drill. Although the instructor who led the drill is noted for her warmth and encouragement, the students may have felt some pressure being the sole respondents in the drill. In a typical classroom, this type of drill focuses on a group of students, with no particular student being singled out for sustained performance over a ten-minute period. An investigation of the effects of group versus individual participation in a teacher-led pronunciation practice might shed some light on my unexpected results. Evidence showing greater judged improvement in the performance of
NNSs undergoing a teacher-led drill as part of a class over those undergoing individual instruction (as was the case in my research) might indicate that there were affective variables influencing the outcome of individualized teacher-led practice. Evidence showing no effect might serve to reconfirm the disturbing result that direct teacher-intervention has little effect on target-like pronunciation in the short term.

**Inside the modified interaction**

Although this study was specifically designed to compare perceived pronunciation before and after a number of intervention types, there is an obvious additional area of investigation looking at possible pronunciation differences occurring *within* the interventions. Such an investigation would be particularly appropriate for the modified interaction intervention, that is, Condition IV, as one would anticipate finding before and after pronunciations of the same item at the point where clarification requests occur. It may be the case that the effects of negotiated interactions on learner pronunciation will be found first immediately following a request for clarification, and that such effects would persist to later instances of production (i.e. the present study’s T2 and T3). In other words, if a learner is perceived to have been less target-like immediately following a clarification request, within the intervention, that less target-like performance may persist at T2 and T3. Or, if the learner is judged to be more target-like immediately following a clarification request, again within the intervention, then that improved performance may also persist to T2 and T3.

If requests for clarification are the powerful causal factors that they have
been claimed to be, we would expect to find positive change within the intervention and to see that positive effect sustained to T₂, and even to T₃. However, if requests for clarification are simply destabilizing agents within the intervention (i.e. they prompt change, not necessarily toward the target), then we might see a relationship between the changed form within the intervention being matched by the form used at T₂, and even T₃, regardless of whether the change is positive or negative. We should also remain aware of the fact that any destabilizing effect within the intervention may simply have unpredictable consequences beyond the intervention, hence, the pronunciation immediately after the clarification request may not be related to what is said later at T₂ and T₃.

There is clearly an area of further investigation here, with the available intervention data as an initial source of examples to be judged. Those judgments could then be correlated with the judgments at T₂ and T₃ as a first step toward investigating the effects, residual or otherwise, of the learner’s immediate experience of being asked to clarify something he or she just said.

**Sequencing and combination of interactional modifications**

As was noted earlier, there may be a more beneficial effect of modifications to interaction when these are combined so that the NNS interactants have access to two kinds of information: a clarification request initially signalling that their message is difficult to understand, followed by a confirmation check incorporating a model of the target form. My corpus from the pilot study includes a number of sequences of the type clarification request followed (at the NS researcher’s next turn) by a confirmation check, as exemplified in the following extract:
NNS: when- when temperature is lower than four centigrade degrees
NS: uh-hmm
NNS: water, de vawneh of water will egpand
NS: the what? [clarification request]
NNS: vawneh- vawnu
NS: the volume? [confirmation check]
NNS: uh-huh
NS: volume uh it will
NNS: volyu of water—will egpand

Extract 5

Note that while this NNS did not finally incorporate a target-like form by his final utterance, volyu is arguably more target-like than was his first, vawneh.

It might be worthwhile to analyze the discourse structure of the interactions involving utterances in Study 1 which were judged to be more target-like at T2 or T3, to see whether they occurred in negotiation sequences with a clarification request followed by a confirmation check. A more rigorous study might include a replication of a design similar to the present intervention study, but with two substantive intervention conditions, one in which the negotiation is of the type clarification request followed by confirmation check, and another in which the negotiation involves only clarification requests.

**Instruction in modified interaction**

Although modifications to interaction exist in discourse involving NNSs, the
presupposition that their presence facilitates acquisition has been questioned. Still, the fact remains that they have been demonstrated to exist and will presumably be encountered by learners in their interactions with native speakers. Given this, and given that these interactional modifications have been abundantly identified, and their functions—at least in NS-NS interactions and with L1 learners—well defined, we might better provide L2 learners with optimal conditions for acquisition by providing them with some explicit information regarding possible forms and functions of modifications to interaction. Moreover, as NNSs do not have the target language intuitions NSs have about appropriate responses to conversational adjustments, there is a place for explicit instruction in the uses of and potential responses to these signals of breakdown in communication.

As there is some evidence that repair toward more target-like forms can occur as a result of these modifications, then perhaps our classroom endeavors should include helping learners to be able to cope in an appropriate manner without misconstruing the intent of modifying conversational moves. As Fillmore (1979) notes, the desire for social interaction has a great influence on the L2 acquisition process. By equipping learners to deal with the social aspects of interaction, that is, by helping them to understand what is “going on” when their interlocutors request clarification, check for comprehension, or repeat themselves and others, we might be helping them to better deal with the sociolinguistic aspects of (problematic) interactions. While we cannot teach our learners to have NS intuitions, we can make them aware of the NS intuitions that underlie the use of modifications to interaction.¹
Limitations

Population

In making any generalizations about the results of this study, the homogeneity of the subject population must be kept in mind. While we can say that the results hold for the Chinese L1 population, care should be taken not to extend these claims to include all English L2 learners. As Yule, Wetzel and Kennedy (1991) note in their study of ESL students’ listening perception accuracy, the performance of Chinese L1 learners varied from that of Spanish L1 and Vietnamese L1 learners, even though the Chinese L1 subjects reported a greater average number of years studying English. Porter’s (1986) claims for the acquisition benefits of NNS-NNS pairs involving mixed proficiency subjects over NS-NNS pairs was carried out with a Spanish L1 population. Her results are somewhat controversial, most notably in that they seem counterintuitive, but they may be an artifact of a learning style specific to her Spanish L1 population, rather than a result generalizable to all ESL learners.

We are often led to believe that tests such as the TOEFL, the Michigan Test, or oral proficiency interviews can be used to identify, place, and predict learners’ L2 performance in the classroom. The assumption behind the use of such measures is that there is some generalizable common core of second language proficiency shared by all learners, regardless of their backgrounds and previous experiences. Yet, factors relating to the specific learning experiences of students may play a role in the efficacy of specific learning events. As Tarone and Yule (1989) have noted:

We simply cannot ignore the fact that many learners are used to an
educational setting in which teachers overtly control the activities of the group in a relatively formal manner, emphasize the memorization of grammatical rules and vocabulary, often via mechanical procedures such as repetition and rote learning, administer frequent achievement tests, and generally require their students to maintain a passive and subordinate role. If students from such a background are thrust into a much more informal setting in which the teacher assumes a less authoritarian role, expects interactive group work among students, does not encourage memorization or administer achievement tests, and generally acts as if students should be responsible for their own learning, then they may feel that their teacher just doesn’t know how to do the job properly. Such a reaction may have quite a negative effect on a student’s ability to derive any benefit from the learning experience. (p. 9)

The effects of the learners’ preconceptions about what can be a beneficial learning experience, their previous L2 experiences, and even their age may have had a bearing on the results reported here. Age may have a particularly interesting effect on my subject population.

The ages of the learners in my study—all at least in their early-to-mid-twenties, some fairly older—place them among a group of Chinese ESL learners whose language learning background is quite similar. Their EFL experiences in China might be characterized by some of the following: they were taught by Chinese L1 speakers who had also been taught by Chinese L1 speakers, there was little exposure to English NS input either in or out of the classroom, they may not have been encouraged to seek out other English speakers for practice, and their
classroom experiences were structured toward grammar, translation, and building vocabulary for their specific fields of study rather than toward communication. Swan and Smith (1987) note that regarding methods of learning, a salient feature of Chinese education is rote memorisation. . . . This method plays a significant part in the way English is learned in China, and may predispose some Chinese students to spend considerable time on memorisation at the expense of practice. (p. 235)

It may be the case that the interaction between a preference for a certain mode of instruction and a learning event that looks similar to that preferred mode results in a greater benefit to the learner. The strong positive results obtained for the subjects undergoing the Condition II intervention, the listen-and-repeat practice session, may have been influenced by the prior learning experiences of these subjects. For those learners who are accustomed to rote learning, the focus and repetition of the self-study drill may look and feel more like a “real” learning event than might the negotiated interaction event. Thus, the benefit the subjects derived from the different learning events may have been affected by a combination of the subjects’ age, learning history, and expectations about how languages should be taught and learned.

Perhaps learners with pedagogical experiences similar to those of the modified interaction type, or with more general exposure to the L1 and NSs would react differently. For example, Spanish L1 speakers from Latin America might be expected to have had more experiences with American English speakers via broadcast media and tourism, or have had benefit of English NS teachers, and may experience a more positive affective reaction to specific learning events.
Although the population from which I drew my subjects did not allow for such cross-linguistic/cross-cultural comparisons, it would be interesting to investigate the extent to which the culture, including the classroom culture, of the learner might have an effect on the benefits of the different learning events investigated.

Item analysis

Because of the limitations of the targeted key vocabulary, there were a number of items that co-occurred for a number of speakers. As noted earlier, over 70% of the NNSs provided samples of items such as "celsius" and "metric system". In light of the fact that the NNS subjects exhibited wide individual variation regardless of the intervention they underwent, it might be worthwhile to examine the spoken performance of individual items as they occur over a number of speakers in addition to the existing investigation of the performance of a single speaker over a number of items.

For example, an analysis of the NS listener judgments of all instances of "celsius" (and other frequently occurring items) in the corpus may demonstrate a strong positive or negative perceived effect for specific items. That is, it may be the case that the phonological structure or the articulatory difficulty (for Chinese L1 speakers) of certain items results in them being less affected by the interventions. By the same token, some items may be found to exhibit a general improvement in pronunciation. From these data we might determine what are the salient features common to the positively perceived (more target-like) and the negatively perceived (less target-like) items. The potential pedagogical benefits of such an item analysis are twofold. First, results might be used to distinguish
target phonological features which are problematic for this learner population. Second, it might provide some insight into what it is that NSs listen for when determining how native-like or non-native like a learner sounds. While we may be focusing learner practice on discrete phonological elements such as the /l-r/ distinction, it may be the case that NSs are listening for more broad characteristics such as stress or intonation patterns.

Time

It was noted in the methodology section that the self-directed drill intervention (Condition II) was allotted thirty minutes, while the other three interventions were allotted only ten minutes. This was justified noting the fact that self-study materials have traditionally been allotted more time to complete than teacher-led activities. While this is generally the case with respect to classroom practice, it begs the question of whether the amount of time spent in any language learning activity, despite its basis in tradition or convenience, has an effect on what is learned. We would expect there to be some effect of time in the long term. For example, daily practice over the course of weeks or months would certainly be expected to result in some more target-like performance.

Yet, whether the time allotted to different learning activities does indeed play a part in the type of study I have done, remains to be tested. As I found more positive results in the intervention where there was more time allotted to the learning task, further investigations might consider whether these same results can be obtained by extending the time spent on the other interventions, or by modifying the amount of time spent on the self-study drill intervention.
An additional time limitation of the present study was the relatively short period of time elapsed between the initial (T₁) and the final (T₃) instances of learner production. Further investigations might be designed longitudinally in order to capture effects which may only have begun emerging by the present study's T₂. As was noted in the discussion of the group results (Chapter Four), there were few restructured effects in the present data. As the restructuring process involves a disruption of established ways of pronouncing leading to unstable performance with increased non-target-like forms before improvement can be observed, it may be the case that a longitudinal study will provide evidence of more restructured effects. That is, by examining the production of learners over a longer period of time, we may find that those who exhibited unstable, non target-like performance in the short term were on the way toward restructuring toward the target, and that improved performance would be perceived at some subsequent Tₙ.

Immediate practice effects

McLaughlin (1978) and Bialystok (1981) have suggested that the SLA process involves the transition from controlled to automatic processing of L2 knowledge. Thus, there is a role for practice in the learning of a second language, as directed practice over time is the most apparent way in which controlled processes become automatic. There was some evidence of immediate practice effects in certain of my subjects (B, C, F, K, N, R), however, none of these immediate effects were particularly strong. While an immediate effect is not an undesirable result mainly because it indicates that there is some potential for
change toward the target, it is the sustained, residual effect that is a more powerful indicator of some acquisition having taken place. As such, it may be that we need to concern ourselves with creating learning events that would encourage residual effects over immediate ones. Classroom practices involving a teacher modelling and a student responding in the L2 have traditionally focused on immediate effects, those that the teacher can perceive at the time of the learning event. It is often discouraging to discover that a learner’s target-like performance in these immediate instances does not always carry over to later situations of production, such as testing events, or unstructured conversation. Further investigations might examine whether the observed differences are a result of time allotted to the task, affective variables pertaining to individual learners, or learner expectations for the learning event.

The object of study

When Long (1981a) first introduced the concept of modified interaction as a necessary and sufficient condition for SLA, his claims were made with respect to syntax- and discourse-level analyses of what NSs did in interactions with NNSs. His study identified the distribution of sentence-types in T-units and conversational elements such as conversational frames, expansions, and various checks and requests as features of modified interaction. Consider the following example (Long, 1981a, p. 269):

NS: Do you wanna hamburger?

NNS: Uh?

NS: What do you wanna eat?
NNS: Oh! Yeah, hamburger.

The NS's second utterance is characterized as more syntactically complex than the first, and by restating a yes-no question into a wh-question, the NS is considered to have made the modification that aids in the comprehension of the message by the NNS. While the NNS's final response indicates that the message has indeed been comprehended, Long's study makes no mention of the formal quality of the performance of the NNS. It is only when researchers begin to expand this framework to look at learner output that we can talk about the kinds of learner behaviors that are interpretable as evidence of acquisition, that is, learner performance. Yet even here, the evidence has been mainly anecdotal, and only rarely concerned with a change in the learner's pronunciation (although Gass & Varonis, 1989 include examples of phonetic modification as a result of modified interaction). While Long makes no claims for or against effects on the phonology of the learners, his main concern is with the negotiation of meaning, often represented as effected by syntactic adjustments on the part of the NS.

There are two points to consider with respect to the current claims for modified interactions. It may be the case that learner pronunciation is not a good candidate for examining the effects of modified interaction. Long's concern was with meaning being negotiated in discourse rather than with more discrete changes in NNS L2 pronunciation. His claims were made with respect to input, not output. Furthermore, the presence of drill and teacher-led practice activities in the ESL classroom may be indicative of the fact that these classroom activities work, at least within the domain of L2 pronunciation. They have been intuitively and anecdotally noted to be effective L2 learning events and my results provide...
empirical evidence that these intuitions and observations may be valid.

On the other hand, Long (1981a) makes quite strong assertions that these modified interactions are both necessary and beneficial for SLA, in general, not for any specific aspect of the L2. Hence, if we are to consider the claims for modified interaction to be claims for SLA, they must apply to all aspects of the L2, the syntax, morphology, lexicon, and the phonology. It may be that pronunciation is not an aspect of language that is clearly susceptible to the effects of modified interaction. Yet, since the claims are made with respect to acquisition of a language, without exclusionary caveats for phonology, my data provide some evidence to show that such claims may not necessarily capture the process of second language acquisition in its entirety.

While these suggestions do not exhaust the possibilities for further research into the effects of different types and contexts of input on learners’ performance, it is hoped that they have addressed some of the major issues that have arisen out of the research reported. The data collected for this study offer the opportunity to look not only at what it is that the learners studied have been doing, but also to examine their performance through the eyes (or ears) of over one hundred other, and perhaps more reliable judges than I. What is abundantly clear is that the conversational modifications believed to be consequential for acquisition are, in fact, no more productive in the domain of pronunciation than are other, more traditional classroom events. I have avoided making any claims with respect to the applications of this research to specific theories of L2 acquisition, but it is expected that others will apply the results of this research agenda to current
theoretical perspectives on the process of second language acquisition. What my research has convinced me of, however, is that, for populations similar to mine, where expediency in pronunciation improvement is an issue, it may be more beneficial to provide learners with key vocabulary and terminology, with NSs modelling the pronunciation of that vocabulary, and with the facilities to practice pronunciation in directed self-study environments.
Notes

1. This idea did not develop solely out of reflections on this research. In fact, many teachers do make a point of introducing their students to the conversational features being discussed. What I am suggesting is that there may be room for an increased focus on this aspect of communication in language classes, especially in ITA programs, whose concern is with preparing L2 students for intensive, specialized contact with specific NS populations.

2. I would like to thank Hong Chi (personal communication) for clarifying some of these points for me.
References


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Appendix A

Instructions to NNS Subjects—Day 1

INSTRUCTIONS

In this packet you will find a written text from which to make a brief presentation, or mini-lecture. Your presentation should be no more than 6 minutes long, and will be recorded on audio tape.

You will be recording the mini-lecture at least twice on Tuesday, Nov. 6th during class time. Think of this presentation as a tape-recording of a lecture to be given to a freshman class—as if you are leaving the tape to be played to the class in your absence. You may organize the presentation any way you wish, providing you follow these guidelines:

1) You MUST NOT READ a prepared text. Instead, think of the attached information as part of the textbook for the course from which you would prepare a classroom lecture. You must prepare an outline to speak from.

2) You must be sure to include the KEY VOCABULARY, CONCEPTS AND PHRASES which are provided on a separate sheet and marked in bold letters in the written text.

3) Remember that you will be addressing first-year undergraduates whose familiarity with the subject is limited. Also remember that you will not be present when the tape is played. You have only 6 MINUTES to get your points across clearly.

ON TUESDAY, NOVEMBER 6, PLEASE COME TO COATES 151 AT YOUR REGULAR CLASS TIME.

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LECTURE 1 — AN INTRODUCTION TO THE METRIC SYSTEM

We use the metric system to make measurements of length, temperature, time, weight, etc. The metric system of measurement was created in the eighteenth century in France, and has been revised several times since then. While the official name of the system is the International System of Units, or SI, we use the term ‘metric’ to refer to the system. This is taken from the base unit of measure, the meter.

The metric system may seem difficult at first, because of its unfamiliarity, but it is much simpler than the system of yards, feet, miles, gallons, etc. Its simplicity is basically twofold:

1) It follows the decimal number system. This means that it increases or decreases in units of 10. For example, there are 10 millimeters in a centimeter and 10 centimeters in a decimeter and 10 decimeters in a meter. This is vastly more logical and simple than the customary system of measures which is used in the US, in which, for example, feet and yards are related by 3s, and feet and inches are related by 12s.

2) The metric system has only 7 base units that make up all its measurements, while the standard system has more than 20. Of these 7 base units, there are four in common use: the meter for length or distance; the kilogram, technically for mass, but generally used for weight; the second for time; and the kelvin for temperature, although most people use celsius (or centigrade) degrees to talk about temperature in metric, and reserve the kelvin for scientific purposes. The other three, the ampere for electricity, the mole for chemical and other reactions, and the candela for light intensity, have specialized scientific uses that we need not be concerned with here.

All other units in metric consist of two or more base units, and all other measures are made by combining two or more base units (for example, meters per second). These are called derived units.

Metric prefixes, derived from Latin for submultiples and from Greek for multiples of base units, are used to denote increase or decrease in the measure. For example, centi- means one one-hundredth (1/100th), milli- means one one-thousandth (1/1000th), and kilo- means one thousand (1000).

The following are some everyday measurements using the metric system:

Length and distance measurements: The meter is the basic unit for measuring large objects, altitude, and short distances such as the distance across the quadrangle at LSU. A meter is slightly longer than a yard. Larger distances, such as those between cities, are measured in multiples of meters, the most common of which is the kilometer. To convert from kilometers to miles, you need to know that a kilometer is 5/8ths of a mile. Smaller lengths are measured in submultiples of meters. For instance, a centimeter is 1/100th of a meter, about equivalent to 2/5ths of an inch.
Surface Measurements: As in the customary system of measures, metric surface measures are in square units for most areas. Usually, area is measured in square meters, but especially small areas may be measured in square millimeters or square centimeters. Land is often measured in hectares. A hectare equals ten thousand square meters, about 2 1/2 acres.

Volume and Capacity Measurements: Volume and capacity are measured in cubic units, for example, cubic meters or cubic decimeters. For liquids, the common unit of measure is the liter. A liter is equivalent to 1000 cubic centimeters.

Weight and Mass Measurements: While weight and mass are not the same, we usually think of the kilogram and the gram as units of weight. There are about 2.2 pounds in a kilogram, and there are approximately 28 grams in an ounce.

Temperature Measurements: We call the metric scale for temperature the Celsius scale, but some people still refer to it as the centigrade scale, and this can be helpful when trying to remember relative temperatures. Centigrade means divided into 100 parts, and the Celsius scale measures 100 degrees between the freezing (0°C) and the boiling (100°C) points of water. There is a simple formula to convert from Celsius to Fahrenheit. Extremely high and low temperatures are often measured in degrees kelvin.
KEY VOCABULARY, CONCEPTS AND PHRASES

Here is a list of key terms and concepts, and some important phrases which you must make familiar to your students. Remember that some of your students may not have heard these terms before. Be sure to include these in your presentation.

International System of Units, or SI
customary system of measures
decimal number system
base units
derived units
metric prefixes
equivalent
multiples
submultiples
length and distance measurements
   meter
   kilometer
   centimeter
   centi- means one one-hundredth
   milli- means one one-thousandth
   there are approximately 28 grams in an ounce

surface measurements
   square units
   hectare
volume and capacity measurements
   cubic units
   liter
weight and mass measurements
   kilogram
temperature measurements
   kelvin
celsius degrees
centigrade scale
to convert from Celsius to Fahrenheit
   a liter is equivalent to one thousand cubic centimeters
slightly larger/longer/smaller than
   a kilometer is 5/8ths of a mile
## Appendix B

### NS Listener Task—Day 6

You will be listening to a brief presentation about the metric system. Please listen carefully, but **DO NOT** interrupt or ask questions. Please **DO NOT** use facial expressions to show you do not understand—it may be interpreted as an interruption by the speaker.

While you are listening, please put a check next to any of the following words or phrases that you hear.

<table>
<thead>
<tr>
<th>acre</th>
<th>length</th>
</tr>
</thead>
<tbody>
<tr>
<td>approximate</td>
<td>liter</td>
</tr>
<tr>
<td>base units</td>
<td>metric system</td>
</tr>
<tr>
<td>celsius</td>
<td>mile</td>
</tr>
<tr>
<td>centigrade</td>
<td>multiple</td>
</tr>
<tr>
<td>common units</td>
<td>number</td>
</tr>
<tr>
<td>conversions</td>
<td>ounce</td>
</tr>
<tr>
<td>cubic centimeters</td>
<td>pound</td>
</tr>
<tr>
<td>cubic units</td>
<td>prefixes</td>
</tr>
<tr>
<td>customary system of measures</td>
<td>second</td>
</tr>
<tr>
<td>decimal number</td>
<td>SI</td>
</tr>
<tr>
<td>derived</td>
<td>slightly larger</td>
</tr>
<tr>
<td>distance</td>
<td>smaller than</td>
</tr>
<tr>
<td>equivalent</td>
<td>square units</td>
</tr>
<tr>
<td>foot</td>
<td>submultiple</td>
</tr>
<tr>
<td>gram</td>
<td>surface measurements</td>
</tr>
<tr>
<td>hectare</td>
<td>temperature</td>
</tr>
<tr>
<td>International System of Units</td>
<td>time</td>
</tr>
<tr>
<td>kelvin</td>
<td>volume and capacity measurements</td>
</tr>
<tr>
<td>kilogram</td>
<td>weight and mass measurements</td>
</tr>
<tr>
<td>kilometer</td>
<td>yard</td>
</tr>
<tr>
<td>139</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C

Instructions to NNS Subjects—Day 6

INSTRUCTIONS

In this packet you will find a written text from which to make a 5-minute presentation, or mini-lecture. You will be audio-taped on Thursday, Nov. 8 during class time.

This presentation is a continuation of the mini-lecture you presented today (Nov. 6). Again, think of this presentation as a tape-recorded lecture to be given to your students in your absence. This time you will have 5 minutes to present your mini-lecture.

Remember that you may NOT READ a prepared lecture. Remember, too, that your students will probably not be very familiar with the material. Pay special attention to those key terms which are marked in bold letters in the text, and which appear on the KEY VOCABULARY, CONCEPTS, AND PHRASES list.

You may use the same examples as those in the text.
LECTURE 2 --- SOME SIMPLE CONVERSIONS USING THE METRIC SYSTEM

We have talked about the common units of measurement in the metric system: meters, square and cubic units, hectares, liters, and Celsius degrees. We will now try some simple conversions of customary measures into metric measures, and also of metric units into different metric units.

We will be talking about the base units: meter, Celsius degrees, and the capacity measurement, the liter. For the time being, we will not be talking about any derived units, and we will be using approximate conversion factors.

METER-BASED UNITS

A meter is slightly longer than a yard. To convert from yards to meters, multiply by 0.9:

> 1000 yards is equivalent to 900 meters — 1000 \times 0.9 = 900.

We can now convert this number into multiples and submultiples of the meter:

> multiply by 100 to find the number of centimeters — 90,000
> divide by 1000 to find the number of kilometers — .9.

Kilometers measure large distances, and a kilometer is equivalent to \( \frac{5}{8} \) of a mile. 1 mile is equivalent to 1.6 kilometers. To convert, simply multiply the number of miles by 1.6 to get the number of kilometers; or the number of kilometers by .6 to get the number of miles.

An inch is equivalent to 25 millimeters, so to convert inches into the International System of Units (SI), multiply by 25:

> 12 inches are equivalent to 300 millimeters — 12 \times 25 = 300.

Since milli- means one one-thousandth, and centi- means one one-hundredth, we can easily convert millimeters to centimeters. If 100 is one-tenth of 1000, then 1 millimeter is one-tenth of 1 centimeter, so:

> 300 mm is equivalent to 30 cm — 300 \times \frac{1}{10} = 30

It is much simpler to convert using the decimal number system than to use the customary system of measures.
CELSIUS-BASED UNITS

The conversion of temperature measurements is more complex, and there are no submultiples or multiples of metric temperature measures. When you know degrees F, subtract 32 and then multiply by 5/9ths to get the Celsius degrees:

> 50° F is equal to 10° C — 50 - 32 = 18; 18 x 5/9 = 10.

When you know the Celsius degrees, multiply by 9/5ths and add 32:

> 15° C is equal to 59° F — 15 x 9/5 = 27; 27 + 32 = 59.

VOLUME AND CAPACITY UNITS

The common unit used for capacity and volume is the liter. A liter is equivalent to 1000 cubic centimeters. A liter is just a little larger than a quart. To convert from quarts to liters, multiply by .95. To convert from gallons to liters, multiply by 3.8:

> 5 qts. equal 4.75 liters — 5 x .95 = 4.75
> 5 gals. equal 19 liters — 5 x 3.8 = 19.

The most common submultiple of the liter is the milliliter. The prefix milli- tells us that a milliliter is one one-thousandth (1/1000) of a liter. This is the unit of measurement that replaces the fluid ounce. There are approximately 30 milliliters in a fluid ounce. We now have two ways to determine approximately how many milliliters are in 5 quarts:

> 4.75 (liters) x 1000 = 4750 ml; or
> 5 qts. = 160 oz. — 160 x 30 = 4800 ml.
**KEY VOCABULARY, CONCEPTS AND PHRASES**

Here is a list of key terms and concepts, and some important phrases which you must make familiar to your students. Remember that some of your students may not have heard these terms before. Be sure to include these in your presentation.

<table>
<thead>
<tr>
<th>Category</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>International System of Units, or SI</td>
<td>surface measurements</td>
</tr>
<tr>
<td>customary system of measures</td>
<td>square units</td>
</tr>
<tr>
<td>decimal number system</td>
<td>hectare</td>
</tr>
<tr>
<td>base units</td>
<td>volume and capacity measurements</td>
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<tr>
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<td>cubic units</td>
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<tr>
<td>submultiples</td>
<td>temperature measurements</td>
</tr>
<tr>
<td>length and distance measurements</td>
<td>kelvin</td>
</tr>
<tr>
<td>meter</td>
<td>celsius degrees</td>
</tr>
<tr>
<td>kilometer</td>
<td>centigrade scale</td>
</tr>
<tr>
<td>centimeter</td>
<td>to convert from Celsius to Fahrenheit</td>
</tr>
<tr>
<td>centi- means one one-hundredth</td>
<td>a liter is equivalent to one thousand cubic centimeters</td>
</tr>
<tr>
<td>milli- means one one-thousandth</td>
<td>slightly larger/longer/smaller than</td>
</tr>
<tr>
<td>there are approximately 28 grams in an ounce</td>
<td>a kilometer is 5/8ths of a mile</td>
</tr>
</tbody>
</table>
Appendix D

Representative NS Judgement Task

PLEASE READ THESE INSTRUCTIONS WHILE LISTENING TO THEM ON TAPE. THE RECORDING IS NOT IN STEREO, SO WHILE LISTENING TO THESE INSTRUCTIONS, PLEASE BE SURE TO ADJUST THE HEADPHONES SO YOU CAN HEAR CLEARLY.

You will hear pairs of words and pairs of phrases spoken by non-native speakers of English. After each pair you are to choose which in each pair sounds closest to native speaker English, that is, which one in each pair sounds closest to the English you hear every day.

Your answer sheets will have the words and phrases typed on them, with the letters A and B below each.

If you think the FIRST time is closest to native English, then circle A.

If you think the SECOND time is closest to native English, then circle B.

You must choose one or the other in each pair.

You may adjust the volume on the tape player, but DO NOT stop the tape at any time.

Here are three practice pairs. After each pair, please make your choice of either A or B.

While listening, please try to focus on the words and phrases as written and spoken and NOT on the quality of the sound recording.

1. celsius
   A   B

2. derived units
   A   B

3. metric system
   A   B

You have three pages to complete. At the end of each page you will hear instructions to turn to the next page.

Please turn the page now and begin.
1. metric system
   A   B

2. international system of units
   A   B

3. decimal
   A   B

4. celsius
   A   B

5. one one-thousandth
   A   B

6. hectares
   A   B

7. kilometer
   A   B

8. metric system
   A   B

9. volume
   A   B

10. a liter
    A   B

11. temperature
    A   B

12. derived units
    A   B

13. millimeters
    A   B

14. fahrenheit
    A   B

15. submultiple
    A   B

16. one thousand
    A   B

17. base units
    A   B

18. prefix
    A   B

19. multiples
    A   B

20. international
    A   B

21. decimal number
    A   B

22. volume
    A   B

23. millimeter
    A   B

PLEASE TURN THE PAGE
24. kilometer
A B

25. decimal number
A B

26. temperature
A B

27. celsius
A B

28. volume and capacity
A B

29. millimeters
A B

30. international system
A B

31. volume
A B

32. decimal
A B

33. metric system
A B

34. slightly longer
A B

35. one one-hundredth
A B

36. fahrenheit
A B

37. base units
A B

38. to convert
A B

39. hectare
A B

40. prefix
A B

41. submultiples
A B

42. one one-thousandth
A B

43. celsius
A B

44. kilometers
A B

45. derived units
A B

46. conversions
A B

PLEASE TURN THE PAGE
47. slightly longer than
48. kilometer
49. s.i.
50. metric system
51. centigrade
52. hectare
53. one one-thousandth
54. submultiples
55. volume
56. capacity
57. metric system
58. millimeter

59. thousand
60. fahrenheit
61. multiples
62. base units
63. approximately
64. volume and capacity
65. celsius
66. to convert from
67. cubic centimeters
68. decimal number
69. temperature

THANK YOU
1/3
Vita

Doris Macdonald was born in Saskatoon, Saskatchewan and grew up in Calgary, Alberta, where she graduated from Bishop Carroll High School. After working in a law firm for a number of years, she attended the University of British Columbia in Vancouver where she received her B.A. in English in 1985. She began her graduate coursework in the Interdepartmental Program in Linguistics at Louisiana State University in 1985, and received her M.A. in 1988. During her graduate studies she has taught Freshman Composition, Transformational/Generative Grammar, and Spoken American English for ITAs, and has been assistant general editor of The Eighteenth Century: A Current Bibliography. She will be a Visiting Assistant Professor in Applied Linguistics at Northern Arizona University.
Candidate: Doris M. Macdonald
Linguistics
Major Field: An Investigation of the Relationship between Input Type and Output Modification in English as a Second Language

Title of Dissertation: An Investigation of the Relationship between Input Type and Output Modification in English as a Second Language

Approved:

[Signatures]

Major Professor and Chairman
Dean of the Graduate School

EXAMINING COMMITTEE:

Hugh W. Durrell

Frank L. Burt

Myrih Perras

[Signatures]

Date of Examination:

23rd April, 1991