# OCCASIONAL PAPERS SERIES

Department of English as a Second Language
University of Hawai'i

Occasional Paper #16, 1989

## The Effects of Negotiated Interaction and Premodified Input on Second Language Comprehension and Retention

Lester C. Loschky

# The Effects of Negotiated Interaction and Premodified Input on Second Language Comprehension and Retention

Lester C. Loschky

Occasional Paper #16, 1989

Department of English as a Second Language

University of Hawai'i

## DEPARTMENT OF ENGLISH AS A SECOND LANGUAGE
## UNIVERSITY OF HAWAI'I


**Faculty**

Robert Bley-Vroman, J. D. Brown, Craig Chaudron,
Graham Crookes, Richard Day, Thom Hudson,
Roderick Jacobs, Gabriele Kasper, Michael Long,
Martha C. Pennington, Charlene Sato,
Richard Schmidt (Chair), Karen Watson-Gegeo

**Professional Staff**

David Rickard (Assistant Director, ELI)


The Department of ESL publishes selected theses by its graduates in the *Occasional Papers Series*. Publication of these theses, which cover a wide range of issues in second language learning and teaching, is underwritten in part by a grant from the Ruth Crymes Scholarship Fund. The Department also publishes *University of Hawai'i Working Papers in ESL* (UHWPESL), which presents work in progress by faculty members and graduate students. It is distributed internationally to selected universities and libraries. Separate issues, complete sets of back issues, and individual subscriptions are also available. Ordering information for both the *Occasional Papers Series* and UHWPESL can be obtained by writing to:


Editor, UHWPESL
Department of English as a Second Language
University of Hawai'i
1890 East-West Road
Honolulu, HI ,96822
USA


Work published in the *Occasional Papers Series* reflects the focus of the Department's graduate curriculum, which emphasizes the integration of theory and practice in the belief that practical questions and solutions in language teaching should be accountable both to theory and empirical testing. The Department administers both an MA program in ESL and an interdisciplinary PhD program in Second Language Acquisition.

DEPARTMENT OF ENGLISH AS A SECOND LANGUAGE
UNIVERSITY OF HAWAI'I

## OCCASIONAL PAPERS SERIES

In recent years, a number of graduate students in the Department of English as a Second Language have selected the thesis option as part of their Master of Arts degree program. Their research has covered a wide range of areas in second language learning and teaching. Many of these studies have attracted interest from others in the field, and in order to make these theses more widely available, selected titles are now published in the *Occasional Papers Series. This* series, *a* supplement to the departmental publication *Working* Papers *in ESL,* may also include reports of research by members of the ESL faculty. Publication in the *Occasional Papers Series* is underwritten by a grant from the Ruth Crymes Scholarship Fund. A list of available titles and prices may be obtained from the Department and is also included in *each* issue of *Working Papers in ESL.*

The reports published in *the Occasional Papers Series* have the status of "progress reports" and are often published elsewhere in revised form.

*Occasional Paper # 16* is an MA thesis by Lester C. Loschky, approved August 1989. The thesis committee members were Craig Chaudron (chair), Richard Schmidt, and Machiko Netsu. This work should be cited as follows:

Loschky, Lester C. 1989. *The Effects of Negotiated Interaction and Premodified Input on Second Language Comprehension and Retention.* Occasional Paper #16. Honolulu: Department of English as a Second Language, University of Hawai'i.

## ABSTRACT

This experiment tests hypotheses that premodified input and negotiated interaction facilitate comprehension and SLA (Krashen, 1980; Long, 1981) with Japanese as a foreign language. 41 beginning learners at the University of Hawaii had three listening task treatment sessions with native speakers in a pretest/posttest design. Treatment groups were 1) baseline input; 2) premodified input; 3) negotiated interaction. The tasks contained new vocabulary items and two locative structures, and were both learning treatments and on-line comprehension measures. Pre- and posttests included two vocabulary recognition tests and a sentence verification test. The hypothesis that negotiated interaction facilitates comprehension was supported ($p < .05$), but that for premodified input was *not*. No main effect for treatment was found for posttest gains in lexis or morphosyntax, though significant gains ($p < .05$) were found overall. The study thus supports the importance of negotiated interaction for on-line comprehension; however, task focus on form-meaning relationships may have caused the posttest gains.

TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

## LIST OF ABBREVIATIONS AND SYMBOLS

### Abbreviations for Linguistic Terms:

COP = copula

Exist = verb of existence

SEN = genitive

LOC = locative

OBJ = object

NP = noun phrase

P = phrase

Q = question

SUB = subject

TAG = tag question

TOP = topic

### Symbols for Transcription:

Double spacing followed by a capital letter = new utterance

_ = pause of approximately one breath

- = interruption by self or other speaker

Underlining = stress

/ = rising pitch in an utterance not grammatically marked as a question

= level-rising pitch in an utterance not grammatically marked as a question

\ = falling pitch

x = unintelligible

Single quotation marks = a loan word (from English)

# CHAPTER I

# INTRODUCTION

## Negotiated Interaction, Input Modification, and Second Language Acquisition

### General Background

In the fields of applied linguistics and second language pedagogy, there has long been concern with the role of linguistic input in language learning and acquisition.[1] Furthermore, for roughly the past fifteen years, questions regarding the role of conversational interaction in primary language acquisition (PLA) (e.g., Snow & Ferguson, 1977) and second language acquisition (SLA) (e.g., Long, 1981) have been of great interest to many researchers.

Research on input has generally centered on questions concerning 1) the relationships between frequencies of input and acquisitional stages (e.g., the morpheme studies) and 2) the relationships between modifications of input and subsequent levels of comprehension (e.g., the studies cited in Parker & Chaudron, 1987).

Research on negotiated interaction has centered on the relationships between 1) types of discourse and syntactic development (e.g., Scollon, 1979; Hatch, 1978; Sato, 1986); 2) the relationship between ostensible non-native speaker (NNS) deficiencies in comprehending target language input and resultant native speaker (NS) interactional

modifications (e.g., Long, 1981; Varonis & Gass, 1985; Porter, 1986); and 3) the relationship between natives' negative feedback and learners' subsequent changes to their interlanguage rules (as shown by various measures of learner output) (e.g., Swain, 1985; Crookes & Rulon, 1985; Brock, Crookes, Day & Long, 1986; Pica, 1988; Pica, Holliday, Lewis & Morgenthaler, 1989). Only recently have researchers begun to empirically test the relationship between negotiated interaction and comprehension (Pica, Young and Doughty, 1987), and, to date, there is no experimental research to test the relationship between negotiated interaction and retention of target language input [1].

## Two Major Hypotheses

Research on the effects of a) modified input and negotiated interaction on b) comprehension and retention is motivated in large part by claims made in the Input Hypothesis (Krashen, 1980. 1983, 1985) and a modification of it by Long (1981, 1983a, 1985). Krashen (1983) has claimed that input is turned into intake when it a) is comprehended (i.e., understood in meaningful communication), b) is at one stage above the learner's current level of acquisition, and c) subsequently turns up again "with some minimal frequency" in the learner's input (p. 139). Concerning input modification and particularly

negotiated interaction, Long (1983a, p. 191) argues that "linguistic/conversational adjustments are necessary for SLA." Needless to say, these hypotheses have been very influential in the area of SLA theory and research and in actual language teaching as well.

Krashen's Input Hypothesis. This hypothesis, while influential, has nevertheless been shown to be so lacking in detail that it is not easily testable. Chaudron (1985a) has made a detailed analysis and critique of Krashen's model of intake (the process of turning input into acquired material), thus exposing its vague nature. Two of Chaudron's points are worth mentioning here.

The first point is that, due to a lack of sufficient specification of target language (TL) stages and interlanguage 'transitional rules', there is no way of telling what is precisely at one stage above the learner's level of competence; thus, without specified stages and rules, one cannot predict what material a learner is able to acquire or not.

The second point appears to be related to Krashen's proposal to formulate "a theosy with consistent and interrelated hypotheses that would account for all phenomena in second language acquisition research and practice" [emphasis added] (1983, p.135). Chaudron (1985a, p. 8) thus notes that "while Krashen has primarily been referring to syntactic rules, we must presume that the

Input Hypothesis is generalizable to all linguistic systems to be acquired--to phonology, semantics, pragmatics, discourse, and so on."

Among the implications of the above two points are the following: 1) any research which attempts to test Krashen's hypothesis will necessarily be unconstrained as to what level or type of input it looks at; 2) such research will also have difficulty in disproving the hypothesis for this very reason.

Long's [illegible]ion of the Input Hypothesis. This hypothesis (1981) (in fact, a set of three interconnected hypotheses) is based upon evidence of various input-deprived learners' failures to acquire, and states that comprehensible input is at least a neccessary condition for acqtsisition. Long (1983a) also claims that although comprehensible input is not sufficient in all cases (e.g., Wes, in Schmidt, 1983), it does seem to be in many others (e.g., untutored learners in multilingual nations).

Long's (1983a, 1985) modification of the Input Hypothesis takes Krashen's argument one step further by including negotiated interaction as an element. By comparing native-speaker/native-speaker (NS-NS) negotiated interaction with native-speaker/nonnative-speaker (NS-NNS) negotiated interaction, he makes the following two claims: 1) some form of modification of input or negotiated

interaction appears to be necessary to ensure nonnative-speaker comprehension [2]; 2) negotiated interaction is a more common and useful tool for increasing learner comprehension (at one 'stage' above the learner's current level of competency) than is modified input [3]. The hypothesis that Long puts forward is as follows:

a. Modifications to the interactional structure of discourse (including input or interactional modifications) facilitate comprehension;

b. Comprehension is a necessary condition for SLA;

c. Therefore, modified input/interaction facilitates SLA.

Before going on to list the relevant research available to test these claims, a few notes and comments regarding the hypotheses are in order. The first point is that, as is the case with Krashen's formulation, this hypothesis appears to apply to all domains of linguistic competency. Thus, virtually any domain may be used to test Long's claims.

The second point concerns the distinction between modified input and modified interaction. This thesis will follow Long (1983b, p. 127) in saying that "when describing input, we are considering the forms that the learner hears; analysis of interaction means describing the functions of those forms in (conversational) discourse" [emphasis added]. Long argues that the latter is more important than

the former. This argument is based on findings from Long's above-mentioned study (1981), which showed that NS-NS conversation differed significantly from NS-NNS conversation only on negotiated interaction variables, not on input variables. Nevertheless, if one looks at the most commonly cited categories of negotiated interaction taken from Long's study, i.e., clarification requests, confirmation checks, and comprehension checks (see Figure 1), one is left with many questions about how they are supposed to influence comprehension.

a) Clarification request

S1. Horizon line xx _ at the bottom

S2. Beg your pardon?

b) Confirmation check

S1. Is _ about center of the upper and _ right section'.

S2. Right section?

S3. Yeah

c) Comprehension check

S1. Right section'-and upper?

S2. Yeah

S1-â And...

S2. Can you understand?

Figure 1.

Examples of the three catagories of negotiated interaction with actual units underlined. (Examples from Loschky, 1988)

The first and most simple question regarding the way in which these interactional modifications might facilitate input comprehension is who produces them? Until recently, studies of NS/NNS negotiated interaction have not given separate accounts of the above categories by speaker status, i.e., NS versus NNS; rather, the total number of each category across speaker groups has been given (though Pica, Young & Doughty, 1987, represents progress along these lines). However, a little thought will reveal that a clarification request, say, directed from a native to a nonnative should have less of an effect on the nonnative's input comprehension than on his/her output comprehensibility. The same type of results (i.e., ineffective in raising the SL learner's comprehension, but helping to push him/her to become more comprehensible) would likely be true for a native speaker's confirmation check of a nonnative's utterance. Finally, it seems quite obvious that a learner's comprehension check directed to a native speaker would have little or no effect on the learner's own comprehension.

From the above it seems clear that, as regards NNS comprehension of NS input, it seems more important for the NNS to 1) produce the clarification requests and confirmation checks (i.e., for the NNS to better understand), and 2) receive comprehension checks from the

NS (so the NS knows whether or not he/she is being understood by the NNS).

The second question is how such interactional modifications, by themselves, should have any effect whatsoever on NNS comprehension. Again. given consideration it seems obvious that the only way an NNS's clarification request 'can have any effect on' his own comprehension is if the response of the NS is properly modified in some way. Thus, the relationship between the above categories of interactional modification and NNS comprehension is clearly not a direct one, but, rather, is mediated by the sesponses which they bring about,, if (and only if) they are successful in doing so.

In fact, the types of responses engendered by a learner's 'successful' clarification request are often what would be categorized by Parker & Chaudron (1987) as either 'elaboration' or 'simplification' of input (both considered input modifications, see below). For example, in response to a clarification request, the NS may modify the input by way of repetitions, rephrasings, topicalization, or omission of confusing sentence elements (again. see below: Pica, Young & Doughty, 1987, for results of interactional modifications on learner comprehension, and Parker & Chaudron, 1987, for categories of input modification). From this it seems, reasonable to say that input and interactional modifications may in fact be 'opposite sides

of the same coin'; this may be the point Long (1985) seems to be making when he refers to both face-to-face negotiated interaction and taped lectures with modified input as examples of 'modifications of interactional structure.'

On the other hand, the distinction between 'premodified input' (e.g., a taped modified lecturette in many 'modified input' studies), and 'negotiated interaction' (e.g., a conversation during a communication task in many 'interaction' studies), is a vitally important one. Underlying the distinction are two possible claims: 1) negotiated interaction allows more sensitivity to learners' moment-to-moment needs than does premodified input; 2) modifications of input (whether arrived at through negotiated interaction or through premodification) have a closer causal relationship with learner comprehension than negotiated interaction does.

Current Status of the Hypotheses

Concerning the empirical status of Long's entire three-part hypothesis, which subsumes Krashen's Input Hypothesis, it remains untested. However, there is growing evidence in support of the first sub-hypothesis (a), i.e., the one which concerns the relationship between modifications of input/interaction and subsequent learner comprehension (of either spoken or written material).

**Research on premodified input.** In an exhaustive review of the current literature on **input modifications** and their effects on NNS comprehension, Parker & Chaudron (1987) conclude that there is reasonable evidence to support a claim that certain input modifications increase learner comprehension. In particular, the authors distinguish between two forms of input modification: modification that elaborates the input and modification that simplifies it. The authors argue that elboration of input is more facilitative to learner comprehension than simplification of input. Elaboration of input includes such redundancy adding features such as slowed -speech Fate, rephrasing, and repetition of constituents or thematic structuring features such as extraposition and cleft constructions. Simplification of input includes such reductive features-as shorter ukterances, less complex syntax .and omission. of sentence elements, and higher frequency lexis.

**Research on negotiated interaction.** Concerning the effects of negotiated interaction on learner comprehension, there is only one experimental study to date (for a broader discussion of negotiated interaction see also Chaudron, 1988, chap. 6). Using a task-based measure of" input comprehension, Pica, Young & Doughty (1987) conducted a study in which they showed that a) learners who were, given the opportunity to negotiate for meaning with their partners comprehended more than b)

learners who simply received modified input which had been both elaborated and simplified in comparison to a baseline 'native-speaker-level' script.

Perhaps more interesting, however, was the authors' post-hoc analysis of those negotiated interactions which resulted in a) the greatest and b) the least comprehension. In it, they found that repetition of key words by the native speaker was an important distinguishing factor (i.e., the repetitions in the former aided comprehension, and their lack in the latter appeared to hinder it). Further analysis of the discourse surrounding these key repetitions also revealed that they most frequently occurred either in response to the NNSs' clarification requests and confirmation checks (50%) or within the NS's comprehension checks (14%), thus lending evidence to the claim that interactional modifications lead to modified input.

Together with the above mentioned premodified input studies, Pica, Young and Doughty's (1987) study is an initial confirmation of the first part of Long's three-part hypothesis (i.e., input/interactional modifications facilitate learner comprehension). Perhaps equally importantly from a theoretical perspective, there is now beginning to be greater specificity as to the mechanics of

how modified interaction and modified input work together to facilitate comprehension.

## Remaining Problems

**Domains of comprehension.** One point which has remained unclear throughout all the above studies is which linguistic domains are involved in the comprehension which has been ostensibly measured. In fact, since all of the above studies have dealt with input in the form of running speech or extended written texts, the results indicate comprehension at a more or less global level. Thus, in much the same way that Krashen and Long's hypotheses do not clearly delimit the linguistic domains within which acquisition is supposed to occur, neither do the above input and interactional modification studies clearly delimit the domains of input which are comprehended.

**The comprehension/acquisition relationship.** Another key problem concerns the lack of experimental evidence for the relationship between comprehension and acquisition. That is, although the above-mentioned studies appear to confirm the facilitative effects of premodified input/negotiated interaction on real-time (spoken or written) comprehension (Long's sub-hypothesis one), they cannot make direct claims about subsequent learner acquisition (sub-hypotheses two and three). Up to now, there is in fact no experimental research which has

claimed to do so. No doubt, this is due in large part to methodological problems inherent in trying to do so.

## The Present Study

### Research Problems

What types of problems are there for the researcher interested in testing the above hypotheses concerning the the effects of input and negotiated interaction on SLA? Listed here are a few of them. First, one needs to be able to control (to the greatest extent possible) the input given to learners and the negotiated interaction they engage in. Second, one needs to be able to measure accurately the learners' on-line comprehension of the input during the negotiated interaction. Third, one needs to be able to measure accurately the degree to which the learners transform the input into intake. Fourth, one needs to determine the relationship between the learners' comprehension and their intake.

The first two steps require the type of carefully controlled, labor-intensive study performed by Pica, Young & Doughty (1987). However, the third and fourth steps require some commonly accepted measure(s) of acquisition, which in many cases would require a longitudinal study in order to show *any* kind of change (e.g., movement along an implicational scale for morphemes or word order). Thus, in order to test Long's second and third sub-hypotheses, what

is needed..is either a) a carefully controlled, intensive, longitudinal study or b) an operationalization of acquisition which is sensitive to short-term learner gain. Furthermore, one must specify 'exactly what linguistic units are to be acquired.

**Operationalization of SLA.** For the purposes of this study, increases in comprehension of TL forms will serve as the operationalization of SLA. This is particular operationalization is based on the commonly held premise that language development generally proceeds from comprehension to production (see below). More specifically, recognition of vocabulary items previously unrecognized and differentiation of meanings derived solely from phrase structure and morphology which were previously undifferentiatable will be used as measures of rudimentary TL acquisition. The TL will be Japanese. The experiment will take place in a Japanese as a foreign language setting.

In a review of research on the relationships between comprehension, production and PLA, Clark & Hecht (1983) reaffirm the general argument that comprehension precedes production. For example, it is commonly agreed that the-earliest evidence of vocabulary learning is in word recognition, rather than recall (for review, Gregg, 1986; Teichroew, ,1982). Similarly, comprehension of meaning derived from phrase structure and morphology will

logically preceed accurate production of the forms which convey that meaning (Hecht, 1983, cited in Clark & Hecht, 1983). This comprehension/production gap has caused problems for language acquisition researchers who are interested in the effects of input. Clark & Hecht explain this problem quite clearly:

> The initial discrepancies between comprehension and production make the effects of adult input difficult to assess directly .... [A] better measure of the effects of input might be what children understand .... Input studies to date, however, have focused almost entirely on what children produce, and not on what children understand. Yet input necessarily has its most immediate effects on comprehension rather than production" (p. 345).

This is, in fact, the argument underlying what Krashen calls the 'silent period' in SLA (e.g., 1985, p. 9). However, as a measure of language acquisition, development of TL comprehension is quite different from movement along an implicational scale of morpheme suppliance in obligatory contexts (i.e., the method used by Krashen and many others in the past). Recently, however, just such a reception-based approach to measuring SLA has begun to be called for by other SL researchers (e.g., Hulstijn, in press; Sharwood Smith, 1986). The

approach, as will be discussed shortly, draws largely on research in areas of cognitive psychology and psycholinguistics.

A major benefit of adopting this operationalization of SLA is its sensitivity to short-term learner gain. Thus, questions regarding parts b) and c) of Long's hypothesis? which had seemed methodologically out of reach, now look experimentally testable. Furthermore, such an operationalization is theoretically justified and flows naturally from the hypotheses it intends to test.

As regards the use of Japanese as a foreign language (JFL) as the TL, the time is ripe for such research. To date, little empirical research has been done to investigate the SLA of Japanese (though see Clancy, 1985 for Japanese PLA; Doi and Yoshioka, 1988 for acquisition of case markers in JFL). Furthermore, there is need for more research on negotiated interaction in a foreign language learning environment (though see Loschky, 1988).

## General Outline of the Thesis

The remainder of this thesis will essentially follow the outline below. Chapter II will include brief discussions of the cognitive approach to SLA, and SL comprehension processes. Chapter III will delimit and justify the linguistic scope of enquiry in the study. Chapter IV will lay out specific hypotheses regarding the role of negotiated interaction and premodified input on the

comprehension and learning of the particular linguistic units of interest. Chapter V will reveal the methods of enquiry employed in the study, including accounts of the subjects, materials, and specific measures, the design of the study, and the basic statistical analyses to be used on the data. Chapter VI will indicate the results of the study as they relate to each of the hypotheses. Chapter VII will discuss those results and offer explanations for them as well as insights drawn from them. Chapter VIII will offer concluding remarks and make suggestions for further research.

# CHAPTER II

## A COGNITIVE APPROACH TO SLA AND SL COMPREHENSION

### Implications of Cognitive Psychology for SLA

### Critical Factors in SLA Research

As was mentioned earlier, a reception-based approach to operationalizing SLA draws largely on a research tradition borrowed from cognitive psychology and psycholinguistics. Another name for it is the 'information processing approach to SLA' (Hulstijn, in press. p. 3; for review, see McLaughlin 1987, chap. 6). Using this framework, Hulstijn (in press) has developed a taxonomy of critical factors to investigate in SLA research, all of which are grounded in cognitive psychology:

> 1) Processing mode, i.e., the way in which the linguistic input is processed by the learner;
>
> 2) The learner's current L2 knowledge;
>
> 3) Linguistic characteristics of the grammatical features to be learned: target structures;
>
> 4) Number and frequency with which the target structures appear in the input;
>
> 5) Compatibility between the learning and retention tasks. (p. 3).

In keeping with the cognitive approach to SLA adopted here, the present study will attempt to account for all five of the above variables.

## Memory in SLA

The cognitive approach also recognizes the importance of memory to SL learning (both terms which Hulstijn argues have been rehabilitated from their behavioristic connotations). Within this framework, "second language learning is viewed as the acquisition of a complex cognitive skill" (McLaughlin, 1987, p. 133; see also Bley-Vroman, 1987). Thus, as with all skills, "learning involves the transfer of information to long-term memory" (McLaughlin, 1987, p. 135). Needless to say, as the basic underlying construct in vocabulary recognition, memory will play an important role in this study.

## Hypothesis Formation in SLA

The cognitive approach is also useful in explaining the acquisition of grammar as well. Hypothesis formation is a key concept in many theories of SLA, and this is an area of much research in cognitive psychology. A key area of research on hypothesis formation has been that of 'concept formation' (Anderson, 1985). In such studies, subjects generally attempt to discover rules by using knowledge of the results of their developing hypotheses. While it is well documented that subjects in such studies have difficulty "in realizing the information value of negative information" (Anderson, 1985, p. 298), feedback as a whole is certainly the critical variable in their identification of the target concepts.

In terms of the present study, such research on category learning can serve a preventive function* It points to the fact that while negotiated interaction and resultant real-time ('on-line') comprehension may be one means of gaining feedback usable for hypothesis testing in language learning, other less interactive sources are also available. Thus, if hypothesis testing is considered a by-product of the comprehension process (i.e., the point at which gaps between comprehension and IL rules are discovered), then controlling feedback as a variable becomes a critical issue in the study of interaction and SLA.

In sum, research on the two general (though disparate) issues of memory and of hypothesis formation is a valuable contribution of cognitive psychology to the present study. Likewise, the five factors listed above by Hulstijn (in press) are all relevant to research on input, interaction and SLA. Among other contributions of cognitive psychology and psycholinguistics to the field of applied linguistics are those dealing with processes in comprehension. These follow below.

## Research on SL Comprehension Processes

At this point, a brief review of input processessing in second language (SL) comprehension is necessary. This area of research is just beginning to 'take off' among SL

researchers, but it has a much longer history in psycholinguistics. The primary purpose of this section will be to outline the various factors which are generally considered relevant to the process of input comprehension, rather than to exhaustively review them. Furthermore, certain areas of great interest in research on comprehension, in particular, schema theory, will be left untouched due to the profusion of information available on them already.

To begin, a distinction will be proposed between two essentially different, though interacting, levels of comprehension 'strategies': internal, and interpersonal. The term 'strategies' is here meant in the sense used by van Dijk and Kintsch (1983); that is, comprehension strategies need not always be conscious or effortful. Rather, they are meant to maximize the efficiency of the overall processing operation, oftentimes 'cutting corners' in the effort to work within cognitive constraints, e.g., working memory (Baddeley, 1986).

Internal Strategies

This label covers those strategies which operate solely within the mind of the comprehender, in isolation from any interaction with an interlocutor. Such strategies will be those which deal with information from syntax, semantics, pragmatics, and the lexicon. Furthermore, strategies will work to balance the working memory load

imposed in utilizing these various sources on a moment to moment basis. Such strategies and the processes which they constitute, have been the focus of most research on comprehension (e.g., Bower & Cirilo, 1985; Just & Carpenter, 1987; van Dijk & Kintsch, 1983).

An important point generally agreed upon in the above research is that on-line comprehension involves a complex interplay of information derived from various linguistic and nonlinguistic sources, with differing weights systematically assigned to each. The 'Competition Model' specifically deals with these interactions in comprehension, and has recently been applied to SLA (for a recent exposition, see MacWhinney, 1987).

An example of such an interaction is the 'competition' between semantic and syntactic cues in assignment of subject, agent, or topic status to NPs, a basic process in comprehension (e.g., Gass, 1986, 1987; Harrington, 1987). Research has shown that, in FLA, children initially rely almost exclusively on semantics without regard for syntax. Thus, the sentences, 'The cat chased the mouse,' and "The mouse chased the cat" will be interpreted identically (Strohner & Nelson, 1974, cited in van Dijk & Kintsch, 1983, p. 30). In a similar way, adult speakers of different first languages (e.g., Italian vs. English: Gass, 1987; Japanese vs. 'English: Harrington, 1987; German vs. English:

McDonald, 1984, cited in Just & Carpenter, 1987) will tend to rely on different strategies, e.g., word-order-based, semantic, or morphological, in comprehending TL input. Furthermore, such strategy use is subject to change, becoming more target-like as learning progresses.

The interaction of language subsystems (e.g., syntax) with working memory constraint , and resultant effects on language comprehension have also begun to receive greater attention. As Just and Carpenter (1987) state:

> syntactic processes help structure information so it can he held in working memory until the succeeding parts of the sentence are processed and while other nonsyntactic processes are executed. If a series of words is unstructured, readers have difficulty recalling even a small number of the words .... (p. 156).

Though relatively little has been written about the effects of such interactions on SL comprehension, one implication seems quite plausible. If SL learners' syntactic processing abilities are limited, their ability to store large chunks of information in working memory should be reduced, thus decreasing general processing capacity and making comprehension even more difficult.

The issue of quantity of information and referential communication task success has also been studied. Brown, Sharkey & Brown (1987) found that increased quantities of

information led to decseases in listeners' success in referential communication tasks. This was especially so for 'less able' students, who presumably had less working memory capacity than 'more able' students. Again, it seems reasonable to conjecture that learners operating in their SL will have less working memory to spare than when using their native language.

Another important strategy is that of inferring word meanings from context. This is a well known phenomenon and so not much needs to be said about it at this point. Once again, however, most of what has been done in this area has been in cognitive psychology. Just and Carpenter (1987) review the research on 'contextual analysis' which looks upon such inferencing as a form of concept learning (see above). As such, hypothesis testing is an important element in the process.

As with the interpretation of subj-ect status in sentences, inferencing word meanings utilizes several levels of interacting cues. As Just and Carpenter (1987) state, "the inferences are based on the syntactic, semantic, and referential processes that constitute comprehension, and the processes use the cues in the text, as well as the reader's general knowledge" (p. 110). Though this is couched in terms of reading, the same processes should apply in listening as well.

Interpersonal Strategies

This label refers to those strategies which involve both the listener and the interlocutor in achieving comprehension. The topic of research in this area has generally been labeled 'negotiation of meaning.' Varonis and Gass (1985) have created a model of the process of negotiating meaning which is useful in charting the course of an interaction from the trigger of nonunderstanding to eventual reconciliation* The model also lists numerous strategies used by speakers within different parts of the model.

Research by Long (1981), Porter (1986), and Varonis and Gass (1985) has found that the quantity of negotiation increases as a dyad's collective language proficiency decreases. In other words, less proficiency, and presumably a lower level of comprehension, leads to more negotiation. To turn this statement around, as stated earlier, research by Pica, Young, and Doughty (1987) has shown that the opportunity to negotiate for meaning leads to greater comprehension.

In sum, the literature cited above is enough to provide at least a general outline of strategies, both 'internal' and 'interpersonal', which are involved in SL comprehension. What seems most interesting, however, is the point of contact between 'internal' strategies and 'interpersonal' strategies. In other words, how does the

learner make up for deficiencies in one by use of the other? In particular, how do specific 'internal' stsategy deficits lead to specific 'interpersonal' strategy uses? This area, as yet, has largely remained unexplored.

# CHAPTER III

## LINGUISTIC UNITS UNDER INVESTIGATION

In order to operationalize the general claims put forth by Krashen and Long, this thesis will concentrate on L2 learners' comprehension. A further specification of this construct includes recognition of a limited number of lexical items and sentence verification based upon differentiation of case role assignment in two syntactic structures. In the following two sections, research concerning second language lexical development and specific information about the syntactic constructions under investigation will be briefly outlined.

### Second Language Lexical Development

#### General Background

The topic of SL vocabulary learning/acquisition is both broad and relatively under-researched. As Gass (in press, p. 1) observes, "within linguistics, the lexicon has taken on a secondary role in terms of theory construction; within second language acquisition, the rift between studies of the lexicon and theory construction seems to be even greater." According to Palmberg (1987), this may be due to a widespread feeling among SL researchers that the lexicon is a 'messy area' to deal with. This is unfortunate since it undoubtedly plays a key role in language processing. As Foss (1988) puts it:

> The lexicon is important because it is the place in the language processing system where disparate information types (or codes) come together. That is, the lexical item must have associated with it information about its phonetic or phonological composition, information about its spelling, a specification of its syntactic category or categories and other information as well. Given that such diverse information is available from the lexical item, there is a sense in which the lexicon is the lingua franca of the language processing system. (p. 303)

In fact, current research on second language vocabulary use and development is beginning to show that it is indeed a quite systematic and rule-governed linguistic domain of inquiry (e.g., Bongaerts, Kellerman & Bentlage, 1987; Palmberg, 1987).

## Research on Vocabulary Memory

To date, the main thrust of research in vocabulary learning has come from the experimental psychology literature. Large numbers of memory studies have been conducted over the last hundred years and they have provided a body of information on such constructs as memory storage and retrieval, and trace duration; and strength as well as an array of theories to explain them.

**recognition.** The theoretical distinction between recognition and recall is fundamental in memory

research. Various theories have been put forward to explain the sometimes contradictory findings which have nevertheless tended to differentiate the two forms of verbal memory (for reviews see Anderson, 1985; Gregg, 1986; Johnson & Hasher, 1987). The question is of such a primary nature that, as Johnson and Hasher (p. 642) state, "understanding recognition will certainly fit a major piece into the puzzle *of* relations among memory tasks."

Recognition of words is generally better than recall of them. A major debate has been how to explain this. One approach argues that recall utilizes associations, while recognition memory is directly tapped, and that recall eventually involves the process of recognition; thus, anything recallable must logically be recognizable (e.g. Kintsch, 1974). However, numerous studies have contradicted this hypothesis (e.g., Tulving & Thompson, 1973). A competing view is that memory for circumstances at the time of encoding (episodic memory) underlies both processes, the difference being that recognition requires less encoded information for retrieval to succeed (Tulving, 1982).

In fact, a compromise view may be most accurate. One such proposal, put forward by Gillund and Schiffrin (1984), is that "familiarity responses underlying recognition are affected by the strength of inter-item associative relations and associations between items and context"

(p. 643). Anderson (1985) echoes this claim when he points out that although recognition is generally superior to recall, a key moderator variable is the similarity between the testing and learning contexts (see also Kolers & Roediger, 1984).

Subtypes of word recognition, and their associated measures, are varied as well. Murdock (1982) provides a clear explanation of two types of recognition and their measures, which is summarized below. 'Item' recognition is the ability to recognize the prior occurance of a particular word. In a standard item recognition test, the subjects are presented with words, one at a time, and asked to respond 'yes' or 'no' to whether they recognize the words from the learning trial. 'Associative' recognition consists of the ability to recognize associations between a word and some other stimulus (e.g., a picture). Tests of associative recognition are often in the forced-choice format, and ask the subjects to pick from among several choices the particular stimulus associated with the word during the learning trial. The two types of recognition are complimentary and their measures can be viewed as tapping different aspects of the same complex underlying construct.

Memory trace decay. An important set of findings, of particular interest for this study, are so-called 'memory schedules[1] (Pimsleur, 1967) and 'forgetting functions' (Ebbinghaus, cited in Anderson, 1985) which chart memory

trace decay over time. The results of these studies tend to show that the contents of short-term memory decay extremely rapidly, and then reach asymptote (i.e., level off). In particular, research reviewed by Anderson (1985) and in Nation (1982) show that within the span of 24 hours, learners will lose most of their short-term memory for words that were learned--whatever memory remains will be relatively stable for quite some time after that. This, as Nation (1982) argues, indicates a fairly secure minimum forgetting buffer after which learners' long term retention can be measured while retaining face validity in the SL field.

Estimates of vocabulary size. Numerous definitions and measures of vocabulary size have been developed over the last century (Teichroew, 1982). In an interesting recent finding for classroom researchers, Palmberg (1987) has shown how FL learners' lexical recall appears to be strongly interrelated with the pool of lexical items found in their textbooks. This is useful information upon which to develop further, more theoretically based research, because it indicates that school texts may provide reliable estimates of the parameters of FL learners' lexicons. If such estimates can be proven to be both generalizable to recognition and reliable, then they can provide information

on the size, and contents of lexical 'foundations' which can be experimentally built upon.

Depth and elaborateness of processing. Besides such basic definitional and descriptive findings, important theories of vocabulary (and other) memory have been put forward. Among them, one of particular interest is that developed by Craik & Lockhart (1972). According to the authors, the key variable determining the strength and duration of memory is the now well known concept, 'depth of processing." While the depth of processing approach has come under extensive attack for its lack of a clear definition of "depth" in measurable terms (for reviews, see Gregg, 1986; Horton & Mills, 1984), it has nevertheless provided an important starting point for related research.

Perhaps the most important aspect of depth of processing approach is that it focuses on the level of attention required of the learner and the compatibility of incoming data with his/her current 'analyzing structures' (or stage of SL development) rather than on rote repetition. Related, though separable findings from several studies are reviewed by Horton and Mills (1984) under the general headings of 'elaboration,' 'distinctiveness,' and 'effort.' Research on effort found that, greater expended processing capacity (as measured by reaction times in divided attention tasks) led to better memory performance in meaningful tasks (Eysenck & Eysenck, 1979). Overall,

such findings seem quite compatible with a hypothesis of language learning that argues for the necessity of negotiated interaction and comprehensibility of input.

Vocabulary Elaborations in SL Learning

Meaningfulness. Research analyzing teachers' vocabulary elaborations directed to SL learners reveals numerous elements claimed to influence comprehension, but little if anything apparently aimed at rote learning (Chaudron, 1982). The author found, for example, that teachers frequently use synonyms, definitions, opposites, and examples in order to help students understand and learn new words. This in itself suggests that the natural path to vocabulary acquisition is through meaningful, elaborate, and effortful encoding, through the process of striving for comprehension, rather than through 'meaningless' mechanical repetition.

Inferencing and retention. The above elaborations appear to be related to the cognitive processes claimed by psychologists to increase vocabulary retention. Research by Li (1988) found that learners given adequate contextual cues to the meanings of unknown words made better inferences as to the word meanings and also had better recall of those meanings later. In fact, the cues Li used in the study could be classifible as vocabulary elaborations of a sort. For example, for the new word

collapsible the sentence was 'John took 'out a collapsible bicycle, unfolded it, and rode to school," where took out and unfolded served as contextual cues to meaning (p. 404). Such cues have much in common with the vocabulary elaboration termed 'spoken example' observed in FL classrooms by Chaudron (1982). Thus, vocabulary elaborations may indeed increase both learner comprehension and retention.

Compatibility of input with the learner's level. Perhaps the most important point about vocabulary elaborations is that they tend to use learners' current vocabulary knowledge in order to add more (i.e., like Krashen's 'i + 1'). An example of this is the common elaborative strategy of paraphrasing through use of parallel structures, i.e., negatives, semantic equivalents, etc. (Chaudron, 1982). Other common strategies noted by, Chaudron and others (see also Gairns & Redman 1986) are to use parallel structures, synonyms, opposites, or definitional. structures (e.g., an 'X' is a kind of/ a sort of/ like a 'Y'). However, in using such strategies, Chaudron also offers a note of caution: the elaborations used must not be at a higher level of complexity than the original words they were meant to replace or explain.

Elaborations in negotiated interaction. If vocabulary elaborations are a plausibly effective way of promoting SL lexical acquisition, then negotiated interaction should be

particularly useful here. According to Chaudron (1988, p. 177), research findings indicate that much of the negotiation of meaning that goes on in communication tasks deals with clarification of vocabulary meanings. Thus, elaborations of the kind listed above should surely be a result of the negotiation of meaning.

## Two Japanese Locative Structures

### Rationale

In determining the syntactic area of inquiry for this thesis, the field was not as wide open as with vocabulary items. Since vocabulary items are essentially meaningful by themselves, the range of choices was great. However, in the case of morphosyntactic structures, only those with a clear relation between form and meaning were desired, thus narrowing the field of choices. Two Japanese locative structures (subject initial and object/locative initial) were chosen for this purpose for the following reasons:

1) beginning level JFL learners' ability to comprehend them appeared to be extremely variable;

2) because of the nature of subjects and objects in locatives, differences in case assignment result in differences in meaning;

3) locative meanings can be easily represented visually, and thus, are very applicable to paper and pencil tasks.

Some evidence for the first observation above is provided at a later point in this chapter, but anecdotal evidence from at least two teachers of Japanese appears to corroborate it (Toshi Doi and Machiko Netsu, personal communication, May, 1988). A description of the nature of locatives and their comprehension will serve to support the second stated reason. The third reason seems relatively self evident and will not be further discussed (though see Appendixes A–D for examples).

## General Information on Locative Structures

**Syntax and semantics of locatives.** Herskovits (1985) gives the following general exposition on locatives:

> Although many prepositions have converses (above/below), and some are symmetric (near), the two possible assignments of the role of subject and object are not equivalent . . . . **The subject/object assignment is related to the purpose of the locative expression** [emphasis added]. In the prototypical case, the purpose is simply to inform the addressee of the location of an object (let us call this the located object or **Figure**); this is accomplished by providing a constraint on that location in the form of a spatial relation that holds between the Figure and a reference object, or **Ground**. It is assumed the addressee either knows the location of the reference object or could easily discover it. The Figure is referred to in the

subject position of the locative expression; the ground is referred to in the object position. Compare:

The house is behind the church.

The church is in front of the house.

One can say that the first object is "conceptually movable" with respect to the second. (p. 345)

This description makes clear that the mapping of semantic functions to syntactic categories in locatives is extremely rigid. However, concerning movement of constituents within the sentence, there is some freedom. Thus, in existential sentences, the object (OBJ) NP (subsumed in the locative phrase) can occur either before or after the subject noun phrase (SUB NP). Likewise, in semantic terms, the figure can occur either before or after the ground.

Crosslinguistic differences. In existential sentences in Japanese and certain other SOV languages (e.g., Kannada) the locative postpositional phrase + OBJ NP/ground occurs most frequently sentence initially, i.e., before the SUE NP/figure (Mikami, cited in Kuno, 1973; see also percentages reported in Sridhar, 1988). The following Japanese sentence, adapted from Sridhar (p. 68), serves as an example:

(Ground) . . (Figure)

**Teiburu no** ue ni tama ga **ari[masu].**

[Table 3EN top **LOC** ball **SUB BE]**

[[On top of the table is a **ball.]]**

This **is, in** fact,: **quite the** opposite of English and certain other **SVO** languages **(e.g.,** Cantonese); that **is,** the, unmarked situation in English **is** to put the locative + **OBJ/ground** after the **SUB NP/figure (Sridhar,** 1988) **[4].** That **is,** in English the most common word order for **the sentence** would be:

**(Figure)** . . . . . **(Ground)**

**A** ball **is** on (top of) **the table.**

In **both** Japanese and English, there **is, however,** the syntactically **opposite possibility.** Thus,. **across** the two languages, there are, at **least, the following** contrasting **patterns** which are available [5]:

(Jp.) 1a. **[[Teiburu** [no ue ni]] **[[tama** gal **arimasu]]**
**[[OBJ NP** [$L_O$= **P]** ] **[[NP SUB]** **Ex**
I**[ground]** **[figure]]** **ist]]**

1b. [[Tama wa] **[[teiburu** [no ue ni]] **arimasu]]**
[[NP **TOP]** [[OBJ NP [LOC P]] **Exist]]**
**[[figure]** **[ground]]**

**(Eng.) 2a. [[A ball]** **[is** **[on top of** **[the table]]]]**
**[[SUB NP]** **[Exist** **[LOC** **[OBJ NP]]]]**
**[[figure]** **[ground]]**

**2b. [[[On top of** **[the table]]** **is]** **[a ball]]**
**[[[LOC P** **[OBJ NP]]** **Exist]** **[SUB NP]]**
**[[ground]** **[figure]]**

Comprehension of Locatives

In order for listeners to comprehend the above sentences, it is important for them to determine which of the two NP forms, in relation to the Loc P form, has the function of figure and which has the function of ground. From a psycholinguistic 'processing' perspective (e.g., Bates & MacWhinney's 1982 Competition Model) it seems clear that there are several types of linguistic cues, from lexical to syntactic, which could be used to do this. However, as mentioned earlier in discussing 'internal' comprehension strategies, there is the possibility that when particular cue types are consistently interpreted in opposite ways across languages (e.g., figure/ground ordering in Japanese and English) this may result in 'processing transfer' (c.f., Harrington, 1987). Several such cue types and possible accompanying 'internal' comprehension strategies will be listed below.

Semantic strategies. As mentioned earlier, semantic constraints inherent in lexical items are extremely powerful cues to use in assigning subject/object status to NPs. This is especially true for locatives, and such a decision will also determine the figure/ground roles of the NPs (Herskovits, 1985). Thus, for example, if the two NPs' semantic locational features are highly contrastive, as is no doubt the case with 'ball' and 'table', it would seem highly unlikely that speakers of either Japanese or

English would interpret the NPs' figure/ground statuses incorrectly. That is, even if one knew only the meanings of the words 'top,' 'ball,' and 'table,' it is doubtful that one would ever misinterpret any of the above sentences as meaning that 'the table is-on top of the ball.' Absence of such lexico-semantic information., for example when relating one geometric shape to another, appears to make interpretation of locatives rely heavily on syntax (Fischler & Goodman, 1978, p. 130). This could be a possible problem for SL learners.

**Perceptual strategies.** Another important cue for NSs' of English and many other SVO languages may be Sridhar's 'psycholinguistic universal' of 'inherent perceptual prominence" (1988, p. 57). This may lead them to expect' to find figures positioned before grounds (i.e., in Subj position).; however, for NSs of certain SOV language-s (e.g., Japanese), it appears that Sridhar's 'universal' is somehow inoperative, and in fact in reverse, in presentative contexts. Thus, although the figure before ground expectation might be highly reliable for English NSs in their mother tongue, it could be misleading for them as JFL NNSs, especially when the relationship between the semantic locational features 'of NPs, for example, 'sinbun' ('newspaper') and 'zassi' ('magazine'), seems neutral.

Morphological strategies. Another important cue that can be used to assign figure/ground status to NPs in the above Japanese structures is that of case marking. For example, in Japanese the subject is marked with 'ga' and the topic of the sentence with 'wa' (though the distinction between these two categories is outside the realm of this discussion). Since both 'wa' and 'ga' are used exclusively in these constructions for marking the figure NP, case marking is an important cue. Conversely, the genitive case marker 'no' is used in this construction exclusively to link the locative directional noun (e.g., 'ue' = 'top') with the ground head noun, followed by 'ni.' Clancy (1985, p. 471) notes that this cognitively and linguistically complex construction does not occur in Japanese PLA until after the acquisition of the simpler postpositional locatives (e.g., 'ni' = 'in/on/at/to'). However, since English does not have free morpheme case markers (Harrington, 1987), English L1 speakers will probably need, as MacWhinney (1987) states, to "start from scratch to construct a new set of mappings from functions to forms" (p. 324) when interpreting those case markers used in Japanese L2 sentences.

Prosodic strategies. Another aid in determining pragmatic, and thus, by association, syntactic and semantic function in both Japanese and English sentences, is word stress. In English, stress is generally used to indicate

either new or contrasting information (Brown & Yule, 1983; Pennington, 1988). Since old information usually comes first in a sentence, in SUB position, it genesally does not receive ,stress. A similar connection between pitch prominence, contrast-ing 'or new information, and syntactic' function is also present in Japanese (Harrington, 1987). In Japanese this is often accomplished through placing pitch prominence on contrastive case markers (e.g., 'wa' or 'ga'). This connection between prosodic' featuzes and syntax may be relatively transparent and thus facilitate comprehension of Japanese by English speakers.

Phrase structure strategies. One final and important strategy for correctly interpreting the above sentences concerns the direction in which locatives form constituents in the two languages. Japanese is a postpositional language (Kuno, 1973). Thus, the locative phrase forms a .constituent with and modifies its preceding head noun. This is, of course, the opposite of English, a prepositional language, in which the locative phrase modifies, the following head noun. Knowledge (whether conscious or not) of these two different directions of NP modification is important for interpreting simple locative sentences, since misinterpretation could lead to complete noncomprehension.

Taken as a whole, the above contrasting linguistic cues and sentence comprehension 'strategies suggest that English

L1 learners[6] success in comprehending Japanese L2 locative constructions may vary according to the availability of different linguistic cues. Thus, comprehension of locative sentences by the English-speaking JFL learner should be facilitated if those sentences include the following characteristics:

(+) clear semantic locational feature contrast between NPs;

(+) figure in sentence initial position;

(+) pitch prominence on contrastive case markers.

Furthermore, if he/she has already acquired or has knowledge of the functions of Japanese case markers and postpositional NP modification, comprehension of Japanese locative constructions will be facilitated.

Conversely, if the above, linguistic features have negative values, i.e., there are ambiguous semantic relations between NPs, grounds are in sentence initial position and/or there is a lack of pitch prominence on case markers, and if the learner has not yet acquired the Japanese case marking system nor the direction of postpositional modification, comprehension may be diminished.

**An example of locative misinterpretation.** The above factors and strategies may serve to explain the following error in Japanese locative interpretation by an English L1

speaker observed by this author during a lego construction task:

Input to learner:

Akai lego no ue ni aoi lego ga arimasu.

[Red lego GEN top LOC blue lego SUB BE]

[[A blue lego is on top of the red lego.]]

Action by learner:

[The learner places the red lego on top of the blue lego.]

From the learner's actions it appears that the Japanese sentence was interpreted in serial fashion by a rough and ready translation method such as the following:

Japanese input: Akai lego no ue ni aoi lego ga aru.

IL translation: Red lego on top of blue lego (is).

Clearly the sentence given as input to the learner lacked several of the possibly facilitating cues that the learner may have needed (e.g., clarity of semantic relationship between NPs, figure/ground & SUB placement, and, possibly, contrastive stress on case markers). Furthermore, it is quite likely that the learner had not yet acquired the case marker 'ga' [6] or the direction of postpositional modification. The question which remains is then, what effect will negotiated interaction and premodified input (either elaborated or simplified) have on learners' comprehension or acquisition of such locative constructions?

# CHAPTER IV

## HYPOTHESES

From the arguments stated above, it would seem that a methodologically feasible operationalization of basic language acquisition has been proposed, and, along with it, two reasonably discrete linguistic domains of analysis have been identified. Therefore, what can we safely predict about the truth or falsity of Long's three-part hypothesis?

Long's first sub-hypothesis that modifications of input and interaction facilitate NNS comprehension appears fairly robust. For example, research by Pica, Young & Doughty (1987) provides some empirical evidence for the claim that on-line general comprehension is greater for interactionally modified input than for linguistically modified input, and the supposition is that both should facilitate comprehension more than native-speaker-level baseline input. Also, as stated earlier, the group of so-called 'input' studies appear to support the claim that both elaboration and simplification of input facilitate general comprehension, though Parker and Chaudron (1987) argue that the former are more imporatant than the latter.

With regard to the more specific linguistic domains being looked at in this study, Long's claim looks equally reasonable. As stated earlier, both vocabulary elaborations and other elaborative input modifications could increase

learners' comprehension of both Japanese lexical items in general, and Japanese locative constructions in particular,

Specifically regarding the Japanese locative structures, such elaborative input modifications as rephrasing of the structures (i.e., locative initial, (sentence type 1a) followed by subject initial (type 1b)), greater stress on key words (e.g., new information words, or case particles), or simple repetition of key elements, may help learners to comprehend the seemingly more difficult locative initial structure.

Similarly, use of definition structures, opposites, rephrasing and other vocabulary elaborations would likely increase comprehension of lexical items (Chaudron, 1982).

Finally, simplification of input in the form of omission of sentence elements, could, in the case of very long sentences, increase comprehension of the locative constructions, by focusing the learner on the SUB NP.

Furthermore, given the opportunity to negotiate interaction, the learner could request, and the native provide, the above elaborative modifications as well as other context dependent cues (e.g., explanations using reference to other elements in the given situation) to even further increase learner comprehension.

All of the above, then, leads to the first set of directional hypotheses which are concerned with learners' comprehension during experimental treatment tasks:

**Concerning the effect of negotiated interaction on on-line comprehension of input:**

**H1.** Learners given the opportunity to negotiate interaction will comprehend more input (as measured by treatment listening task scores) which contains a) new vocabulary items and b) locative sentence structures than learners not given such opportunities.

**Concerning the effect of premodified (elaborated and/or simplified) input (without negotiated interaction) on on-line comprehension of input:**

**H2.** Learners given premodified (elaborated and/or simplified) input, without the opportunity to negotiate interaction, will comprehend more input (as measured by treatment listening task scores) which contains a) new vocabulary items and b) locative sentence structures than learners receiving baseline unmodified input with no negotiated interaction.

Next, we will turn to Long's second and third sub-hypotheses (the former being Krashen's "small 'i'" input hypothesis). At the moment, there is no empirical evidence based on experimental research to support these hypotheses. Nevertheless, taking these claims as a starting point, it is possible to conjecture that greater quantities of

modified input and negotiated interaction will lead to greater recognition of new Japanese vocabulary items and greater accusacy on sentence verification tests containing Japanese locative constructions.

In the case of retention of vocabulary items, such a prediction, seems plausible if one combines the general findings in Chaudron's (1982) research on vocabulary elaborations with the psychological literature on 'depth/elaborateness of processing' (Craik & Lockhart, 1972; Anderson, 1985).

In the case of the locative constructions, the prediction has relatively less support. Nevertheless, to predict otherwise would be a rejection of both Krashen and Long's general claims. Thus, the following directional hypotheses seem justified:

Concerning retention of new vocabulary items:

E3: Learners previously given the opportunity to engage in negotiated interaction will achieve greater gains in recognition of new words than those learners not previously given such opportunities.

H4: Learners who previously received premodified (particularly elaborated) input, but without the opportunity to engage in negotiated interaction, will achieve greater gains in item recognition of new words than

learners that received **baseline unelaborated** input with no negotiated **interaction.**

H5: Learners previously given the opportunity to engage in negotiated interaction will also achieve higher scores on **associative recognition** of **new words** than learners not previously given such opportunities.

H6: Learners who previously received **premodified (particularly elaborated)** input, but **without** the opportunity to engage in negotiated interaction, **will** similarly achieve higher scores on **associative recognition of new words** than learners that received baseline unelaborated input with no negotiated interaction.

Concerning **learning of the morphosyntax of locative structures:**

H7: Learners previously given the opportunity to engage in negotiated interaction will achieve greater gains in **accuracy in locative sentence verification** than those **learners** not previously given such opportunities.

**H8: Learners** who previously received **premodified** (elaborated **and/or** simplified) input, but without the opportunity **to engage** in negotiated interaction, will achieve greater gains in **accuracy** in **locative sentence**

verification than learners that rec'eived baseline unmodified input with no negotiated,interaction.

# CHAPTER V

# METHOD

## Subjects

### Selection Criteria for Learners

The subjects for this study had to meet at least three criteria:

1) They had to be low level learners. In this way, evidence of the effects of the short-term treatments on their acquisition should be easier to find. Also, there is reason to believe that interaction and input modifications are most helpful for low-level learners (Parker & Chaudron, 1987; Pica, 1987). The subjects who took part in the study were all beginners, ranging in level from second through fourth semester students.

2) They had to be foreign, rather than second, language learners. In this way, it would be more possible to control for outside exposure to target language input during the study, which could have a confounding influence on the results. Japanese is taught as a foreign language at the University of Hawaii, with a large body of beginning level students. The program is stable with a clearly delineated curriculum.

3) They had to come from two distinct levels of proficiency, at least so far as measured by the tests developed for this study. In this way, if the structures and vocabulary were either too easy or too difficult for a

given group of learners, they likely would not be for the other group. Pilot testing had shown that the differences between second and fourth semester students on the syntax and vocabulary measures were significant at the .05 level.

## Assignment to Treatments

All subjects freely volunteered to take part in the study and were each paid $10 for their participation. They were randomly assigned to one of three treatment groups (1= baseline input/no modifications, 2 = premodified (elaborated and/or simplified) input, 3 = negotiated interaction) within a blocked design which controlled for level and first language. The design was further blocked on student availability. Thus, with tutor availability evenly distributed between groups, students were randomly assigned to tutors. If a particular student's availability did not match with the tutor's, another student was randomly assigned to the tutor. This procedure was followed until all students were assigned to tutors.

## Learner Background Variables

The number of students in each treatment group by semester of study is shown in Table 1 (next page). As shown in the table, numbers of subjects from each semester level was quite balanced between groups. As also can be seen in the table, there was only one subject at the third semester course level. Thus, that subject was deleted from all

Table 1

Numbers of Subjects by Semester, First Language (L1), Sex, and Childhood Exposure to Japanese (Exposure) in Each Treatment Group (N = 41)

| | Treatment Group | | | |
|---|---|---|---|---|
| Variables | 1 (n = 14) | 2 (n = 14) | 3 (n = 13) | Total |
| **Semester** | | | | |
| 2 | 7 | 8 | 8 | 23 |
| 3 | 1 | 0 | 0 | 1 |
| 4 | 6 | 6 | 5 | 17 |
| **L1** | | | | |
| English | 12[a,b] | 13 | 12 | 37 |
| Chinese | 1[b] | 1 | 1 | 3 |
| Tagalog | 1 | 0 | 0 | 1 |
| **Sex** | | | | |
| Male | 2 | 6 | 4 | 12 |
| Female | 12 | 8 | 9 | 29 |
| **Exposure** | | | | |
| Yes | 3 | 4 | 2 | 9 |
| No | 11 | 10 | 11 | 32 |

Note. No significant differences found between treatment groups (Chi-square, $p > .05$, two tailed).

[a] Two English natives are balanced bilinguals of other languages: one of Greek, one of Chinese.

[b] A bilingual non-dominant in English*

analyses of level effects. Similar tests were done to check for differences between the treatment groups on such variables as first language, gender, and exposure to Japanese during childhood (also in Table 1). Again, no significant differences were found between groups* However, there was an unequal (though not significant) distribution of bilinguals (both those for whom English was balanced with their other tongue and those for whom it was non-dominant).

Similar analyses were done for subjects' ages, years of Japanese study, and years in Japan (Table 2) with no significant differences being found.

Subjects were further compared across groups for differences on the Department of East Asian Languages placement test. Placement subtest means and standard deviations for each group in grammar, listening, reading, and knowledge of Kanji (Chinese characters used in written Japanese) are displayed in Table 3. No significant differences were found. While there does appear to be a difference in knowledge of kanji favoring group 1, the higher mean score is offset by a much higher standard deviation. This is due to the unusually high score of one student. This same student also gave her group a slightly higher mean and standard deviation for years spent in Japan (Table 2). However, neither difference was significant.

Table 2

Ages, Years of Study, and Years in Japan for Subjects in Each Treatment Group (N = 41)

| | Treatment Group | | | | | |
|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | |
| Variable | Mean | SD | Mean | SD | Mean | SD |
| | Years | | | | | |
| Age | 22.69 | 3.35 | 23.15 | 6-49 | 21.92 | 5.75 |
| Study | 4.10 | 3.85 | 4.05 | 4.14 | 3.88 | 2-67 |
| Japan | 0.39 | 0.83 | 0.07 | 0.26 | 0.06 | 0.13 |

Note. No significant differences found between treatment groups (ANOVA, p > .05, two tailed).

Table 3

Proficiency Scores for Subjects in Each Treatment Group

| | Treatment Group | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1 | | | 2 | | | 3 | | |
| Test | n[a] | Mean | SD | n | Mean | SD | n | Mean | SD |
| Grammar | 11 | 25.45 | 12.07 | 8 | 24.37 | 8.86 | 7 | 26.00 | 8.54 |
| Listening | 8 | 5.50 | 2.44 | 6 | 5.50 | 1.51 | 6 | 5.00 | 2.36 |
| Reading | 10 | 27.40 | 14.53 | 8 | 30.75 | 10.56 | 6 | 30.33 | 7.96 |
| Kanji | 6 | 6.16 | 5.91 | 5 | 3.20 | 1.48 | 5 | 3.00 | 1.41 |

Note. No significant differences found between treatment groups (ANOVA, $p > .05$, two tailed). Maximum proficiency scores: Grammar = 54; Listen = 10; Read = 54; Kanji = 17.

[a] Not all students in the Japanese program were administered all teats, thus the number of testees is given for each cell.

## Materials

A set of JFL listening tasks was used as both 1) measures of learners' comprehension of the input they heard and 2) exercises to give the learners the opportunity to use and acquire the vocabulary and structures contained within that input. As separate measures of vocabulary retention and structural learning/gain, two vocabulary recognition tests and a sentence picture verification test were also administered.

### Listening Tasks

The tasks used in this study were designed to fulfill two different requirements simultaneously. One requirement was that they be accurate and reliable measures of learners' comprehension of specified vocabulary and structures presented in the target input. Various measures of learner comprehension, and thus intake, of aural input have been discussed in Chaudron (1985b). The author points out that tasks for measuring intake vary in the degrees of 1) comprehension and 2) linguistic production required to perform them. Thus, for instance, one can use anything from a linguistically and intellectually demanding task such as a written recall protocol to a more direct and immediate measure such as identifying and marking specified objects in a picture. The latter type of task was used since it could serve both as a communicative learning tool and an

immediate on-line measure of comprehension that could be reliably, scored.

In this study then', the tasks consisted of spoken descriptions of pictured objects, read aloud by native speaker tutors, which the subjects responded to by marking (i.e., circling and numbering) the specified objects on their picture sheets [7]. Both a) the sets of scripted descriptions used in the tasks, and b) the option of negotiating for meaning varied across the experimental conditions. Directions for the tasks and an, example for the students to try were given at the beginning.of each task session. The directions, example task, and example.picture sheet for day one are found in Appendix A. Example.scripts from each of .the three days' tasks together with their accompanying picture sheets are found in .Appendixes B-D respectively.

Morphosyntax in the tasks. The sentences, in the' tasks contained the two previously mentioned locative structures: subject initial.and-locative- initial. The tasks were designed so that task success depended upon correct interpretation of the meaning of the locatives. Pilot &sting -of the tasks had-shown that locative misinterpretations=-did-, in fact, happen quite frequently.

In each -task, there were three -.sentences, two .of which contained, the locative structures, and.one filler which used an adjective structure. The filler sentences were

included to distract the learners from the focus of the tasks. They were also included to provide the subjects with a greater feeling of success. Thus, they were made intentionally easier for the students to correctly identify. The filler sentences were not included in the analysis.

Vocabulary in the tasks. The tasks were also designed so that interpretation of lexical items in the input sentences would be problematic as well. Of the 60 concrete nouns that were each used once in the first two tasks (still lifes and maps), exactly 30 had been covered in previous course work, while the other 30 had not. In these tasks, the new nouns were always used in conjunction with the old, thus providing more context for inferring their meanings.

In the third task (shapes) there were only 4 target nouns (shape words), all of which were new. However, they were used in conjunction with 2 pairs of old (contrasting) adjectives (2 sizes: 'ookii'= 'big' versus 'tiisai' = 'small'; 2 colors: 'kuro' = 'black, ' versus 'siro' = 'white') and 1 new adjective ('haiiro no' = 'grey'). Each of the shape words was used a total of eight times.

Based on studies reported in Nation (1982), the total of 34 new vocabulary items seemed a reasonable number of words to learn within a period of close to one hour (in

this case, between 30 and 90 minutes). Furthermore, pilot testing of the vocabulary recognition measure (for details, see below) had indicated that the 'old' vocabulary would indeed be familiar to the students and that 'new' vocabulary would not.

The tasks were designed such that there were distractors corresponding to possible misassignments of case roles in the Japanese locative constructions. That is, if a learner mistakenly assigned SUB/Figure status to the OBJ/Ground NP in a sentence, the corresponding pictured relationship (the reverse of the correct choice) was available to be selected. For example, in Appendix B, the distractor,-for the 'ruler to the right of the pen' is the 'pen to the right of the ruler.' In a similar way, pictured low-frequency nouns served as distractors for the target 'new' vocabulary items in the tasks. Thus, for example, in Appendix C, the 'movie theater' (a word not covered in the learners' course work) serves as a possible distractor for the target new word 'insyokuten' (= 'eating house,' or 'restaurant').

The tasks also contained contextual features which could be used by learners in group 3 to identify the target SUB NPs during negotiated interaction. Each target set of SUB and OBJ NPs was differentiatable from its distractor set by a simple pair of contrasting adjectival attributes (e.g., size: 'big' versus 'small'; age: 'old' versus 'new';

price: 'expensive' versus 'cheap'). For example, in Appendix B, the objects in the above mentioned distractor set ('the pen to the right of the ruler') can be distinguished from those in the target set ('the ruler to the right of the pen') by the attribute of size. Both objects in the distractor set are larger than those in the target set. Furthermore, the pairs of attributes that were used all corresponded to adjectives already studied in the students' previous course work.

Measures of Retention and Learning

In order to measure retention of the new vocabulary and learning of the locative structures, students were given aural recognition and sentence verification pre- and posttests on the first and last days of the five day study. Two measures of vocabulary 'recognition' were administered, one as both a pre- and posttest, and the other as only a posttest. A sentence verification test using the locative structures was also given as a pre- and posttest. Differential increases in scores between groups from pretest to posttest were used as measures of learning. Likewise, differences in posttest scores between groups were used as indicators of the superiority of one group over another. All tests were presented aurally through headphones either in university language labs or in private offices.

Vocabulary recognition measures. The first vocabulary test was a 'yes/no' measure of recognition memory for 'item information' (Murdock, 1982). In it, students were asked whether or not they recognized each word that they heard on a tape. The test was comprised of 128 randomly ordered items from two sets of dichotomous categories (2 x 2) with an average of 32 items in each category: a) new words (not contained in the course text) versus old words (contained in the course text) and b) used words (presented,in the treatment) versus unused words (not in the treatment). Students were informed that approximately 50% of the words came from their course text (Jorden & Chaplin, 1962) and had already been covered in their classes. However, they were told, that the other roughly 50% of the words had not been covered in their classes, and that it was not expected that they necessarily knew them. Items were presented aurally at four second intervals. Figure 2 graphically displays the 4 categories used in the test and the number of items in each [8].

The pretest asked students if they recognized the items at all (i.e., it tested their ability to discriminate 'new' from 'old' items). The posttest asked students if they recognized the items as having been included in the previous treatment (i.e., it tested their discrimination of 'used' and 'unused' items). Again, students were informed that only 50% of the words had been included in the tasks.

| | New Words (k = 66) | Old Words * (k = 62) |
|---|---|---|
| Used Words (k = 64) | New-Used (k = 30 + 4) | Old-Used (k = 30 + 0) |
| Unused Words * * (k = 64) | New-Unused (k = 32) | Old-Unused (k = 32) |

Note: * Comparison group for the pretest; * * Distractors for the posttest.

The four extra words in the new-used category come from the shapes task, which had no corresponding 'old' nouns to match against them.

Figure 2.

Four categories of words in the vocabulary item recognition test.

Students' recognition scores were determined by looking at their percentages of correct acceptances and rejections. 'Unused' words contained in the test served the dual function of providing filler in the pretest and distractors in the posttest. As filler in the pretest, the items should have diminished any test familiarity effect. The primary object was to see if the 34 new-used words would be better recognized after the treatment than before.

The second vocabulary test was a forced-choice measure of recognition memory for 'associative information' (Murdock, 1982). The test, which utilized a picture booklet, asked students to choose the correct picture out of four that represented the word that they heard on the tape. Students were given five seconds to respond after the presentation of each word. The tape contained only words which were used in the treatment (both 'new' and 'old'). However, as with the item recognition test, the 'old' words were already quite well known to the learners, and thus were used as primarily as filler items. Only pictures used in the treatment were used as distractors.

Because of the test's specificity in picture-word relations, the test was used only as a posttest in order to avoid a priming effect on the students. This diminished the test's value, since it could not be used to compare pretest/posttest gain. However. the test has more face validity as a measure of vocabulary learning since learners

must associate the word with the correct picture. Thus, the test was used to complement the other, primary, recognition measure.

The sentence verification measure. In order to measure learners' comprehension of morphosyntactically encoded relations in Japanese locative constructions, a sentence verification test was developed (see Kennedy, 1978, for a description of similar tests). The test, which also used a picture booklet, aurally presented 32 different locative sentences describing 8 different pictures (each picture used 4 times). Each sentence/picture combination fit within one of four possibilities in a two-by-two framework: a) locative initial versus subject initial structures and b) true versus false statements. As can be seen by examining Figure 3, the truth value of the sentences was determined solely by the relationship between a) the case roles assigned to the two NPs in each sentence, and b) the reference picture.

As with the vocabulary item recognition test, students were informed that only 50% of the items were true. Overall accuracy of responses was used as the dependent measure. Approximately 50% of the items in the actual test were 'filler' items (e.g., 'The store is open from 9 to 5') and were not included in the analysis. Again, this was done in order to avoid a priming effect on the students through

| | Locative Initial | Subject Initial |
|---|---|---|
| True | Kooban no hidari ni yuubinkyoku ga arimasu.<br><br>(Left of the police station is the post office.) | Yuubinkyoku wa kooban no hidari ni arimasu.<br><br>(The post office is left of the police station.) |
| False | *Yuubinkyoku no hidari ni kooban ga arimasu.<br><br>(*Left of the post office is the police station.) | *Kooban wa yuubinkyoku no hidari ni arimasu.<br><br>(*The police station is left of the post office.) |

Reference Picture

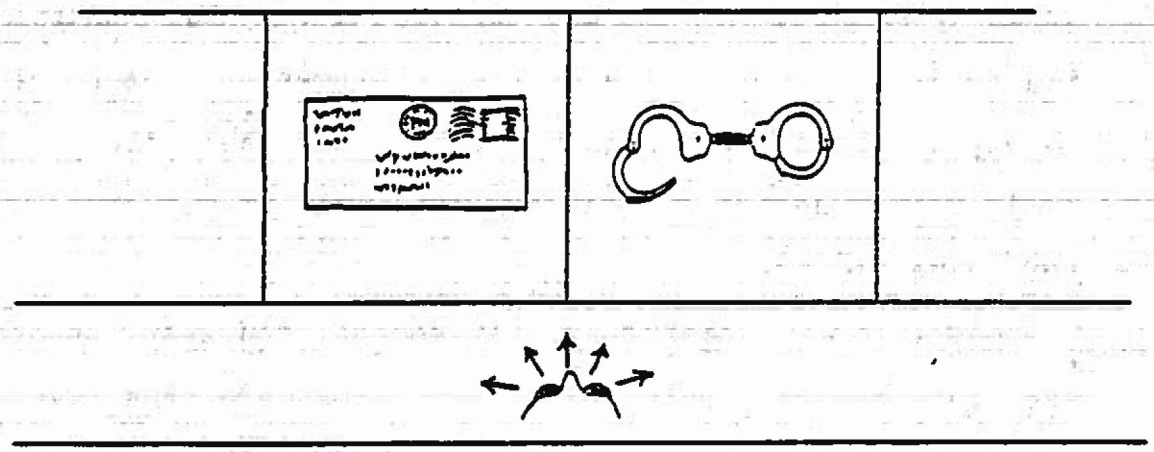


Figure 3.

Four categories of sentences used in the sentence verification test with example sentences and reference picture.

taking the pretest. Sentences were randomly ordered and students were given four seconds to respond after. hearing each sentence. Only old vocabulary items that were not included elsewhere in the study were included in the test sentences. This was done first to ensure that deficiencies in vocabulary knowledge would not be a factor in test performance and second to avoid a priming effect on new words.

Pilot testing of the materials. During the semester preceding the actual study, all three tests were piloted with a sample of students from the first, ,second, and fourth semesters of study. The piloting of the tests revealed that they were able to discriminate between a) semester levels of students (in all tests), b) new and old vocabulary items in the recognition tests, and c) subject initial and locative initial structures in the sentence verification test.

The listening tasks were also pilot tested with five paid volunteer students in their fourth term of Japanese study. Three paid volunteer tutors worked with the students. The pilot testing was used first to revise unclear task items. Second, it provided a trial run of the experimental procedures to be used in the study. Finally, it was used in conjunction with results from the pilot testing of the tests to verify that the level of difficulty of the tasks would be neither too difficult for second

semester students' nor too easy for fourth semester students.

**Reliability of the measures.** Measures of the internal reliability of the above tests' and listening tasks with the student population in the thesis study are shown' in Table 4. 'As can be seen from the table, the 'tests and tasks all achieved a relatively 'high degree of internal, reliability, ranging from .73 to .90.

## Procedures

### Timeline of the Experiment

The experiment lasted five days. On the first day, the students were given: the two pretests: vocabulary item recognition and sentence verification. On the second, third, and fourth days, students were given three treatment sessions consisting of the listening tasks in an expected order of increasing difficulty: first the still lifes task, second the maps task, and third the shapes task [9]. On the fifth day, students' were' given the three posttests: item recognition, associative recognition, and sentence verification.

The spacing of tests-and treatment 'sessions was such that there was always a 1-3 day interval between sessions. Such spacing was considered ample to provide both a reasonable short-term memory buffer (c.f., 'forgetting' research reviewed in Anderson, 1985) for the sake of

Table 4

Reliability of Pre- and Posttests, and Listening Tasks

| Test | alpha |
|---|---|
| Vocabulary Recognition (128 items) | |
| Pretest[a] | .89 |
| Posttest[b] | .90 |
| Sentence Picture Verification (32 items) | |
| Pretest | .85 |
| Posttest | .86 |
| Vocabulary Picture Recognition (34 items)[c] | |
| Posttest | .75 |
| Listening Task (12 items) | |
| Still Life | .73 |
| Map | .74 |
| Shape | .83 |

Internal consistancy calculated with Cronbach's alpha.

[a] Students were asked if they recognized the words at all.

[b] Students were asked if they recognized the words from the tasks they had done during the treatment.

[c] Because it was expected that the item facility for the 'old' words would be extremely high, only the 'new' items were included in the analyses, including the reliability coefficient.

external validity, and, at the same time, short enough to keep outside influences to a minimum.

**Tutors**

Tutor background variables. The students in the study wosked with paid tutors during the listening task treatment sessions. All tutors in the study (number = 11) were native speakers of Japanese and had experience teaching Japanese and/or English as foreign languages. All tutors had graduate level training and/or degrees in second/foreign language teaching pedagogy.

Tutor/learner pairing. In assigning students to work with particular tutors, two controls were considered essential: 1) the same tutor had to work with a given student for the three consecutive days of treatment; 2) each tutor could be assigned to only one treatment, for the duration of the study. These considerations in conjunction with tutors' time availability acted as constraints in assignment of tutors to treatment groups. Three of the tutors were assigned to the negotiated interaction condition. Due to a lack of long stretches of available time to work with students, six different tutors were eventually needed for the premodified input condition. Due to availability of time, only two tutors needed to be assigned to the baseline/no modifications condition.

Ensurance of Experimental Procedures

Tutor training. In order to ensure that the tutors understood exactly what to do during the course of the study, each tutor received from 30 minutes to one hour of training. All tutors were given handouts explaining in detail all procedures to be used in course of the study and given the opportunity to ask any questions needed (Appendix E). The contents of the handouts varied according to the treatment groups. Key points in the handouts were also explained verbally. Furthermore, during the course of the study, tutors were routinely visited in order to check if they were having any difficulties in following the procedures of the experiment.

Student briefing. Students were given a handout to read at the beginning of each treatment session which outlined the procedures of the session (Appendix F). As with the tutors' handouts, the students' handouts varied according to their treatment groups. Key points in the handouts had been highlighted with a highlighter marker for the students. Also, students were encouraged to ask their tutors if they did not understand any of the procedures.

Similarities Across Experimental Conditions

Time. Each group was given three treatment sessions, lasting anywhere from 5 to 30 minutes each, consisting of six trials of a particular task. In order to control for time as a factor affecting performance across groups, all

students were given as long as they wanted to complete each trial in each task. Thus, any effects for length of time spent by learners in each group would reach asymptote. In this way, it could not be argued that if students had been given more time, they might have performed differently.

Vocabulary lists. In order to provide students with at least a minimal chance of task success, all students were given a minimal degree of exposure to the new words contained in each day's task before starting it. Each day, before starting a new task, students were allowed a brief amount of time to study a romanized list of that particular task's old and new L2 vocabulary items along with English translations (Appendix C).

Before receiving the day's list, students were told how much time they would have to study it, e.g., 1 minute. The amount of time was such that the students would have approximately one second to scan each printed word (L2 or English). When the time period ended, the list was taken back by the tutor and the day's task trials were begun.

For the day three task, shapes, the adjectives used in the task, were also included in the list. This served to add filler to the list (i.e., take the focus off of the new shape nouns) and because the adjectives were important for task success.

**Knowledge of results.** In order to control for students' knowledge of results as a possible factor affecting learning across groups, all students were given immediate feedback as to the correctness of their choices following each trial. Tutors were instructed to wait until the student had indicated that he/she had completed a trial, after which the student's picture sheet was collected and feedback was given. Feedback was limited, however, to only the correctness of student's choices; the feedback did not include any sort of explanations nor, in the case of inncorrect choices, any answers as to which choices would have been correct*

**Differences Across Experimental Conditions**

**Input differences.** The three respective treatment groups were differentiated by the types of input available and the interaction allowed during performance of the given tasks. That is, they differed in 1) the quality and quantity of input in the NS's descriptions of the pictured objects, and 2) whether or not the NS and the NNS were allowed to negotiate for meaning during performance of the tasks. In all cases, however, the tasks performed by the students were constant across groups. The differences between the three experimental treatments can be outlined as follows:

1) (-) premodified input
   (-) negotiated interaction
2) (+) premodified input
   (-) negotiated interaction
3) (-) premodified input
   (+) negotiated interaction

Premodified input. Regarding the premodified input variable, the NS's descriptions differed in the degree to which they included either elaboration or simplification (Chaudron, 1982; Hatch, 1983; Just & Carpenter, 1987; Parker & Chaudron, 1987) of the baseline input. It is important to note that the baseline input was already at a quite simple level in the still lifes and maps tasks. Thus, the baseline input was not supposed to represent typical native-speaker-level input. Rather, it represented a highly controlled set of Japanese locative constructions containing a 50/50 ratio of familiar and unfamiliar vocabulary items. Thus, the naturalness of the baseline input was sacrificed in favor of complete control over it.

In a similar way, the premodified input is not claimed to 'be a' fully natural representation of 'foreigner talk.' For example, in order to avoid giving the premodified input group an unfair advantage over the baseline input group, modified input was limited to one utterance added to each baseline input description. Thus, the premodified input versus baseline/unmodified input contrast is not claimed to

be the same as the contrast between foreigner talk and native speaker speech. Rather, the contrast is between baseline and modified experimental input.

Examples of premodified input elaborations can be seen in the modified versions of the task descriptions (Appendixes B and C). The additional sentences include such redundant and elaborative features as vocabulary definition and opposition, as well as rephrasing (with repetition of the LOC P and NPs) of the original description. Such rephrasings often included substituting the subject initial (presumably easier) construction for the locative initial construction.

Examples of premodified input simplification can be seen in the modified versions of the task descriptions in Appendix D. The additional sentences include such features as omission of sentence elements (as a focusing device) and a general reduction of sentence length (as an aid to working memory constraints).

The lack of uniformity of input premodifications between the first two tasks and the third task is due to differences between the tasks themselves. The first difference lies in the amount of contextual information available in each of the tasks. Both the still lifes and maps tasks contain quite a bit of latent contextual information available within the nouns and the pictures

representing them. Such information, for example that a 'zikokuhyoo' (timetable) contains bus times, was used in creating numerous vocabulary elaborations in the still lifes and maps tasks (see Appendix B, description 2). Such information is lacking in the shapes task, and thus vocabulary elaborations were not a part of its premodified input.

Furthermore, the baseline input sentence length in the first two tasks is less than that in the third (shapes) task due the latter having four extra adjectives per sentence. Thus, in the first two days' tasks, two types of elaborative modifications were often combined within the single extra utterance (e.g., vocabulary elaborations embedded within repetitions of the locative structures). On the other hand, this seemed unfeasible in the third task. Rather, input simplification through paring away of confusing elements and a general reduction of sentence length was carried out.

eractionally modified input. Negotiated interaction as a variable was controlled only to the extent that it was or was not allowed and encouraged to take place. Since interaction is by implicit definition something which must occur spontaneously, it could not be controlled in the same way. the scripted premodified input was. However, based on research on the relationship between task characteristics and student interaction, it seemed safe to presume that the

tasks used in the treatment, which required a one-way exchange of discrete information, would generate at least a moderate amount of negotiated interaction (Loschky, 1988; Pica, Holliday. Lewis & Morgenthaler, 1989). Furthermore, it was assumed that the input arising from this interaction would likely contain many of the same types of modifications as those in the 'premodified input' treatment condition (Pica, Young & Doughty, 1987).

Validity of the treatment group distinctions. In order to be able to check on the validity of the differences between the interaction and non-interaction groups. audio taping was done during 100% of the group 3 sessions and during a random sample of 33% of the group 1 and group 2 sessions. The total corpus included approximately twelve hours of tape time. A systematic random sample of 15% of all taped sessions was then checked for evidence of negotiated interaction using Long's (1981) categories of interactional modifications (i.e., clarification requests, confirmation checks. and comprehension checks). No evidence of any negotiated interaction was found in groups 1 and 2. In contrast, numerous examples of negotiated interaction were found in group 3.

A more detailed description of the negotiated interactions and modifications of input in group 3 is presented in Table 5. The sample includes all interactions

Table 5

Modifications of Interaction and Input by Learners and Tutors in Group 3 in the Three Listening Tasks[a]

| | Task | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Still Lifes | | Maps | | Shapes | | Total | |
| Set | N | % | N | % | N | % | N | % |
| **Modifications of Interaction by Learners** | | | | | | | | |
| Clarif | 10 | 15% | 21 | 31% | 14 | 21% | 45 | 67% |
| Confirm | 1 | 1% | 13 | 19% | 8 | 12% | 22 | 33% |
| Total | 11 | 16% | 34 | 51% | 22 | 33% | 67 | 100% |
| **Modifications of Interaction and Input by Tutors** | | | | | | | | |
| Compr | 3 | 4% | 1 | 1% | 0 | 0% | 4 | 5% |
| Repet | 21 | 25% | 15 | 18% | 16 | 19% | 52 | 63% |
| Elabor | 7 | 8% | 17 | 20% | 3 | 4% | 27 | 33% |
| Total | 31 | 37% | 33 | 40% | 19 | 23% | 83 | 100% |

Note. All percentages rounded to the nearest hundredth. Clarif = Clarification Request; Confirm = Confirmation Check; Compr = Comprehension Check; Repet = Exact self repetition; Elabor = Elaboration of target utterance.

[a] This sample includes all interactions up to the hundredth T-Unit in the random sample of the entire corpus.

up to the hundredth T-unit in the randomly selected sample of the corpus. While it seems that the sample is rather small to make valid judgements regarding the separate tasks, the learners' and the tutors? preferred strategies seem clear. The learners appear to request clarification the most frequently, and in particular, this includes many requests for repetition of the tutor's last utterance. Not suprisingly, the tutors appear to give exact repetitions most frequently. The category of tutor 'elaboration' refers to any rephrasing, expandinq, or explaining of all or any part of the original target utterance.

Input complexity was also checked across the three groups. Words per T-unit and clauses per T-unit ratios were calculated for all of the scripts in groups 1 and 2. For group 3, the first 100 T-units from the 15% sample of taped sessions was used. The results are shown in Table 6. As can be seen, there were apparent differences between groups, and across tasks. Both in terms of words and clauses per T-unit, group 2 appears above the mean for all groups in the first two days tasks (those in which the premodified input was highly elaborated). In contrast, group 2 has less words per T-unit than group 1 in the third day's task (in which the premodified input was simplified). Group 3 has less words per T-unit than either group across all tasks. However, this may be partially due to the number of fragments in Group 3's data [10]. Nevertheless, statistical.

Table 6

Words per T-unit and Clauses per T-unit in Input by Treatment Group and Task[a]

| | Treatment Group | | | |
|---|---|---|---|---|
| Tasks | 1 | 2 | 3 | Mean |
| Still lifes | | | | |
| Words/T-unit | 7.00 | 8.41 | 6.84 | 7.41 |
| Clauses/T-unit | 1.00 | 1.54 | 1.04 | 1.19 |
| Maps | | | | |
| Words/T-unit | 7.00 | 8.33 | 6.96 | 7.43 |
| Clauses/T-unit | 1.00 | 1.37 | 1.03 | 1.13 |
| Shapes | | | | |
| Words/T-unit | 11.66 | 8.96 | 8.71 | 9.77 |
| Clauses/T-unit | 1.00 | 1.00 | 1.00 | 1.00 |
| Total Tasks | | | | |
| Words/T-unit | 8.52 | 8.58 | 7.40 | 8.16 |
| Clauses/T-unit | 1.00 | 1.29 | 1.03 | 1.10 |

Note. All figures rounded to the nearest hundredth.

a This sample is comprised of 100% of the group 1 and 2 scripted corpus; for group 3, the sample includes the first 100 T-units in the random sample of the entire corpus.

analyses have not been carried out on this descriptive data, so the significance of the differences is untested.

A further test of the differences between groups would be to compare the degree of input elaboration and/or redundancy in groups 2 and 3. One possibility would be to follow the example of Pica, Young and Doughty (1987) and measure repetitions of key content words and/or phrases (e.g., the SUB NPs or the LOC Ps). However, for the time being, such an analysis must await further research.

## Analysis

The analyses were conducted according to the types of variables being analyzed. For all analyses, the level of significance was set at .05.

### Pretest Level Analyses

One-way analyses of variance (ANOVAs) by level were calculated for vocabulary item recognition and sentence verification pretest scores. This was done to determine whether the measures discriminated between groups of students assumed to have *a priori* differences in knowledge of Japanese.

### Pretest Treatment Analyses

Similar one-way ANOVAs by treatment were calculated for both the vocabulary item recognition and sentence verification pretest scores. This was done to ensure that there were no significant differences between

treatment groups on these measures at the start of the study.

Listening Task Analyses

One-way analyses of covariance (ANCOVAs) by treatment, for all tasks combined, and each task separately, with vocabulary item recognition and sentence verification pretest scores as covariates, were calculated. Students' pretest scores were used as covariates for the task scores in order to minimize the level of within-group error variance due to preexisting subject differences in lexical and morphosyntactic knowledge. In this way, variance due to treatment effect would be more clearly distinguished. A priori planned comparisons tested the hypothesized superiority of group 3 over 2 and 1, and group 2 over 1 for all ANCOVA, by each task separately and total task scores. These were used in order to further test Hypotheses 1 and 2, that negotiated interaction and premodified input in the tasks would improve comprehension..

Posttest Analyses

Vocabulary item recognition. As with the listening task analyses, one-way ANCOVAs by treatment were calculated for all vocabulary item recognition categories combined, and for new-used words separately, with vocabulary item recognition pretest scores as covariates (and with a priori comparisons where appropriate). These analyses were done in order to test Hypotheses 3 and 4 that having been a)

engaged in negotiated interaction or b) exposed to premodified input during the tasks would lead to higher gains in vocabulary recognition than a) no negotiated interaction or b) exposure to only baseline input.

Finally, Pearson correlation coefficients between vocabulary item recognition pretest/posttest gain scores and task scores by treatment, for all categories combined and for new-used words separately, were calculated. This was done in order to gauge the magnitude of the relationship between on-line comprehension during the treatment sessions and subsequent retention of vocabulary item recognition.

Vocabulary associative recognition. To test Hypotheses 5 and 6 (which were identical to H3 and H4 except in the dependent measure used), the same type of ANCOVAs were calculated for the vocabulary associative recognition 'new' word posttest scores (with a priori comparisons where appropriate). Since there were no associative recognition pretest scores to use as a covariate in the ANCOVA, the item recognition pretest scores were used instead.

verification. In order to test hypotheses 7 and 8 (which were identical to H3 and H4 except in the dependent measure used) the same type of ANCOVAs by treatment were calculated for the sentence verification posttest scores (all sentence categories combined), with

sentence verification prettest scores as the covariate (and with *a priori* comparisons where appropriate).

As with the vocabulary item recognition test, the Pearson correlations between sentence verification gain scores and treatment task scores for the three groups both separately and combined were calculated.

# CHAPTER VI

# RESULTS

## Precursors

### Pretest Level Differences

As was stated earlier, one of the main criteria for subject selection was that the subjects could be divided into two proficiency levels. In order to see if the second and fourth semester students actually differed in terms of their vocabulary recognition and morphosyntactic comprehension of locative structures, students' means on each of the appropriate pretest measures were compared across proficiency levels with a one-way ANOVA.

Concerning vocabulary item recognition. second and fourth semester students' pretest mean scores are displayed in Table 7. As can clearly be seen, there is a definite difference by level since fourth semester students scored consistently higher than the second semester students in each of the four categories of words in the measure. This difference was significant for all categories combined ($F$ ($df = 1$) = 28.61, $p < .05$) as well as for the new-used category ($F$ ($df = 1$) = 21.97, $p < .05$). Furthermore, the word familiarity distinction between 'new-used' and 'old-used' words was also clearly validated. Thus, item recognition of 'old-used' words was significantly higher than that of 'new-used' words for all students combined ($t$ ($df = 40$) = 33.44, $p < .05$).

Table 7

Pretest Vocabulary Item Recognition Scores by Level, Use in Listening Tasks, and Familiarity

| | Semester | | | | | |
|---|---|---|---|---|---|---|
| | 2 (n = 22) | | 4 (n = 17) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD |
| Used | | | | | | |
| New | .17 | .10 | .34 | .13 | .24 | .12 |
| Old | .93 | .07 | .98 | .02 | .95 | .05 |
| Mean | .55 | .06 | .66 | .07 | .60 | .07 |
| Unused | | | | | | |
| New | .11 | .09 | .24 | .14 | .17 | .11 |
| Old | .87 | .08 | .94 | .04 | .90 | .06 |
| Mean | .49 | .06 | .59 | .08 | .53 | .09 |
| Total | .51 | .06 | .62 | .07 | .56 | .06 |

Note. All figures rounded to the nearest hundredth. Used = words used in tasks; Unused = words not used in tasks.

Sentence verification mean scores for students at both semester levels can be seen in Table 8. Once again, there were clear differences across the two levels in every category. On a one-way ANOVA, for all categories combined, these differences were significant ($F$ (df = 1) = 14.96, $p < .05$). For all students combined, it had been expected that the locative initial sentences would prove more difficult to comprehend than those which were subject initial, and while it appears that this was the case, the difference was not significant ($t$ (df = 40) = 1.78, n.s.). Also notable, though of less interest here, false sentences were significantly more difficult to correctly verify than true sentences ($t$ (df = 40) = 6-04, $p < .05$).

Taken together, the data from both the vocabulary and morphosyntactic measures suggested that there was a sufficient range of student ability for measurable learning to occur.

**Pretest Treatment Group Differences**

After it had been established that there was a wide range of ability within the groups, the next question was whether there were any pre-existing differences between treatment groups in their knowledge of the target vocabulary items and morphosyntactic structures. Tables 9 and 10 show students' mean scores on the vocabulary item recognition and sentence verification pretests, respectively. As can be seen, there was very little

Table 8

Pretest Sentence Verification Accuracy Scores by Level, Structure Type, and Truth Value

| | Semester | | | | | |
|---|---|---|---|---|---|---|
| | 2 (n = 22) | | 4 (n = 17) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD |
| Subject | | | | | | |
| True | .73 | .15 | .90 | .09 | .80 | .13 |
| False | .56 | .23 | .74 | .16 | .64 | .20 |
| Mean | .65 | .17 | .82 | .11 | .72 | .14 |
| Locative | | | | | | |
| True | .63 | .26 | .81 | .23 | .71 | .25 |
| False | .52 | .26 | .75 | .22 | .62 | .26 |
| Mean | .57 | .24 | .78 | .22 | .66 | .23 |
| Total | .61 | .16 | .80 | .14 | .69 | .15 |

Note. All figures rounded to the nearest hundredth. Subject = subject initial; Locative = locative initial.

variation between treatment groups on either measure. There was slightly greater variability between groups on the sentence verification measure than on the vocabulary measure; however, one-way ANOVAs revealed no significant differences between groups.

In regard to the distinction between subject and locative initial structures, using one-way ANOVA, the sentence verification pretest revealed no significant differences between treatment groups. However, it is worth noting in Table 10 that Group 1 seems to have started out with a slightly better grasp of the locative initial structure than the subject initial structure, compared with Groups 2 and 3 who had better performance on the subject initial structure.

## Results of the Hypotheses

### H1: The Facilitation of On-line Comprehension by Negotiated Interaction

Table 11 shows the mean listening task scores for students in the three treatment groups. As was predicted, the mean score for total task performance indicates that the negotiated interaction group had greater on-line comprehension of input than either of the other groups not allowed to negotiate interaction. Table 12 shows the results of a one-way analysis of covariance, by group, for total task scores, with vocabulary item recognition and sentence verification pretest scores as covariates. There

Table 9

Pretest Vocabulary Item Recognition Scores by Treatment Group, Use in Listening Tasks, and Familiarity

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Used. | | | | | | | | |
| New | .25 | .15 | .23 | .15 | .25 | .13 | .24 | .14 |
| Old | .96 | .04 | .96 | .06 | .94 | .08 | .95 | .06 |
| Mean | .60 | .09 | .60 | .08 | .60 | .09 | .60 | .08 |
| Unused | | | | | | | | |
| New | .15 | .10 | .15 | .12 | .21 | .16 | .17 | .13 |
| Old | .89 | .08 | .90 | .08 | .90 | .06 | .90 | .07 |
| Mean | .52 | .08 | .53 | .08 | .55 | .10 | .53 | .09 |
| Total | .55 | .08 | .55 | .08 | .56 | .09 | .56 | .09 |

Note. All figures sounded to the nearest hundredth. Used = words used in tasks; Unused = words not used in tasks.

**Table 10**

**Pretest Sentence Verification Accuracy Scores by Treatment Group, Structure Type, and Truth Value**

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Subject | | | | | | | | |
| True | .74 | .14 | .84 | .15 | .80 | .15 | .80 | .15 |
| False | .57 | .27 | .69 | .17 | .62 | .23 | .62 | .22 |
| Mean | .66 | .20 | .76 | .15 | .71 | .16 | .71 | .17 |
| Locative | | | | | | | | |
| True | .71 | .22 | .71 | .28 | .63 | .32 | .69 | .27 |
| False | .68 | .22 | .58 | .28 | .55 | .30 | .61 | .27 |
| Mean | .70 | .21 | .64 | .27 | .60 | .29 | .65 | .26 |
| Total | .68 | .18 | .70 | .20 | .65 | .19 | .68 | .19 |

**Note.** All figures rounded to the nearest hundredth. Subject = subject initial; Locative = locative initial.

Table 11

Scores on Listening Tasks by Treatment Group

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Task | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Still | .62 | .22 | .57 | .27 | .71 | .23 | .63 | .24 |
| Maps | .56 | .23 | a41 | .20 | .65 | .28 | .54 | .24 |
| Shapes | .40 | .27 | .43 | .31 | .64 | .26 | .49 | .28 |
| Total | .53 | .21 | .47 | .23 | .67 | .23 | .55 | .22 |

Note. All figures rounded to the nearest hundredth'. Still = Still lifes task.

Table 12

One-way Analysis of Covariance for All Tasks Combined by Treatment

| Source of Variance | SS | df | MS | F | |
|---|---|---|---|---|---|
| Covariates | | | | | |
| Voc Rec Pretest | .048 | 1 | .048 | 1.944 | ns |
| Sent Ver Pretest | .732 | 1 | .732 | 29.572 | * |
| Main Effects | | | | | |
| Treatment | .362 | 2 | .181 | 7.307 | * |
| Residual Error | .891 | 36 | .025 | | |
| Total | 2.176 | 40 | .054 | | |

yo+~ .Voc Rec Pretest = Vocabulary Item Recognition Pretest; Sent Ver Pretest = Sentence Verification Pretest.

* p< .05.

was a significant main effect for tseatment. ($F$ (df = 2) = 7.307, p< .05). *A priori* planned comparisons tested the hypothesized superiority of Group 3 over 2 and 1. The negotiated interaction group was confirmed as being significantly superior to Group 2 ($t$ (df = 36) = 3.227, p< .05) and Group 1 ($t$ (df = 36) = 2.281, p< m05), on the mean for total task scores*

Figure 4 shows the relationship between means for treatment groups by task. Separate one-way analyses of covariance (Tables 13, 14, 15 in Appendix H) indicated a significant main effect for treatment for each task; however, *a priori* planned comparisons showed that the superiority of the negotiated interaction group over both other groups was not significant for every task. On the shapes task, Group 3 performed significantly: better than both Group 2 ($t$ (df = 36) = 2.422, p< .05) and Group 1 ($t$ (df = 36) = 2.770, p< .05). However, on the still lifes and maps tasks, Group 3 only performed significantly better than Group 2 ($t$ (df = 36) = 2.265, p< .05; $t$ (df = 36) = 3.035, p< .05 respectively). Differences between Group 3 and Group 1 on these tasks were not significant.

**H2: The Facilitation of On-line Comprehension by Premodified Input**

Contrary to expectations, students in Group 2 (premodified input) did not comprehend input better than Group 1 (baseline/no modifications) on total task scores.

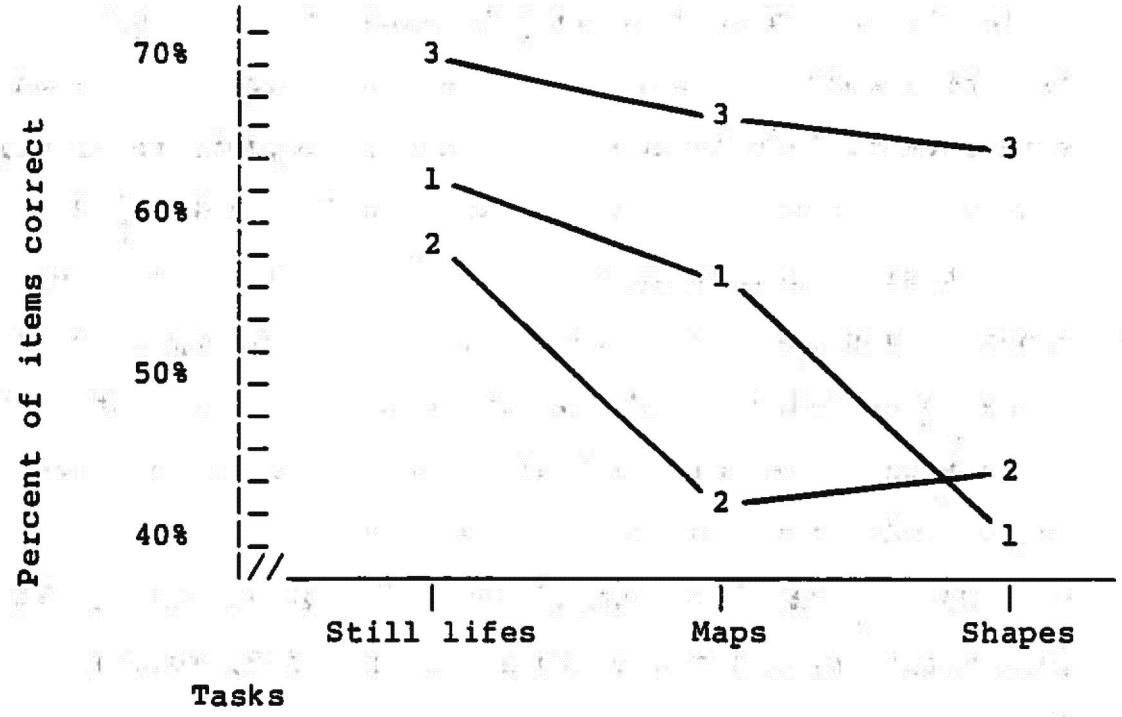



Figure 4.

Listening task mean scores by group and task.

As is clearly shown in Figure 4, students in Group 2 performed worst overall and better than Group 1 only on the shapes task. Even on the shapes task, however, the a priori comparisons revealed that the superiority of Group 2 over 1 was not significant* In order to see if, in fact, the opposite was the case, i.e., Group 1 over Group 2, post hoc comparisons using the Tukey-HSD multiple range test were calculated. No significant differences for Group 1 over Group 2 were found on any of the tasks.

**H3 & H4: The Facilitation of Retention of Vocabulary Item Recognition by Negotiated Interaction and Premodified Input.**

Table 16 shows the mean posttest scores for each treatment group in each of the use and familiarity categories. With vocabulary recognition pretest scores as a covariate, a one-way analysis of covariance by treatment was calculated for students' posttest scores collapsed across all four categories* The same analysis was also performed separately for the category of new words used in the treatment tasks. Contrary to Hypotheses 3 and 4, differences between treatment groups were minimal, with no significant main effects for treatment. The virtual-ly identical pre- and posttest scores for all three groups precluded the possibility.of finding any significant differences.

Table 16

Posttest Vocabulary Item Recognition Accuracy Scores by Treatment Group, Use in Listening Tasks, and Familiarity

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Used | | | | | | | | |
| New | .55 | .19 | .56 | .23 | .56 | .15 | .56 | .19 |
| Old | .88 | .14 | .88 | .10 | .88 | .09 | .88 | .11 |
| Mean | .71 | .16 | .72 | .13 | .72 | .09 | .72 | .13 |
| Unused | | | | | | | | |
| New | .86 | .10 | .85 | .13 | .88 | .06 | .87 | .10 |
| Old | .83 | .23 | .88 | .11 | .88 | .08 | .86 | .16 |
| Mean | .85 | .16 | .86 | .10 | .88 | .07 | .86 | .12 |
| Total | .78 | .09 | .79 | .06 | .80 | .06 | .79 | .07 |

Note. All figures rounded to the nearest hundredth. Used = words used in tasks; Unused = words not used in tasks.

Pearson correlation coefficients between 1) pretest/posttest gain on new-used words, and 2) success on listening tasks, were calculated for all three treatment groups together and each separately. A non-significant, negative, nearly zero, correlation was found overall (r= -.08, df= 41, n.s.).

**H5 & H6: The Facilitation of Retention of Vocabulary Associative Recognition by Negotiated Interaction and Premodified Input**

Table 17 shows the mean posttest scores for all treatment groups on associative (picture) recognition of vocabulary in both the 'new' and 'old' categories of words used in the listening tasks (though the new words are of primary interest). A one-way analysis of covariance by treatment was calculated for the new-used category using pretest item recognition scores as a covariate. Mirroring the results of the vocabulary item recognition measure, in opposition to Hypotheses 5 and 6, the minimal differences between groups meant that there was no significant main effect for treatment.

**H7 & H8: The Facilitation of Learning of Morphosyntactic Structure by Negotiated Interaction and Premodified Input**

Table 18 shows the mean sentence verification posttest scores for the three treatment groups for all four sentence categories. Again, a one-way analysis of covariance by treatment was calculated using students' sentence

Table 17

Posttest Vocabulary Associative Recognition Accuracy Scores by Treatment Group and Familiarity

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Set | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| | Words Used in the Tasks | | | | | | | |
| New | .65 | .17 | .66 | .14 | .67 | .14 | .66 | .15 |
| Old | .98 | .02 | .98 | .05 | .98 | .03 | .98 | .04 |
| Total | .79 | .10 | .80 | .08 | .80 | .08 | .80 | .09 |

Note. All figures rounded to the nearest hundredth.

Table 18

Posttest Sentence Verification Accuracy Scores by Treatment Group, Structure Type, and Truth Value

| | Treatment Group | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 (n = 14) | | 2 (n = 14) | | 3 (n = 13) | | Total | |
| Set: | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| Subject | | | | | | | | |
| True | .85 | .24 | .90 | .10 | .88 | .10 | .88 | .16 |
| False | m73 | .26 | a84 | .18 | .77 | .18 | .78 | .21 |
| Mean | .79 | m24 | .87 | .13 | .82 | .12 | .83 | .17 |
| Locative | | | | | | | | |
| True | .89 | .13 | .86 | .18 | .77 | .26 | .84 | .19 |
| False | .82 | .15 | .74 | .29 | .73 | .28 | .77 | .25 |
| Mean | .86 | .12 | .80 | .22 | .75 | .27 | .80 | .21 |
| Total | .82 | .15 | .83 | .17 | .79 | .18 | .82 | :16 |

Note. All figures rounded to the nearest hundredth. Subject = subject initial; Locative = locative initial!

verification pretest scores as a covariate of the posttest scores. In opposition to the stated hypotheses, there was no significant main effect for treatment.

Looking at pretest/posttest gain, a comparison of the sentence verification pretest scores (Table 10) and posttest scores (Table 18) shows that the three treatment groups' gains ranged from 13-14%, with virtually no difference between groups.

Pearson correlation coefficients between pretest/posttest gain on sentence verification and success on listening tasks were calculated for the treatment groups together and separately. As with the vocabulary recognition gain scores, there was a slightly negative, close to zero, non-significant correlation between sentence verification gains and task success for the three groups overall ($r = -.17$ ($df = 41$), n.s.).

## CHAPTER VII

## DISCUSSION

The results of this cross-sectional micro-longitudinal experiment provide mixed support for Krashen's Input Hypothesis and Long's (1981) revision of it. Discussion of these results will begin with the hypothesis regarding the relationship between negotiated 'interaction and on-line comprehension. Next, the results for the hypothesis concerning the relationship between premodified input and on-line comprehension will be discussed. Following this, the results which concern the relationship between negotiated interaction, premodified input, and retention and learning will be discussed.

### On-line Comprehension and Negotiated Interaction

Concerning the role of negotiated interaction in on-line comprehension, the results clearly support Long's claims for negotiated interaction's facilitating effects. This also lends further support to the findings of Pica, Young and Doughty (1987) that negotiated interaction does increase comprehension as measured by listening task performance. Furthermore, it does so with a different (foreign) language: Japanese.

The results also shed light on the possible effects task difficulty may have on the relationship between negotiated interaction and online comprehension. As Figure 4 illustrates (see above), the greater the overall task

difficulty, the greater the effect for negotiated interaction. Indeed, it was the most difficult task, the shapes task, which was decisive in bringing out the main effect for treatment when the means for all three tasks were collapsed. What this seems to indicate is that the most difficult task highlighted the trend which was already apparent in the relatively easier tasks. Put most simply, the more trouble one has comprehending, the more vital it is to be able to negotiate input with one's interlocutor [11].

In fact, across all tasks, as had been expected, students given the chance to negotiate their input managed to get their tutors to repeat strings of connected speech too long or complex to hold in working memory, to explain unfamiliar words, or to rephrase difficult structures (e.g., see Table 5 above). Such students also made extensive use of salient contextual features in the tasks in order to make up for deficiencies in their linguistic knowledge. Examples of such negotiated interactions in the still lifes, maps, and shapes tasks are given in Appendixes I, J, and K respectively [12].

## On-line Comprehension and Premodified Input

Based on the results of the study, it appears that claims for the benefits of premodified input must be somewhat tempered. As Chaudron (1982, 1983b) points out,

modified input, without the possibility of learner feedback to the native speaker, can, at least in cases such as this, be a detriment to the learner's comprehension. Conversely, native speaker modifications which came about as the result of negotiated interaction with the learner (e.g., the bottom section of Table 5) appeared, to be quite effective precisely because of their responsiveness to the peed~of the learner's current stage of acquisition. Thus, these results add confirming .evidence to that already provided by the research of Pica, Young & Doughty (1987) which argues for, the superiority of negotiated interaction to premodified input. Moreover, this research goes a step further by adding a baseline treatment group which received neither premodified input nor the chance to engage in negotiated interaction.

The fact that students in Group 2 (premodified input) actually scored lower than students in Group 1 (baseline/unmodified input) in both the still lifes task and the maps task deserves discussion. However, before condemning premodified input, some important caveats need to be made. First of all, as noted in Chapter V (Method), the baseline unmodified input in-the above noted two tasks was already quite simple. In fact, it was simpler than most NS/NS speech both in terms of. words per T-unit and clauses per T-unit (see Chaudron, 1988, Tables 3.5 & 3.6). For this reason, input modifications for these two tasks elaborated,

rather than simplified, the baseline input. This resulted in greater redundancy, but also in longer sentences and a greater degree of subordination (Table 6). Thus, the contrast between premodified input and unmodified input in these two tasks was actually between syntactically simple but informationally spare input on the one hand and syntactically complex but informationally elaborate input on the other. Thus, in terms of these two tasks, it appears that the simpler though sparer input was more comprehensible. In contrast, the premodified input in these two tasks may simply have been a case of what Chaudron (1983b, p. 142) refers to as "confusingly redundant over-elaboration."

Factors other than degree of subordination or length of T-unit may also have played a part in making the premodified elaborated input in the first two tasks difficult to comprehend. Chaudron (1983b, p. 130) argues that syntactic devices used for elaboration (such as apposition, conjunction, or parallel structures) can also be perceived as being "series of new predications," rather than rephrasings of the old. This may, in fact, have been what happened in the premodified input group in the first two tasks, though the learners were actually informed ahead of time that for each picture description they would hear two

sentences both of which described the same object (see Appendix A).

The fact that the same pattern of results between Groups 2 and 1 did not hold for the shapes task is also worthy of comment. One of the primary differences between the premodified input in the first two tasks and that in the shapes task was in its syntactic complexity (see Table 6). As mentioned Chapter V, the premodified input for this task was made less complex than that in the other tasks because the baseline input was more complex. The length of baseline sentences in the shapes task ranged from 11–12 words as compared to 7 words in the other two tasks. This difference came from the 2 extra adjectives attached to each of the 2 head nouns per sentence. Adding any more length or complexity to the baseline input seemed unreasonable since they were already complex. As a result, strategies to focus learners on the topic NPs were employed, and often these strategies resulted in syntactically simpler input than in the baseline unmodified input group (Table 6). Nevertheless, even the premodified input in the shapes task failed to significantly increase learner comprehension over that of the baseline input.

## Retention of Vocabulary, Negotiated Interaction, and Premodified Input

Based upon Krashen's Input Hypothesis and Long's revised version of it, it was hypothesized that negotiated

interaction and premodified input would facilitate vocabulary retention. However, as shown above, there was no significant difference between treatment groups in their retention of vocabulary as measured by either item or associative recognition. This seems somewhat counterintuitive, since the negotiated interaction group was better able to identify the referents of the input sentences during the treatment task trials. That is, the students' degree of on-line comprehension of referent noun phrases during the task trials seems to have had no distinguishable effect on their subsequent recognition of those same head nouns at the time of the posttest. This is a rather suprising result given the literature on depth of processing which shows that more meaningful, elaborate, and effortful processing of input leads to better subsequent retention.

There are several possible approaches to explaining these results. First, it might be argued that the treatment was simply too short for students to retain the new vocabulary items. However, as shown in Table 19, students' scores on the new words used in the tasks were significantly higher ($t$ ($df$ = 40) = -12.12, $p < .05$), across all groups, on the item recognition posttest than on the pretest, rising by 34 percentage points. Thus, this argument cannot explain the results.

Another argument could be that the methods of measuring vocabulary retention were not sensitive enough to capture differences in students' relatively short-term gains. Since the posttest measures that were used had a forgetting buffer of between one to three days, the tests only measured long-term retention. By that time, short-term loss should have reached an asymptotic level. Perhaps, however, short-term store should also have been measured. For example, testing of immediate recognition following each task trial and using reaction time, rather than accuracy, would have given a more sensitive measure of small differences in retention. Such measures might have been better able to distinguish between the treatment groups.

Table 19

Gains from Pre- to Posttest in Vocabulary Item Recognition Scores for New Words Used in the Listening Tasks

| | | | t-Test | | |
|---|---|---|---|---|---|
| Test | Mean | SD | t | DF | 2-Tail Prob |
| Pre | .24 | .14 | -12.12 | 40 | *p< .05 |
| post | .56 | .19 | | | |

Note. All figures rounded to the nearest hundredth.

A third possible explanation would be that the results simply showed the lack of a relationship between on-line comprehension and vocabulary recognition. In other words, it might be argued that not only must the null hypothesis be accepted, but in fact it was the correct hypothesis to begin with. If so, perhaps the explanation for the recognition which was evidenced lies in some other factor shared by all three treatment groups, i.e., some sort of task effect.

Before one accepts the above argument, however, a strong word of caution is in order. Since there was no pretest-posttest-only control group, it is impossible to tell if the recognition shown by the students was due to the treatment or due to familiarity with the items based on input from the pretest, i.e., a test effect. While this explanation seems rather unlikely, especially in the case of the associative recognition measure which was not given as a pretest but was significantly correlated with the item recognition posttest ($r$ = .46, $p < .001$), it cannot be ruled out.

## Learning of Morphosyntactic Structure, Negotiated Interaction, and Premodified Input

As with the above vocabulary retention results, the sentence verification results showed no significant differences between treatment groups. Furthermore, some of the same explanations for the lack of differences between

groups can be put forward. As with the issue of vocabulary retention, it might be argued that the length of the treatment was simply too short for students to really learn anything, and thus the groups were the same. As with the vocabulary recognition findings, this argument is flatly contradicted by the results. Table 20 shows that there was a significant gain ($t$ (df = 40) = -5.89, $p < .05$) from pre- to posttest across all three groups.

Table 20

Gains from Pre- to Posttest in Sentence Verification Scores

| | | | t-Test | | |
|---|---|---|---|---|---|
| Test | Mean | SD | t | DF | 2-Tail Prob |
| Pre | .68 | .19 | | | |
| | | | -5.89 | 40 | *p< .05 |
| Post | .82 | .16 | | | |

Note. All figures rounded to the nearest hundredth.

For this reason also, an argument that the test is not sensitive enough to capture the students' learning seems quite weak. Since, like the vocabulary item recognition test, this test was clearly able to both a) distinguish between levels of learners which a priori predictions stated would be different (i.e., students from semesters 2

and 4), and b) show pretest to posttest gain for all learners, it can be argued that the test has construct validity and is indeed a sensitive measure of its targeted domain (i.e., comprehension of Japanese locative morphosyntactic structure).

Thus, a third possible explanation is that the tests were not a problem at all, but instead the problem lay with the hypothesis. That is, the lack of evidence for a relationship between on-line comprehension and learning of morphosyntactic structure was due to the fact that there was no measurable relationship to begin with. Thus, given the fact that the learners' level of gain from pretest to posttest did <u>not</u> differ across groups, the question remains whether there is any relationship between the on-line comprehension of input containing certain morphosyntactic structures and subsequent learning of the target morphosyntactic rules. The difference between pre- and posttest scores shows significant improvement. Yet, there was no difference in gains between the three treatment groups.

Perhaps the strongest argument against claiming a relationship between on-line comprehension and subsequent measurable gain in vocabulary retention and morphosyntactic knowledge is the zero correlation evidenced between them. This result seems to indicate that there was no relationship between success in a) comprehending the input

sentences of the task trials and b) gain in comprehension of the structures in the sentence verification test or in vocabulary recognition over time (i.e., learning / interlingual development). Thus, these results appear to contradict the Input Hypothesis.

Arguments which would predict these results have been made by various authors (e.g., Faerch & Kasper, 1986; Pienemann, 1988; Sharwood Smith, 1986). Sharwood Smith (1986) argues that comprehension must be viewed as performance and acquisition as competence. Based on this distinction, he further argues that, for the language learner, input must serve two distinct and separate functions: 1) to carry messages potentially decodable through use of all available linguistic and non-linguistic resources, 2) to fuel the learner's acquisition mechanisms.

Sharwood Smith points out that not all aspects of the language acquired are those which are communicatively relevant. Thus, not all input used for comprehension will be identical to that used for acquisition, since, it is argued, the two processes are essentially different. Nevertheless, the author does seem to hedge a bit, since he also claims that comparisons between a) semantic representations, based purely on current acquired competence, and b) total meaning representations, based in part on context and other non-linguistic factors, are

essential to interlanguage hypothesis restructuring. In other words, comprehension as performance serves to point out gaps in acquired competence.

In this study, to use Sharwood Smith's terminology, there appears to be a gap between a) variation in students' performance during the tasks, which depended upon the use/non-use of other than acquired competence (i.e., negotiated contextual information, etc.), and b) variation in students' performance between pre- and posttests, which, presumably, depended more heavily upon acquired competence. This gap might be explained, using Sharwood Smith's argument in the following terms: variation during task performance was due only to varying levels of performance, which in turn was highly influenced by varying availability of extra-linguistic information. Variation from pre- to posttest was due, largely, to variation in competence, which, by definition, was less influenced by extra-linguistic information.

Data from tapes of Group 3's sessions fit this explanation fairly well. Students performed beautifully within expectations of how negotiated interaction leads to increased on-line comprehension. That is, their increased comprehension appears to have been largely accomplished through use of negotiated extra-linguistic information. However, whether the negotiation routines helped students to <u>focus on the originally troublesome forms</u> in the

baseline input is, in retrospect, called into question. It is possible that frequently the troublesome forms which triggered negotiation of meaning were already purged from working memory by the time the identities of the intended referents were discovered by the learner. This could explain how variation on the tasks ('performance') might not correlate with variation on the tests ('competence'). Put yet another way, 'strategic competence' does not appear to have directly translated into 'grammatical competence' (Canale & Swain, 1980).

However, such results should be viewed cautiously, since there is a possibility that students' familiarity with the tests was itself an intervening variable. This question must remain unresolved for the time being because this study did not have a true control group which only took the pre- and posttests without any treatment.

### Possible Explanations for the Observed Gains

If one accepts for the sake of argument that negotiated interaction and premodified input had little if any relationship with learning and retention of the target input structures and vocabulary, the question remains: what was it that led to the student gains? Could it be that there was another factor or group of factors that were more important to the learners' acquisition than input comprehension? Though any answers to such a question will

be pure speculation on the part of the researcher, an attempt is warranted due to the unexpectedness of the results.

First, one must ask what the three treatment groups shared in common. All groups were given the same one-way information gap tasks, were given brief exposure to vocabulary translation lists prior to starting each group of task trials (approximately 1 second to look at each word), and were given minimal oral feedback on the correctness of their responses at the end of each task trial (each trial consisting of 3 picture descriptions). The possible effects of each of the above shared treatment elements will be briefly discussed in turn.

The vocabulary translation lists were, as mentioned earlier, included in order to provide a minimal level of exposure to the words used in each day's task trials. The reasoning behind this decision was that it would provide a minimal level of knowledge necessary to complete the tasks at all. Nevertheless, having had exposure to the lists does not appear to have diminished the significant observed differences in comprehension attributable to treatment groups. Thus, it is unclear what effect, if any, this exposure had on students' recognition of the lexical items at the time of the posttests which, as will be recalled, were presented via a different input modality (i.e., aural versus visual). Finally, even if it could be convincingly

argued that exposure to the lists influenced the gains in vocabulary recognition, it would be difficult to argue that they had the same effect on the students' gains in comprehension of morphosyntactic structure.

Minimal feedback to all learners was another control variable. As stated above, it was included as a means of ensuring that all learners would have a minimal degree of knowledge of results of their interlanguage hypotheses. As in the hypothesis-formation and concept learning literature (for review, see Anderson, 1985; Estes, 1989) it was assumed that learners would use positive and perhaps negative feedback to modify their interlanguage hypotheses. Estes (1989) briefly describes this process:

> For inexperienced learners, the process is essentially the same as discrimination learning. Initially, the learner samples more or less randomly the features or aspects of exemplars of the categories belonging to a concept and associates these with category labels. Then, as a consequence of feedback from correct or incorrect categorizations [emphasis added], or the equivalent information from other instruction, the learner comes to attend selectively to the features or combination of features that are actually related to category labels by the rule defining a concept. This characterization of the lower level concept learning

process is the basis of what are termed feature-frequency models. (p. 36)

An example of using just such a form of 'feedback training' (within a 'Parallel Distributed Processing' connectionist framework) to learn a TL grammatical subsystem can be found in Sokolik and Smith (1989, March). In this pilot study, beginning learners trained only with minimal feedback outperformed more advanced learners without such training. Nevertheless, the results of this study are in need of more careful replication.

Concerning the present study, as described in Chapter V, the procedures for provision of feedback were both strict and minimal. Thus, each time a student announced completion of a task trial, feedback was given as to whether each of the choices made was correct or incorrect, but with no explanations as to why, or what choices would have been correct. Such minimal feedback at the end of the trial was made a control variable in order to counter claims that the only value of negotiating input was in the knowledge of results it provides (i.e., essentially arguing an equivalence between negotiated interaction and programmed learning). Thus, robust learning differences attributable to negotiated interaction and premodified input would necessarily be the result of more than such simple feedback, e.g., the result of comprehension, which is generally considered to constitute more than a minimal

knowledge of results. In fact, however, given the lack of differences in learning and retention attributable to comprehension, the importance of such feedback may need to be reassessed.

The interrelated factor of task orientation may also have played a role in creating the observed retention and learning effects. The tasks oriented students to focus on accuracy of comprehension. In the tasks, meaning and form were tightly interrelated. Form differences (e.g., subject versus locative initial structure) could affect meaning interpretation. Likewise, differences in interpretation of a given form's meaning (i.e., differing IL hypotheses) could affect task outcomes. In this way, the task orientation focused learners on the relationship between form and meaning. This task orientation, which was the same for all treatment groups, may in fact have been a decisive factor which lead to the observed gains. A similar point is made by Ericsson and Simon (1984), when, in summarizing a body of research on incidental learning they state that "the information committed to memory corresponds closely to the aspects of the stimuli that must be heeded in order to perform the task" regardless of the learner's intent (p. 118).

Within the context of SL learning, VanPatten (1989) shows evidence that conscious attention to both form and

meaning is oftentimes virtually impossible; i.e., attention to form can, at least in certain circumstances, greatly limit the ability to process meaning. This claim is limited, however, to form/meaning relationships which are relatively opaque (e.g., word-final bound morphemes). On the other hand, as VanPatten remarks, "features of the language that carry significant information (i.e., lexical items, certain kinds of verb morphology) can be consciously processed by learners at all levels" (p. 409). Such clearly meaningful features of the language were precisely the focus of the tasks used in this study.

Anecdotal evidence from students who took part in the study lends support to this proposal. To give an example, following a particular treatment session, a student from Group 2 spontaneously commented that, for some reason, she kept getting the task choices wrong. She seemed to be simultaneously disturbed and yet fascinated by this phenomenon and ventured the hypothesis that the genitive 'no' particle had something to do with her problem. As mentioned earlier, in Japanese locatives, the genitive particle links the preceeding NP and its following postpositional phrase. Thus, for a learner who has difficulty assigning the direction of Japanese NP modification to postpositional locatives, knowledge of the connecting role of the genitive particle 'no' could be quite critical.

The above mentioned student's comments have much in common with numerous cases on tape of perplexed students' reactions following receipt of feedback during the treatment sessions. Both indicate that the task itself may have had a powerful influence in forcing learners to actively evaluate their interlanguage hypotheses regarding form/meaning relations in the target language.

Furthermore, certain 'artificial' aspects of the tasks may have facilitated students' abilities to focus on these form/meaning relationships. For example, unlike in the real world, where one must oftentimes forego any attempt at focusing on form in order to keep up with a conversation, students in this study had as long as they wanted to ponder the meaning of each utterance independent of which group they were in. This abundance of time may have allowed students to reflect on the form/meaning relationships in between picture descriptions.

The tasks were also artificial in the sense that they repeatedly used the same syntactic frames to provide varying information. This could have served to highlight both the new information units (e.g., lexical items) at the same time it allowed for an awareness of the function of the morphosyntactic structures within the frames.

Such artificiality in the tasks is both a flaw and a bonus of the study. On the one hand, it limits the study's

generalizability to other contexts. On the other hand, it may point to a way in which instruction can 'outdo' natural exposure, while reaping the benefits of communicativeness [13].

# CHAPTER VIII

## CONCLUSIONS

This thesis, which set out to test Krashen's (1980, 1983, 1985) Input Hypothesis, and Long's (1981, 1983a, 1985) revision of it, has perhaps raised more questions than it has been able to answer. It calls into question the notion that comprehension necessarily facilitates acquisition. It brings the notion of syntactic complexity of modified input back as a possibly key factor in comprehension. It also leaves open the matter of whether it is possible to pay attention to form and meaning at the same time.

The thesis does, however, add confirming evidence to the claim (Long, 1981; Pica, Young & Doughty, 1987) that negotiation of meaning is a powerful tool in facilitating comprehension. Furthermore, it does this while adding to the growing body of research on the SLA of Japanese, and in an FL context.

Specifically dealing with the issue of comprehension, this thesis has also managed to provide a more solid operationalization of this construct than much previous work in the area of SL research. Thus, when claiming that negotiated interaction aids comprehension, it has been possible to attain a greater degree of specificity in what is meant by comprehension, i.e., in this case, comprehension of locative morphosyntactic structure, and

prespecified 'new' vocabulary items. While the research methodology employed here has not been able to isolate each level of strategy use during learners' on-line comprehension, it has gone farther in doing so than previous studies in this research area. A more fine-tuned study which isolates interacting 'internal' and 'interpersonal' comprehension strategies during negotiated interaction would be the next logical step.

Further analysis of the data used in this thesis is also warranted. In particular, a more in-depth analysis of the particular negotiative strategies learners used in the tasks and the tutors' subsequent input modifications begs to be done. Similarly, comparisons of elaborative input modifications in groups 2 and 3 could provide useful information and perhaps help to explain the variations in task success evidenced by the two groups.

This thesis is also not without its ambiguities and weaknesses. Lack of a true control group weakens claims that learning actually occurred as a result of taking part in the treatment sessions. Furthermore, it is not clear how large a role, if any, the provision of minimal feedback at the end of each trial had in creating students' apparently large gains. Finally, there seems to have been a confound between syntactic complexity with treatment group in the case of Group 2, thus making interpretation of the results

of this group in relation to Groups 1 and 3 ambiguous. Further studies using similar designs would need to carefully consider these weaknesses first.

The generalizability of results from this thesis is another issue which is somewhat ambiguous. Aside from the issue of lack of an absolute control group, the issue of artificiality of the study is also relevant. The conditions of the study were certainly different in many ways from those in natural exposure. This artificiality was the price to be paid for having such tight control over the input learners received in the study. Given the lack of many other studies which can claim to trace specific units of input, through measurable comprehension, to specific units of intake, such a weakness may be somewhat forgivable.

Indeed, the conditions in the study are more comparable to those in language classrooms, particularly those non-traditional ones which make use of communication tasks. Thus, it may serve as yet another example of ways in which language educators can formulate language learning tasks which focus learners on the relation between form and meaning in communicative settings (e.g., Crookes, 1986).

Clearly the most 'disturbing' outcome of this thesis has been its finding of a near zero correlation between comprehension and learning. It stands in direct opposition to very powerful claims that comprehension is a necessary condition for learning, since learners who comprehended

relatively less learned just as much. It is hoped that this result will spur other researchers on to find contradictory evidence. Certainly, the idea that comprehension at least facilitates learning is very attractive to many in the field of applied linguistics and language teaching. Yet such a belief has not found support in these research findings.

Assuming that other researchers will indeed 'pick up the gauntlet' and try to challenge these findings, a comment is in line. It is hoped that other researchers will try to do better at what has already been attempted in this thesis. That is, the essential argument that it is necessary to provide experimental evidence for each assumed step on the path from input, through comprehension, to acquisition remains unchanged.

APPENDIX A

## Tutors' Listening Task Instructions, Example Task for Students, and Example Picture Sheet

Note: The instructions for treatment groups 1, 2, and 3 were identical except for where noted in double brackets [[ ]]. Notes in double parentheses (( )) are to be read silently by the tutor.

### DAY ONE LISTENING TASKS: Still Lifes

Native Speaker's Scripts

---

((Read outloud))

Example Listening Task

Please take a look at the example task sheet. It is supposed to represent a set of objects in a room or on a table. You have to listen to the sentences I say to you and identify the objects that I'm talking about. We'll do this by language only, without looking at each other's picture sheets, except when I check to see if you were correct.

In this example listening task, I will speak to you in English to make sure that everything is clear. I will describe three objects to you. Please draw an outline around each of them. Also, please number them from 1 to 3, one, two, and three, in the order I tell them to you. Do you understand? ((If not, go through previous directions again.))

Let's try the first one.

Number One,
There's a pair of old shoes.

((Check to see if learner has outlined and written a number 1 on the old shoe picture. Simply pointing to the correct picture is not enough. When this has been done satisfactorily, continue to number two.))

---

Number Two,
There's a clock next to the bowl.

((Check to see if learner has outlined and written a number 2 on the clock picture. Simply pointing to the correct picture is not enough. When this has been done satisfactorily, continue to number three.))

---

Number Three,
A pack of matches is to the right of running shoes.

((Check to see if learner has outlined and written a number 3 on the correct pack of matches picture. When this has been done satisfactorily, continue to the first trial of the actual Japanese listening tasks.))

---

((When ready to do the first trial...))

OK, we are ready to do the first trial of the listening tasks. We will do six altogether and they will be in Japanese. In each of the six, I will give you descriptions of 3 different objects.

[[Only treatment group 2 contained the following sentence:

"Each description will include two sentences." ]]

I will say each sentence only once, so please listen carefully.

[[Treatment group 3 did <u>not</u> contain either of the preceeding two sentences. Instead, it contained the following two sentences:

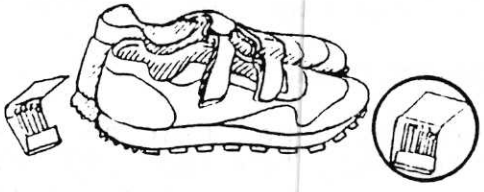
"If you don't understand something I have said, just let me know. You can ask me to repeat or rephrase any of the descriptions that give you problems." ]]

After you have decided that you have located the three objects in a trial, I will check them for you and tell you which ones you got right and which ones you got wrong. I won't go into explanations for wrong answers, but you should have plenty of chances in the six trials to get them right.

# Example Task Picture Sheet

#2

#1



#3

Student Name: _____ Date: ____/____/1989
Last First (mm) (dd)

Objects

## Example Listening Task

Please draw an outline around each of the 3 objects described to you and number them from 1 to 3 in the order told to you.

APPENDIX B

## Still Lifes Task, Trial 6, Input Sentences and Picture Sheet

Note: Description #3 was used as a filler and, thus, is not included here. Direct translations given in single brackets, English equivalents in double brackets.

### Groups 1 & 3

**Description #1:**

Pen no migi ni monosasi ga arimasu.
[Pen GEN right LOC ruler SUB Exist]
[[To the right of the pen is a ruler.]]

**Description #2:**

Zikokuhyoo wa tizu no sita ni arimasu.
[Timetable TOP map GEN under LOC Exist]
[[The timetable is under the map.]]

### Group 2

**Description #1:**

Pen no migi ni monosasi ga arimasu.
[Same as above]

Sen o massugu kaku monosasi wa,
[Line OBJ straight draw ruler SUB,
[[The ruler that draws straight lines,

pen no migi ni aru.
[pen GEN right LOC Exist]
[[is to the right of the pen.]]

Description #2:

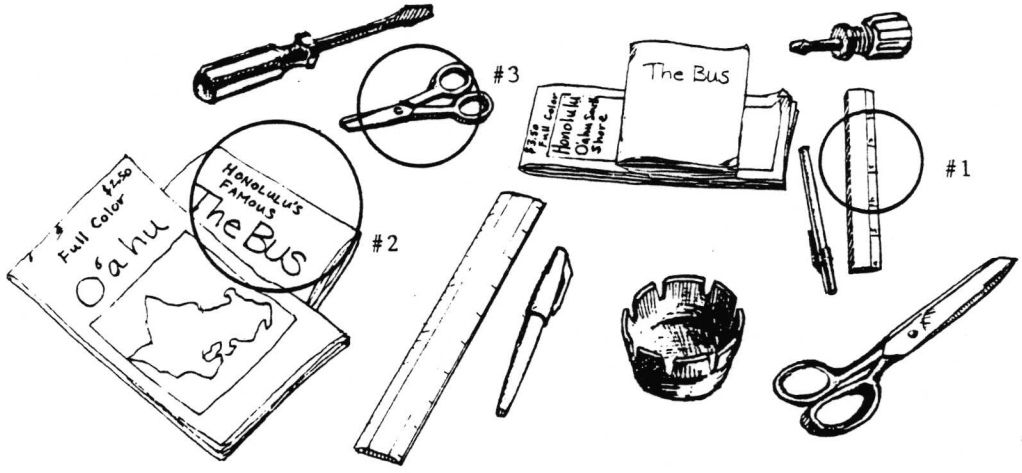
Zikokuhyoo wa tizu no sita ni arimasu.
[Same as above]

'Basu' no zikan ga wakaru zikokuhyoo wa,
['Bus' GEN time SUB know timetable TOP,
[[The timetable that lets you know bus times

sita ni arimasu.
[bottom LOC Exist]
[[is on the bottom.]]

## Still Lifes Task, Trial 6, Picture Sheet

Note: Correct responses circled and numbered; #3 is filler.




Trial 6 of 6

Please draw an outline around each of the 3 objects described to you and number them from 1 to 3 in the order told to you.

APPENDIX C

## Maps Task, Trial 1, Input Sentences and Picture Sheet

Note: Description #3 was used as a filler and, thus, is not included here. Direct translations given in single brackets, English equivalents in double brackets.

### Groups 1 & 3

**Description #1:**

Tabakoya wa
[Tobacco Shop TOP
[[The tobacco shop

sakaya no saki ni arimasu.
liquor store GEN ahead LOC Exist]
is ahead of the liquor store.]]

**Description #2:**

Insyokuten no temae ni
[Eating house GEN this side LOC
[[This side of the eating house

honya ga arimasu.
bookstore SUB Exist]
is a bookstore.]]

### Group 2

**Description #1:**

Tabakoya wa sakaya no saki ni arimasu.
[Same as above]

Sono tabakoya wa, 'uisukii' ga aru sakaya
[That tobacco shop TOP, 'whiskey' SUB Exist liquor store
[[That tobacco shop is ahead of the liquor store that has

no saki ni arimasu.
GEN ahead LOC Exist]
whiskey.]]

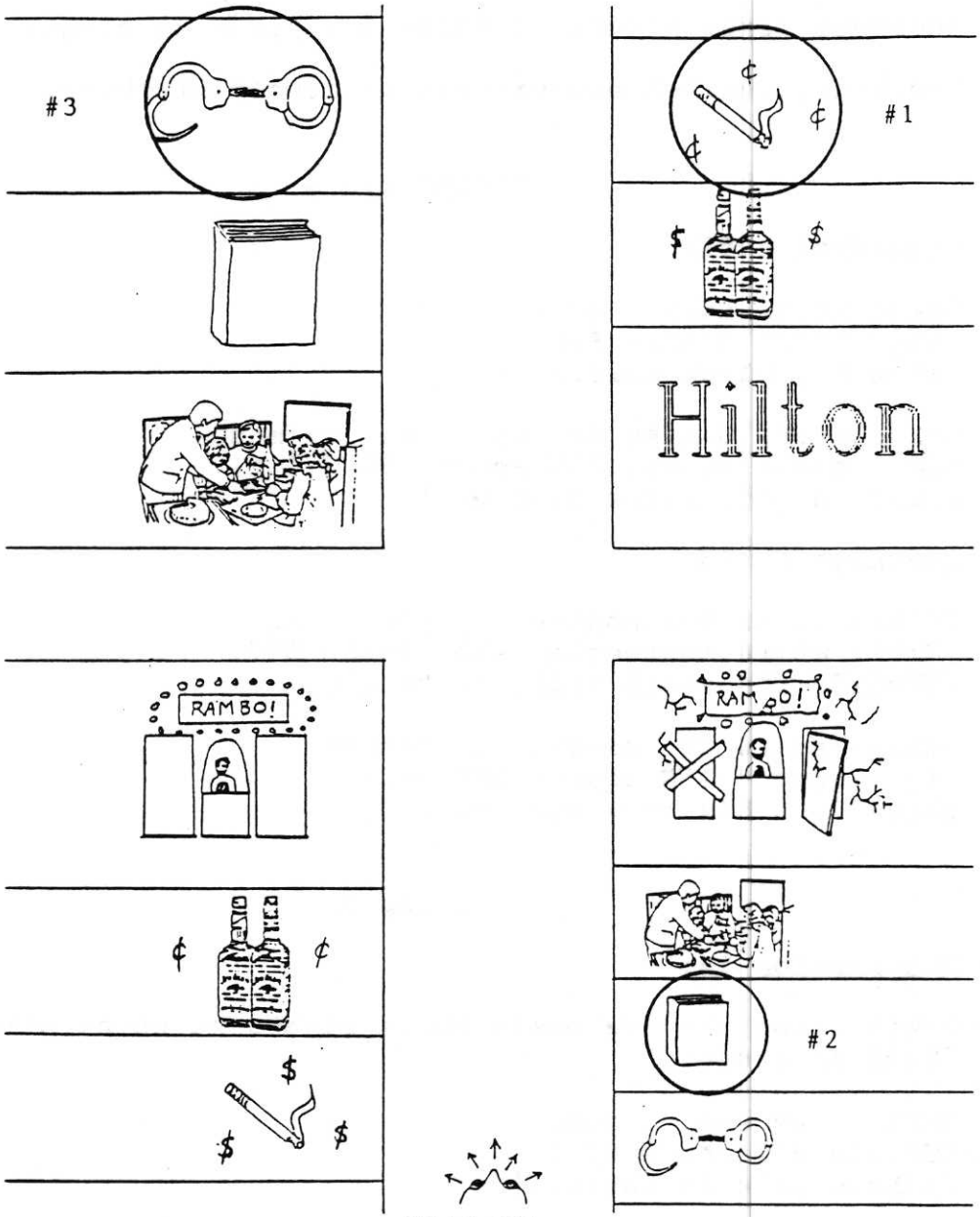
Description #2:

Insyokuten no temae ni honya ga arimasu.
[Same as above]

Honya wa, 'resutoran' no temae ni arimasu.
[Bookstore SUB 'restaurant' GEN this side LOC Exist]
[[The bookstore is this side of the 'restaurant.']]

## Maps Task, Trial 1, Picture Sheet

Note: Correct responses circled and numbered; #3 is filler.




Trial 1 of 6

Please draw an outline around each of the 3 places described to you and number them from 1 to 3 in the order told to you.

APPENDIX D

Shapes Task, Trial 3, Input Sentences and Picture Sheet

Note: Description #1 was used as a filler and, thus, is not included here. Direct translations given in single brackets, English equivalents in double brackets.

Groups 1 & 3

Description #2:

Ookii kuroi maru wa
[Big black circle SUB
[[The big black circle is

ookii kuroi sikaku no ue ni arimasu.
big black square GEN above LOC Exist]
above the big black square.]]

Description #3:

Tiisai siroi tyoohookee no yoko ni,
[Small white rectangle GEN beside LOC,
[[Beside the small white rectangle,

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square.]]

Group 2

Description #2:

Ookii kuroi maru wa ookii kuroi sikaku no ue ni arimasu.
[Same as above]

Maru wa ue desu.
[Circle SUB above COP]
[[The circle is above.]]

Description #3:

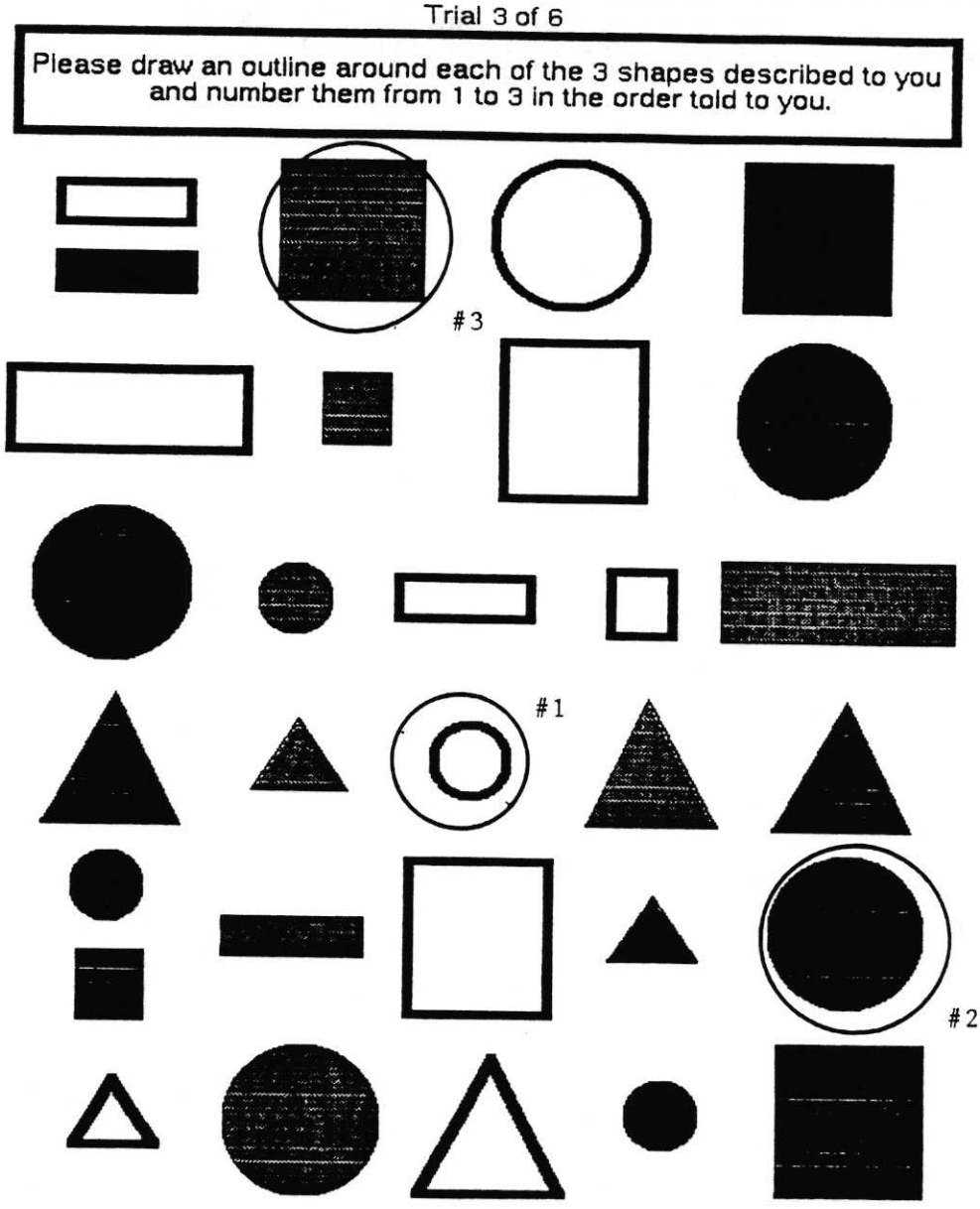
Tiisai siroi tyoohookee no yoko ni ookii haiiro no

sikaku ga arimasu.
[Same as above]

Ookii haiiro no sikaku ga, tonari ni arimasu.
[Big grey GEN square SUB, beside LOC Exist]
[[The big grey square is beside (it).]]

## Shapes Task, Trial 3, Picture Sheet

Note: Correct responses circled and numbered; #1 is filler.



APPENDIX E

## Daily Instructions for Native Speaker Tutors in Groups 1 & 2, and Group 3

### Instructions for Tutors in Groups 1 & 2 Only:

PURPOSE OF THE STUDY:

The purpose of this research project is to study the effects of doing classroom type tasks on students' listening comprehension.

The purpose is NOT to study the effects of direct language instruction, so please do not try to help the student in any way outside of what is allowed in the instructions.

VALIDITY OF THE STUDY:

There will be different groups of students doing different things in the study. In order to protect the validity of the study, please DO NOT talk about what you are doing with the students to anyone.

If a student in the study asks you why you are doing something different from what another classmate has been doing, please ask the student to simply cooperate with the study as it is. All of the students are being equally evaluated on their listening ability.

GENERAL RULES:

1. Always speak ONLY Japanese during the listening tasks (except when you are giving the instructions and when doing

the Example Listening Task at the beginning of each set of trials).

2. During the listening tasks, students are free to change any answers they have marked on the task trial sheet.

After the student has announced that he/she is done (i.e., he/she has circled and numbered the 3 things described in the listening task trial), no answers may be changed.

3. NEVER look at the students' task trial sheet before the student has told you he/she is finished circling and numbering ALL of the pictures you described in that trial.

PREPARATION:

*1. Give the student the vocabulary list to study for the amount of time indicated on the vocabulary list sheet. Tell the student that these words will be used in the task trials and that he/she can look over the list for the amount of time indicated (either 1 minute, or 30 seconds, depending on the list).

As soon as you give the student the sheet, look at your watch and keep track of the time. Take the list back after the indicated amount of time.

DO NOT GIVE ANY EXPLANATIONS OF THE VOCABULARY.

2. Give the student the Example Listening Task sheet and a red felt pen for marking answers.

3. Ask the student to CLEARLY PRINT his/her NAME & the DATE in the blanks on the Example Listening Task sheet.
4. When he/she is ready to try the example, have the student put the picture sheet on his/her stand/easel so you cannot see it. Put your master picture sheet on your stand/easel so the student cannot see it either.
5. Read each sentence to yourself silently before you read it out loud to the student. This way you can make sure you will be able to read it clearly with no difficulty (e.g., strange romazi writing conventions, etc., may cause problems even for a native speaker).

THE TASK TRIALS:

6. Go through the example and proceed to the 6 task trials. Each trial has 3 sentences describing objects, places, or shapes in the picture on the trial sheet.
7. Read each sentence <u>once</u> so the student can circle and number the object, place or shape you describe.

Do <u>NOT</u> repeat or rephrase any sentence you have read to the student.

8. Wait for the student to decide when to go on to the next picture description sentence. Give the student as much time as he/she needs. You can ask if he/she is ready to go on or not. For example, you might say:

"Moo ii desuka?"

Or,

"Tugi ni ikimasyoka?", etc.

9. When the student tells you that he/she has located ALL 3 things described in the trial, check the student's trial sheet. Check if he/she outlined and numbered the correct pictures.

Say only what is right and what is wrong. Do NOT explain why something was wrong, or what the answer should have been.

DO NOT give ANY explanations to ANY questions that the student asks about the previous task trial. NO vocabulary or grammar explanations are allowed. Simply tell the student that he/she will have other opportunities to figure out the answers in other trials.

10. Take back the finished task trial sheet.

11. Give the student the next task trial sheet.

FINISHING FOR THE DAY

12. When the student is finished with the all six trials, put the 6 task trial sheets together in order. Check to make sure the student's name and date are clearly printed on the top sheet (the Example Listening Task sheet). Then staple the sheets together on the top left corner. Put the task trial sheets back in the envelope you got them from.

13. Thank the student for his/her time and remind him/her to come to the next apppointment.

Instructions for Tutors in Group 3 Only:

PURPOSE OF THE STUDY:

The purpose of this research project is to study the effects of doing classroom type communication tasks on students' listening comprehension.

The purpose is NOT to study the effects of direct language instruction, so please do not try to help the student in any way outside of what is allowed in the instructions.

VALIDITY OF THE STUDY:

There will be different groups of students doing different things in the study. In order to protect the validity of the study, please DO NOT talk about what you are doing with the students to anyone.

If a student in the study asks you why you are doing something different from what another classmate has been doing, please ask the student to simply cooperate with the study as it is. All of the students are being equally evaluated on their listening ability.

GOAL OF THE COMMUNICATION TASKS:

The goal of the communication/listening tasks is for the tutor to verbally assist the learner in identifying various objects, places, and shapes in the task picture sheets. The student needs to find out the identities of the objects, places, and shapes, and the tutor always has this

information. Except for instructions at the beginning, communication must always be in Japanese.

GENERAL RULES OF THE GAME:

1. Always speak ONLY Japanese during the communication/listening tasks (except when you are giving the instructions and when doing the Example Listening Task at the beginning of each set of trials).

2. During the communication/listening tasks, students are free to change any answers they have marked on the task trial sheet.

After the student has announced verbally that he/she is done (i.e., he/she has circled and numbered the 3 things described in the communication/listening task trial), NO answers may be changed.

3. NEVER look at the students' task trial sheet before the student has told you he/she is finished circling and numbering ALL of the pictures you described in that trial. If you look at the student's sheet before finishing, authentic communication cannot take place.

PREPARATION:

1. Prepare to tape record your session with the student. Write the student's name & date on the tape case. As soon as you start doing the first task trial in Japanese with the student, start taping. Start the tape by saying into the tape recorder both your own name and the student's name and also the date (please use English).

Remember to use the same one or two tapes every time with the same student. You probably will not need more than one tape per student, but if you do, you can use the second tape.

Also, DO NOT put more than 1 student on a tape. Each student should have a separate tape.

BE SURE TO WRITE YOUR NAME & THE STUDENT'S NAME & THE 3 DAYS OF DATES ON THE TAPE(S).

*2. Give the student the vocabulary list to study for the amount of time indicated on the vocabulary list sheet. Tell the student that these words will be used in the task trials and that he/she can look over the list for the amount of time indicated (either 1 minute, or 30 seconds, depending on the list).

As soon as you give the student the sheet, look at your watch and keep track of the time. Take the list back after the indicated amount of time.

DO NOT GIVE ANY EXPLANATIONS OF THE VOCABULARY.

3. Give student the Example Listening Task sheet and a red felt pen for marking answers.

4. * * * IMPORTANT: Ask the student to CLEARLY PRINT his/her NAME & the DATE in the blanks on the Example Listening Task sheet.

5. When he/she is ready to try the example, have the student put the picture sheet on his/her stand/easel so you

cannot see it. Put your master picture sheet on your stand/easel so the student cannot see it either.

IMPORTANT: NEVER look at the students' task trial sheet until the student has told you he/she is finished circling and numbering ALL of the pictures you described in that trial.

6. Read each sentence to yourself silently before you read it out loud to the student. This way you can make sure you will be able to read it clearly with no difficulty (e.g., strange romazi writing conventions, etc., may cause problems even for a native speaker).

THE TASK TRIALS:

7. Go through the example and proceed to the 6 task trials.

8. For each description in the task trials, begin by reading the sentence in the script to the student.

9. If you think the student does not seem to understand the sentence (either you think so because of what the student says or because of a long silence, etc.):

-FEEL FREE TO REPEAT or REPHRASE the whole sentence or any part of it.

-IMPORTANT: FEEL FREE TO CHANGE THE FORM OF THE SENTENCE if it might help the student to UNDERSTAND the CORRECT MEANING.

-FEEL FREE TO ASK THE STUDENT if he/she understands or not.

-FEEL FREE to give ANY ADDITIONAL CONTEXTUAL INFORMATION you think will help the learner understand which picture you are describing.

-DO NOT USE ENGLISH to explain anything. ONLY Japanese. English loan words ('gairaigo') are OK.

10. During the task trial, the student CAN ASK ANY QUESTIONS (IN JAPANESE) he/she feels are needed to help understand the picture descriptions you have given. Try to answer them, but without giving too pedagogical an explanation (e.g., no grammar explanations).

11. Always wait for the student to decide when to go on to the next picture description sentence. Give the student as much time as he/she needs. You can ask if he/she is ready to go on or not. For example, you might say:

"Moo ii desuka?"

Or,

"Tugi ni ikimasyoka?", etc.

12. When the student tells you that he/she has located ALL 3 things described in the trial, check the student's trial sheet. Check if he/she outlined and numbered the correct pictures.

Say only what is right and what is wrong. Do NOT explain why something was wrong, or what the answer should have been.

DO NOT give ANY explanations to ANY questions that the student asks about the previous task trial. NO vocabulary or grammar explanations are allowed. Simply tell the student that he/she will have other opportunities to figure out the answers in other trials.

13. Take back the finished task trial sheet.

14. Give the student the next task trial sheet.

FINISHING FOR THE DAY

15. When the student is finished with the all six trials, put the 6 task trial sheets together in order.

Check to make sure the student's name and date are clearly printed on the top sheet (the Example Listening Task sheet). If they are not, please ask the student to do it right away, or do it for the student.

Then staple the sheets together on the top left corner. Put the task trial sheets back in the envelope you got them from.

16. Thank the student for his/her time and remind him/her to come to the next apppointment.

APPENDIX F

## Information for Students in Groups 1 & 2, and Group 3

### Information for Students in Groups 1 & 2 Only:

VALIDITY OF THE STUDY:

In order to protect the validity of the study, please DO NOT talk about what you are doing with the tutors to anyone, not even others taking part in the study.

GOAL OF THE LISTENING TASKS:

The goal of the listening tasks is for the tutor to verbally describe to the learner the identities of various objects, places, and shapes in the task picture sheets. Except for instructions at the beginning and a preliminary example listening task, the tutor will always speak in Japanese.

GENERAL RULES OF THE GAME:

1. The tutor will always speak ONLY Japanese during the listening tasks (except during the instructions and when doing the Example Listening Task at the beginning of each set of trials).
2. Your job is to correctly identify on your picture sheet what the tutor describes to you, so listen carefully. Never hurry yourself, but be economical with your time.
3. Neither the student nor the tutor should look at each other's task trial sheets during the communication tasks. Otherwise, authentic listening cannot take place.

4. During the listening tasks, you are free to change any answers you have marked on the task trial sheet. The task trial will continue until you decide you have finished.

After you have announced verbally to the tutor that you are done circling and numbering the 3 things described in the listening task trial, NO answers may be changed.

5. After you finish each task trial, the tutor will check your sheet and tell you what you got right and what you got wrong. No further explanations from the tutor are necessary. You will have many chances to get things right over the course of the trials.

It is very important that you come to every session. Please be on time. Thank you for participating! Have fun!

Information for Students in Group 3 Only:

VALIDITY OF THE STUDY:

In order to protect the validity of the study, please DO NOT talk about what you are doing with the tutors to anyone, not even others taking part in the study.

GOAL OF THE COMMUNICATION TASKS:

The goal of the communication/listening tasks is for the tutor to verbally assist the learner in identifying various objects, places, and shapes in the task picture sheets. The student needs to find out the identities of the objects, places, and shapes, and the tutor always has this information. Except for instructions at the beginning, communication must always be in Japanese.

GENERAL RULES OF THE GAME:

1. Always speak ONLY Japanese during the communication/listening tasks (except during the instructions and when doing the Example Listening Task at the beginning of each set of trials).

2. If at any time you don't understand what a tutor has said during (not after) a communication/listening task, FEEL FREE to ask for clarification (IN JAPANESE).

If you are not sure if you understand or not, FEEL FREE to check with the tutor to make sure (IN JAPANESE).

Your job is to correctly identify on your picture sheet what the tutor describes to you, and you may have to ask questions in order to do this. That's fine and

natural. Never hurry yourself, but be economical with your time.

3. Neither the student nor the tutor should look at each other's task trial sheets during the communication tasks. Otherwise, authentic communication cannot take place.

4. During the communication/listening tasks, you are free to change any answers you have marked on the task trial sheet. The task trial will continue until you decide you have finished.

After you have announced verbally to the tutor that you are done circling and numbering the 3 things described in the communication/listening task trial, NO answers may be changed.

5. After you finish each task trial, the tutor will check your sheet and tell you what you got right and what you got wrong. No further explanations from the tutor are necessary. You will have many chances to get things right over the course of the trials.

It is very important that you come to every session. Please be on time. Thank you for participating! Have fun!

APPENDIX G

Vocabulary Lists Shown Before the Listening Tasks

Note: 'Old' versus 'new' word familiarity status is indicated for each word: (O) = 'old'; (N) = 'new.' This information was not included on the students' sheets.

Vocabulary List for Still Lifes Listening Task

YOU HAVE 1 MINUTE TO LOOK OVER THIS LIST

| | | | |
|---|---|---|---|
| (N) | bin | = | bottle |
| (O) | hon | = | book |
| (O) | haizara | = | ashtray |
| (O) | sinbun | = | newspaper |
| (N) | musimegane | = | magnifying glass |
| (O) | zisyo | = | dictionary |
| (N) | syuuseieki | = | correction fluid |
| (N) | nabe | = | pan |
| (N) | keisanki | = | calculator |
| (O) | tokei | = | watch |
| (O) | denwa | = | telephone |
| (O) | zibiki | = | dictionary |
| (O) | kami | = | paper |
| (N) | kusi | = | comb |
| (N) | kyuusu | = | teapot |
| (N) | sennuki | = | bottle opener |
| (N) | saihu | = | wallet |
| (O) | zassi | = | magazine |
| (O) | raitaa | = | lighter |
| (N) | hottikisu | = | stapler |
| (O) | enpitu | = | pencil |
| (N) | kokubankesi | = | blackboard eraser |
| (O) | matti | = | matches |
| (O) | tabako | = | cigarettes |
| (N) | kesigomu | = | eraser |
| (N) | zikokuhyoo | = | timetable |
| (O) | pen | = | pen |
| (N) | monosasi | = | ruler |
| (N) | hasami | = | scissors |
| (O) | tizu | = | map |

Vocabulary List for Maps Listening Task

YOU HAVE 1 MINUTE TO LOOK OVER THIS LIST

| | | | |
|---|---|---|---|
| (N) | insyokuten | = | restaurant |
| (O) | tabakoya | = | tabacco shop |
| (N) | sakaya | = | liquor shop |
| (O) | kooban | = | police station |
| (O) | honya | = | bookstore |
| (N) | bunbooguya | = | school supply shop |
| (N) | kaguya | = | furniture store |
| (N) | gakkiten | = | music store |
| (O) | kusuriya | = | drug store |
| (O) | nikuya | = | meat shop |
| (O) | depaato | = | department store |
| (O) | eki | = | train station |
| (N) | kaikan | = | auditorium/arena |
| (N) | yuuenti | = | amusement park |
| (O) | hoteru | = | hotel |
| (N) | hudoosanya | = | real estate agency |
| (O) | ginkoo | = | bank |
| (N) | yatai | = | snack bar & grill |
| (O) | yuubinkyoku | = | post office |
| (N) | zeimusyo | = | tax office |
| (O) | gekizyoo | = | theater |
| (O) | gakko | = | school |
| (N) | zinguu | = | shrine |
| (N) | bizyutukan | = | art museum |
| (O) | kooen | = | park |
| (N) | kasiya | = | sweet shop |
| (N) | kanamonoya | = | metalware shop |
| (N) | zaimokuya | = | lumberyard |
| (O) | yaoya | = | fruit & vegetable grocery |
| (O) | hanaya | = | flower shop |

Vocabulary List for Shapes Listening Task

Note: * = word not included in recognition tests.

YOU HAVE 30 SECONDS TO LOOK OVER THIS LIST

| | | | |
|---|---|---|---|
| (N) | tyoohookee | = | rectangle |
| (N) | maru | = | circle |
| (N) | sankaku | = | triangle |
| (N) | sikaku | = | square |
| *O | siroi | = | white |
| *O | kuroi | = | black |
| *N | haiiro no | = | gray |
| *O | ookii | = | large |
| *O | tiisai | = | small |

APPENDIX H

One-way Analyses of Covariance (ANCOVA) by Treatment Group for the Still Lifes, Maps, and Shapes Tasks

Table 13

One-way Analysis of Covariance for Still Lifes Task by Treatment

| Source of Variance | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | | | | |
| Voc Rec Pretest | .042 | 1 | .042 | 1.497 ns |
| Sent Ver Pretest | .893 | 1 | .893 | 31.829 * |
| Main Effects | | | | |
| Treatment | .229 | 2 | .114 | 4.072 * |
| Residual Error | 1.010 | 36 | .028 | |
| Total | 2.348 | 40 | .059 | |

Note. Voc Rec Pretest = Vocabulary Item Recognition Pretest; Sent Ver Pretest = Sentence Verification Pretest.

A priori planned comparisons: Group 3 > 1 n.s.; Group 3 > 2 *; Group 2 > 1 n.s.

* $p < .05$.

Table 14

One-way Analysis of Covariance for Map Tasks by Treatment

| Source of Variance | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | | | | |
| Voc Rec Pretest | .034 | 1 | .034 | .842 ns |
| Sent Ver Pretest | .493 | 1 | .493 | 12.113 * |
| Main Effects | | | | |
| Treatment | .479 | 2 | .240 | 5.882 * |
| Residual Error | 1.466 | 36 | .041 | |
| Total | 2.542 | 40 | .064 | |

Note. Voc Rec Pretest = Vocabulary Item Recognition Pretest; Sent Ver Pretest = Sentence Verification Pretest. A priori planned comparisons: Group 3 > 1 n.s.; Group 3 > 2 *; Group 2 > 1 n.s.

* p< .05.

Table 15

One-way Analysis of Covariance for Shapes Task by Treatment

| Source of Variance | SS | df | MS | F |
|---|---|---|---|---|
| Covariates | | | | |
| Voc Rec Pretest | .072 | 1 | .072 | 1.472 ns |
| Sent Ver Pretest | .844 | 1 | .844 | 17.315 * |
| Main Effects | | | | |
| Treatment | .526 | 2 | .263 | 5.394 * |
| Residual Error | 1.756 | 36 | .049 | |
| Total | 3.405 | 40 | .085 | |

Note. Voc Rec Pretest = Vocabulary Item Recognition Pretest; Sent Ver Pretest = Sentence Verification Pretest.

A priori planned comparisons: Group 3 > 1 *; Group 3 > 2 *; Group 2 > 1 n.s.

* p< .05.

APPENDIX I

Transcripts of Student/tutor Interaction during the Still Lifes Task, Trial 6, Number 2

Note: T = Tutor; S = Student; Direct translations in single brackets, English equivalents given in double brackets.

Student #36:

1. T: Zikokuhyoo wa _ tizu no sita ni arimasu
[Timetable TOP _ map GEN under LOC Exist]
[[The timetable is _ under the map]]

2. S: Uh _ moo iti do itte
[[Uh _ say that again]]

3. T: Zikokuhyoo wa _ tizu no _ sita ni arimasu
[Timetable TOP _ map GEN _ under LOC Exist]
[[The timetable is _ under _ the map]]

4. S: Zi- zikokuhyoo_/
[[T- timetable_/]]

5. T: Un
[[Yeah]]

6. S: Uhh _ Nan desuka? x
[[Uhh _ What's that? x]]

7. T: Zikokuhyoo wa _ tatoeba _ 'basu' no zikokuhyoo
[Timetable TOP _ for example _ 'bus' GEN timetable
[[A timetable _ for example _ a bus timetable

toka, densya no zikokuhyoo de zikan o _-
or, train GEN timetable INSTR. time OBJ- ]
or, train timetable tells- ]]

8. S: Hai
[[Alright]]

9. T: oshiete kuremasu ne
teach give TAG]
the time right?]]

10. S: Hai
[[Alright]]

11. T: Un De sono zikokuhyoo wa _
[Yeah CONJ. that timetable TOP
[[Yeah And that timetable is _

tizu no _ sita ni arimasu
_ map GEN _ under Exist]
under _ the map]]

12. S: Hai
[[Alright]]

Student #15:

1. T: Zikokuhyoo wa _ tizu no sita ni arimasu
[Timetable TOP _ map GEN under LOC Exist]
[[The timetable is _ under the map]]

Zikokuhyoo wa _ tizu no sita ni arimasu
[[The timetable is _ under the map]]

2. S: Tizu wa _ ookii desuka?
[Map TOP _ big Q]
[[Is the map _ big?]]

3. T: Tizu wa _ hai Ookii desu _ _ Ee ima _ watasi ga
[Map TOP _ yes Big Exist _ _ Um now _ I SUB
[[The map is _ yes It's big _ _ Um what I

hooshii no wa zikokuhyoo desu Zikokuhyoo wa _
[want GEN TOP timetable COP Timetable TOP _
[[want now is the timetable The timetable is

ookii tizu no _ sita ni arimasu
big map GEN _ under Exist]
_ under the big map]]

APPENDIX J

Transcripts of Student/tutor Interaction during the Maps Task, Trial 1, Number 2

Note: T = Tutor; S = Student; Direct translations in single brackets, English equivalents given in double brackets.

Student #45:

1. T: Insyokuten no temae ni _ honya ga arimasu
[Eating house GEN this side of _ bookstore SUB Exist]
[[Just this side of the eating house is a bookstore]]

2. S: Insyokuten_/ Insyokuten wakaranai
[[Eating house_/ I don't understand eating house]]

3. T: Insyokuten wakaranai?
[[You don't understand eating house?]]

4. S: (Insyokuten)
[[(Eating house)]]

5. T: Insyokuten no temae ni _ honya ga arimasu
[Eating house GEN this side LOC _ bookstore SUB Exist]
[[Just this side of the eating house _ is a bookstore]]

Insyokuten te iu no wa _
[Eating house called GEN TOP _]
[[An eating house is _]]

'resutoran' _ no yoo na tokoro desu ne?
['restaurant' _ GEN kind of place TAG?]
[[a place like a 'restaurant' right?]]

6. S: Oh Honya ga arimasu/
[[Oh There is a bookstore/]]

7. T: Un Insyokuten no temae ni _ honya ga arimasu
[Yeah Eating house GEN this side LOC _ bookstore SUB Exist]
[[Yeah Just this side of the eating house is _ a bookstore]]

8. S: Ookii _ honya _ aru- arimasuka?
[[ Is _ big _ bookstore?]]

9. T: Iie Tiisai honya desu
[[No Its a small bookstore]]

10. S: Tiisai Hai
[[Small Alright]]

Student #32:

1. T: Insyokuten no temae ni _ honya ga arimasu
[Eating house GEN this side LOC _ bookstore SUB Exist]
[[Just this side of the eating house is a bookstore]]

2. S: Insyokuten _ wa wakarimasen
[[ I do not understand _ eating house]]

3. T: Insyokuten wa _ tabemono o taberu tokoro desu
[[An eating house is _ a place to eat food]]

4. S: Ookii/ tiisai\/
[[Big/ small\/]]

5. T: Ee _ sono insyokuten wa _ tiisai insyokuten desu
[[Uh _ that eating house is _ a small eating house]]

Sono temae ni _ honya ga arimasu
[[ In front that _ is a bookstore]]

Honya wa doko ni arimasuka?
[[Where is the bookstore?]]

6. S: OK

APPENDIX K

Transcripts of Student/tutor Interaction during the Shapes Task, Trial 3, Number 3

Note: T = Tutor; S = Student; Direct translations in single brackets, English equivalents given in double brackets.

Student #45:

1. T: Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC_
[[Beside the small white rectangle _

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square]]

2. S: Hmm Tiisai/-
[[Hmm Small/- ]]

3. T: Tiisai un
[[Small yeah]]

4. S: Si-
[[Wh- ]]

5. T: Siroi
[[White]]

6. S: Siroi\
[[White\ ]]

7. T: Tyoohookee
[[Rectangle]]

8. S: Sita ni _ kuroi _ tyoohoo- um _ hoo-
[[Under that _ a black _ rectang- um _ rect- ]]

9. T: Un Tyoohookee-
[[Yeah Rectangle- ]]

10. S: Tyoohookee\ _ arimasu- ka?
[Rectangle\ _ Exist- + Q?]
[[There's\ _ a rectangle?]]

11. T: Hai Tiisai siroi tyoohookee no sita ni _ _
[Yes Small white rectangle GEN under LOC _ _
[[Yes Under the small white rectangle _ _

tiisai kuroi tyoohookee ga arimasu
small black rectangle SUB Exist]
there is a small black rectangle]]

12. S: Hai
[[Yes]]

13. T: Demo kore wa tigaimasu yo
[[But this one is wrong you know]]

Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC_
[[Beside the small white rectangle _

ookii haiiro no sankaku ga arimasu
big grey GEN triangle SUB Exist]
there is a big grey triangle]]

14. S: Sankaku_/
[[Triangle_/ ]]

15. T: Ookii san- oh gomennasai- sikakaku
[[A big tri- oh sorry- square]]

16. S: Sikakaku
[[Square]]

17. T: Soo Dakara _ ookii siroi san- siroi sikaku
[[Right So _ a big white tri- white square]]

18. S: Ookii So _ sanban wa ookii- xx gomennasai-
[[Big So _ number three is the big- xx sorry- ]]

19. T: Soo soo soo soo soo-
[[Right right right right right-]]

20. S: Sanban wa siroi- tiisai syo-
[[Number three is the white- small lect- ]]

21. T: Tyoohookee
[[Rectangle]]

22. S: Tyoohookee\
[[Rectangle\ ]]

23. T: Iie Iie
[[No No]]

24. S: Oh no\

25. T: San ban wa _ ookii hairo no _ sikaku
[[Number three is _ the big grey _ square]]

26. S: Sikaku\ [erasing pencil marks] OK Hai
[[Square\ OK Alright]]

Student #32:

1. T: Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC_
[[Beside the small white rectangle _

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square]]

2. S: Moo iti do itte kudasai
[[Please say that again]]

3. T: Hai Tiisai siro- tiisai siroi tyoohookee no yoko ni _
[Alright Small white rectangle GEN beside LOC_
[[Alright Beside the small white rectangle _

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square]]

4. S: Ookii haiiro no _ sikaku desuka?
[Big grey GEN _ square COP + Q?]
[[The big grey _ square?]]

5. T: Soo desu
[[That's right]]

Student #26:

1. T: Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC_
[[Beside the small white rectangle _

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square]]

2. S: Moo iti doo/
[[Once more/ ]]

3. T: Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC_
[[Beside the small white rectangle _

ookii haiiro no sikaku ga arimasu
big grey GEN square SUB Exist]
there is a big grey square]]

4. S: Umm _ ookii wa _ nani?
[[Umm _ what's big?]]

5. T: OK once again

6. S: Yeah hai

7. T: Tiisai siroi tyoohookee no yoko ni _
[Small white rectangle GEN beside LOC _
[[Beside the small white rectangle _

8. S: Uh huh

9. T: ookii haiiro no _ sikaku ga arimasu
big grey GEN _ square SUB Exist]
there is a big grey _ square]]

10. S: OK

## NOTES

[1] Operational definitions of retention and learning are given in greater detail later in this paper. Most simply put, both constructs are measured by pretest/posttest gain: for retention these are vocabulary recognition scores, and for "learning" these are specific tests of students' ability to differentiate correct and incorrect referential statements about pictures (in which syntax alone is the differentiating feature). It should also be noted that no distinction is being attempted here between the concepts of "learning" and "acquisition", which will be used interchangeably throughout the paper.

[2] Corsaro (1977) comes up with a similar hypothesis concerning the value of modified interaction (called "clarification requests" though somewhat differently defined than those discussed by Long) for increasing very young children's comprehension in their first language.

[3] 'Modified' or 'negotiated' interaction is operationalized as a set of discourse moves, primarily in three categories: clarification requests, confirmation checks, and comprehension checks. All of these moves are considered to be useful for overcoming non-understanding in conversation. Several studies have been done to discover the types of tasks, classroom environments and speaker relationships that produce the greatest numbers of these

moves (e.g., Long, 1981; Long & Sato, 1983; Pica & Doughty, 1985; Doughty & Pica, 1986; Gass & Varonis, 1985; Varonis & Gass, 1985; Rulon & McCreary, 1986). 'Modified' input is operationally categorized as simplification or elaboration of input at the lexical, syntactic, prosodic, or thematic level by the NS (c.f., Parker & Chaudron, 1987). Long (1981) appears to have been primarily referring to input modifications that simplify rather than those that elaborate when he formulated his hypothesis.

[4] This is the opposite of the claim made by Kuno (1973). Based on an analysis of the deep structures of locative constructions in English and Japanese, Kuno claims that the locative initial word order is the most basic in both languages. This claim is stronger for Japanese than for English. In the latter case he claims that the structure "There is NP LOC P" is the most basic word order for locatives in English and that it is derived from the locative initial structure "LOC P is NP". Nevertheless, Sridhar (1988) has found that when English L1 subjects (as well as those from most other languages in his study) were shown a film sequence in which a ball was sitting on a table, the subjects most frequently produced sentences in which the figure NP (ball) preceded the ground NP (table). One point which is unclear from Sridhar's data is whether or not he considered the 'there' initial locative structure

in English as fitting the figure initial sequence. However, his use of a 'there' initial structure in his English translation of a ground initial sentence (from Kannada) indicates that he does not. Thus his findings appear to provide counterevidence against Kuno's claim.

[5] In fact, there is also the possibility of using the <u>there is</u> construction in English, but the sake of simplicity this structure will not be discussed.

[6] According to T. Doi (1988, May, personal communication) most University of Hawaii students do not acquire 'ga' until sometime in the second semester of Japanese study. This particular learner was in the first semester of Japanese studies and thus may not have yet acquired 'ga'.

[7] The picture sheets for the maps task use 'iconic' symbols to represent the various shops, movie theaters etc. along the street. Thus, for instance, a smoking cigarette is used as a generic symbol for tobacco shops.

[8] The reason for the slightly uneven number of items between the 'new' and 'old' categories is that there were no matching 'old' nouns to go with the 'new' nouns in the shapes task. Since it was decided to test knowledge <u>only</u> of nouns, this lead to a slightly uneven distribution between

these two sets of words. However, the number of 'used' words is the same as that of 'unused' words.

[9] It was expected that the tasks' order of difficulty would be influenced by the tasks' degree of abstraction or amenability to the learners' schema. Since the most visually and conceptually 'concrete' task was the still lifes task, this seemed easiest for learners to comprehend. The maps task was visually more abstract since it used symbols to represent different locations on a two dimensional plane. The shapes task was by far the most abstract in that the visual representations had no context or 'schema' to relate to other than within the task itself. Furthermore, the abstractness of the shapes themselves meant that the NPs were less bound by semantic relations than in the other two tasks. Recall that Fischler and Goodman (1978) predict that this will force the comprehender to rely much more heavily on syntactic relations, which should make the shapes task even more difficult for beginning level NNSs. Finally, the greater length of the sentences in this task would also tend to make it more difficult for learners.

[10] For group 3, the fragments per T-unit ratios in the still lifes, maps and shapes tasks were .13, .47, and .14 respectively, for a mean of .21 overall. The words per

fragment ratios for the three tasks were 1.5, 2.6, and 3.0 respectively, for a mean of 2.32 overall.

[11] This is perhaps an answer to Aston's (1986) rhetorical question "trouble-shooting in interaction with learners: the more the merrier?" If a learner has 'trouble' comprehending, then negotiation of meaning will have a probabilistically facilitative effect on his/her comprehension. That is, while negotiation of meaning never guarantees sucessful comprehension, it can almost certainly ensure a higher probability of resolving nonunderstanding between interlocutors.

[12] In order to show how negotiated interaction was facilitative of comprehension, the particular task trials and task items which best discriminated between the groups in favor of Group 3 were chosen. Furthermore, only interactions which ended in success for the learner were used as examples.

[13] This point is similar to that made by Long (1988) when he argues for the importance of instruction in SLA. Likewise, Long's call for caution in interpreting such results should be heeded. The results of this study should not be taken as a call to abandon the 'comprehension approach' in favor of returning to more audiolingual grammar drills. If anything, it is a call for more research

on the effects of task-based learning of which the present thesis serves as one example.

## REFERENCES CITED


Anderson, J. R. (1985). Cognitive psychology and its implications. New York: W. H. Freedman and Company.

Aston, G. (1986). Trouble-shooting in interaction with learners: The more the merrier? Applied Linguistics, 7(2), 128-143.

Baddeley, A. (1986). Working Memory. Oxford: Clarendon.

Bates, E., & MacWhinney, B. (1982). Functionalist approaches to grammar. In Gleitman, L. R., & Wanner, E. (Eds.), Language acquisition: State of the art. Cambridge: Cambridge University Press.

Bley-Vroman, R. (1988). The fundamental character of foreign language learning. In Rutherford, W., & Sharwood Smith, M. (Eds.) Grammar and second language teaching (pp. 19-30). New York: Newbury House.

Bongaerts, T., Kellerman, E., & Bentlage, A. (1987). Perspective and proficiency in L2 referential communication. Studies in Second Language Acquisition, 9, 171-200.

Bower, G., & Cirilo, R. (1985). Cognitive psychology and text processing. In van Dijk, T. (Ed.), Handbook of discourse analysis, volume 1: Disciplines of discourse (pp. 71-105). New York: Academic Press.

Brock, C., Crookes, G., Day, R., & Long, M. (1986). Differential effects of corrective feedback in native speaker-nonnative speaker conversation. In Day, R. (Ed.), (pp. 229-236).

Brown, G., & Yule, G. (1983). Discourse analysis. Cambridge: Cambridge University Press.

Brown, G. D., Sharkey, A. J., & Brown, G. (1987). Factors affecting the success of referential communication. Journal of Psycholinguistic Research, 16(6), 535-549.

Canale, M., & Swain, M. (1980). Theoretical bases of communicative approaches to second language teaching and testing. Applied Linguistics, 1(1), 1-47.

Chaudron, C. (1982). Vocabulary elaboration in teachers' speech to L2 learners. Studies in Second Language Acquisition, 4(2), 170-180.

Chaudron, C. (1983). Foreigner talk in the classroom--an aid to learning? In Seliger, H. W., & Long, M. H. (Eds.), (pp. 127-143).

Chaudron, C. (1985a). Intake: On models and methods for discovering learners' processing of input. Studies in Second Language Acquisition, 7(1), 1-14.

Chaudron, C. (1985b). A method for examining the input/intake distinction. In Gass, S., & Madden, C. (Eds.), (pp. 285-300).

Chaudron, C. (1988). Second language classrooms: Research on teaching and learning. Cambridge: Cambridge University Press.

Clancy, P. (1985). The acquisition of Japanese. In Slobin, D. I. (Ed.) The crosslinguistic study of language acquisition, Volume 1: The data. Hillsdale, NJ: Lawrence Erlbaum Associates.

Clark, E. V., & Hecht, B. F. (1983). Comprehension, production, and language acquisition. Annual Review of Psychology, 34, 325-349.

Corsaro, W. A. (1979). The clarification request as a feature of adult interactive styles with young children. Language in Society, 6, 183-207.

Craik, F., & Lockhart, R. (1972). Levels of processing: A framework for memory research. Journal of Verbal Learning and Verbal Behavior, 11, 671-684.

Crookes, G. (1986). Task classification: a cross disciplinary review. (Tech. Rep. No. 4). Honolulu: University of Hawaii at Manoa, Center for Second Language Classroom Research.

Crookes, G., & Rulon, K. (1985). Incorporation of corrective feedback in native speaker/non-native speaker conversation. (Tech. Rep. No. 3). Honolulu: University of Hawaii at Manoa, Center for Second Language Classroom Research.

Day, R. (1986). (Ed.) Talking to learn. Rowley MA.: Newbury House.

Doi, T., & Yoshioka, K. (1988, September). Investigation of the acquisition of particles and word order from a speech processing viewpoint: Application of the Pienemann-Johnston model to Japanese. Paper presented at the First Conference on Second Language Acquisition and Teaching, International University of Japan, Tokyo, to appear in the conference proceedings.

Doughty, C., & Pica, T. (1986). 'Information gap' tasks: Do they facilitate second language acquisition? TESOL Quarterly, 20(2), 305-325.

Ericsson, K., & Simon, H. (1984). Protocol analysis: Verbal reports as data. Cambridge, MA: MIT Press.

Estes, W. K. (1989). Learning theory. In Lesgold, A., & Glaser, R. (Eds.), Foundations for a psychology of education (pp. 1-49). Hillsdale, NJ: Erlbaum.

Eysenck, M. W., & Eysenck, M. C. (1979). Processing depth, elaboration of encoding, memory stores, and expended processing capacity. Journal of Experimental Psychology in Human Learning and Memory, 5, 472-484.

Faerch, C., & Kasper, G. (1986). The role of comprehension in second language learning. Applied Linguistics, 7(3), 257-274.

Fischler, I., & Goodman, R. (1978). Semantic and episodic constraints on the use of surface-order cues in the comprehension of locative sentences. Journal of Psycholinguistic Research, 7(2), 121-134.

Foss, D. J. (1988). Experimental psycholinguistics. Annual Review of Psychology, 39, 301-348.

Gairns, R., & Redman, S. (1986). Working with words: A guide to teaching and learning vocabulary. Cambridge: Cambridge University Press.

Gass, S. (1986). An interactionist approach to L2 sentence interpretation. Studies in Second Language Acquisition, 8, 19-37.

Gass, S. (1987). The resolution of conflicts among competing systems: A bidirectional perspective. Applied Psycholinguistics, 8, 329-350.

Gass, S. (in press). Second language vocabulary acquisition. Annual Review of Applied Linguistics.

Gass, S., & Madden, C. (1985). (Eds.). Input in second language acquisition. Rowley MA: Newbury House.

Gass, S., & Varonis, E. (1985). Task variation and nonnative/nonnative negotiation of meaning. In Gass, S., & Madden, C. (Eds.), (pp. 149-161).

Gillund, G., & Shiffrin, R. M. (1984). A retrieval model for both recognition and recall. Psychological Review, 91, 1-67.

Gregg, V. H. (1986). Introduction to human memory. London: Routledge & Kegan Paul.

Harrington, M. (1987). Processing transfer: Language specific processing strategies as a source of interlanguage variation. Applied Psycholinguistics, 8(4), 351-377.

Hatch, E. (1978). Discourse analysis and second language acquisition. In Hatch, E. (Ed.), Second language acquisition: A book of readings, (pp. 401-435). Rowley, MA: Newbury House

Hatch, E. (1983). Psycholinguistics: A second language perspective. Rowley, MA: Newbury House.

Herskovits, A. (1985). Semantics and pragmatics of locative expressions. Cognitive Science, 9, 341-378.

Horton, D. L., & Mills, C. B. (1984). Human learning and memory. Annual Review of Psychology, 35, 361-394.

Hulstijn, J. H. (in press). Implicit and incidental second language learning: Experiments in the processing of natural and partly artificial input. In Dechert, H. W. (Ed.), Interlingual processing. Tubingen: Gunter Narr.

Johnson, M. K., & Hasher, L. (1987). Human learning and memory. Annual Review of Psychology, 38, 631-668.

Jorden, E. H., & Chaplin, H. I. (1962). Beginning Japanese: Part I. New Haven, CT: Yale University Press.

Just, M., & Carpenter, P. (1987). The psychology of reading and language comprehension. Newton, MA: Allyn & Bacon.

Kennedy, G. (1978). The testing of listening comprehension. Singapore: Singapore University Press.

Kintsch, W. (1974). The representation of meaning in memory. Potomac, MD: Lawrence Erlbaum Associates.

Kolers, P., & Roediger, H. L. (1984). Procedures of mind. Journal of Verbal Learning and Verbal Behavior, 23, 425-429.

Krashen, S. (1980). The Input Hypothesis. In Alatis, J. (Ed.), Current issues in bilingual education, (pp. 144-158). Washington, DC: Georgetown University Press.

Krashen, S. (1983). Newmark's "Ignorance Hypothesis" and current second language acquisition theory. In Gass, S., & Selinker, L. (Eds.), Language transfer in language learning, (pp. 135-153). Rowley, MA: Newbury House.

Krashen, S. (1985). The Input Hypothesis: Issues and implications. London: Longman.

Kuno, S. (1973). The structure of the Japanese language. Cambridge MA: MIT Press.

Li, X. (1988). Effects of contextual cues on inferring and remembering meanings of new words. Applied Linguistics, 9(4), 402-413.

Long, M. H. (1981). Input, interaction and second language acquisition. In Winitz, H. (Ed.) Annals of the New York Academy of Sciences Conference on Native and Foreign Language Acquisition, (pp. 259-278). New York: New York Academy of Sciences.

Long, M. H. (1983a). Linguistic and conversational adjustments to non-native speakers. Studies in Second Language Acquisition, 5(2), 177-193.

Long, M. H. (1983b). Native speaker/non-native speaker conversation and the negotiation of comprehensible input. Applied Linguistics, 4(2), 126-141.

Long, M. H. (1985). Input and second language acquisition theory. In Gass, S., & Madden, C. (Eds.), (pp. 377-393).

Long, M. H. (1988). Instructed interlanguage development. In Beebe, L. (Ed.), Issues in second language acquisition: Multiple perspectives. Rowley, MA: Newbury House.

Long, M. H., & Sato, C. J. (1983). Classroom foreigner talk discourse: Forms and functions of teachers' questions. in Seliger, H. W., & Long, M. H. (Eds.), (pp. 268-285).

Loschky, L. (1988, March). The effects of task and culture on negotiated interaction. Paper presented at the Second Language Research Forum, University of Hawaii at Manoa, Honolulu, HI.

MacWhinney, B. (1987). Applying the Competition Model to bilingualism. Applied Psycholinguistics, 8(4), 315-327.

McLaughlin, B. (1987). Theories of second-language learning. London: Edward Arnold.

Murdock, B. B. (1982). Recognition and memory. in Puff, C. R. (Ed.), Handbook of research methods in human memory and cognition (pp. 2-26). New York: Academic Press.

Nation, I. S. P. (1982). Beginning to learn foreign vocabulary: A review of the research. RELC Journal, 13(1), 14-36.

Palmberg, R. (1987). Patterns of vocabulary development in foreign-language learners. Studies in Second Language Acquisition, 9, 201-220.

Parker, K., & Chaudron, C. (1987, March). The effects of linguistic simplification and elaborative modifications on L2 comprehension. Paper presented at the 21st Annual TESOL Convention, Miami, FL.

Pennington, M. (1988). Teaching pronunciation from the top down. University of Hawaii at Manoa Working Papers in ESL, 7(1).

Pica, T. (1987). Classroom interaction, negotiation, and comprehension: Redefining relationships. Manuscript. University of Pennsylvania.

Pica, T. (1988). Interlanguage adjustments as an outcome of NS-NNS negotiated interaction. Language Learning, 38(1), 45-73.

Pica, T., Young, R., & Doughty, C. (1987). The impact of interaction on comprehension. TESOL Quarterly, 21(4), 737-758.

Pica, T., & Doughty, C. (1985) Input and interaction in the communicative classroom: A comparison of teacher-fronted and group activities. In Gass, S., & Madden, C. (Eds.), (pp. 115-132).

Pica, T., Holliday, L., Lewis, N., & Morgenthaler, L. (1989). Comprehensible output as an outcome of linguistic demands on the learner. Studies in Second Language Acquisition, 11(1), 63-90.

Pienemann, M. (1988). Psychological constraints on the teachability of language. In Rutherford, W., & Sharwood Smith, M. (Eds.), Grammar and second language teaching, (pp. 85-106). New York: Newbury House

Pimsleur, P. (1967). A memory schedule. Modern Language Journal, 51, 73-75.

Porter, P. (1986). How learners talk to each other: Input and interaction in task-centered discussions. In Day, R. (Ed.), (pp. 200-222).

Rulon, K., & McCreary, J. (1986). Negotiation of content: Teacher-fronted and small-group interaction. In Day, R.(Ed.), (pp. 182-199).

Sato, C. (1986). Conversation and interlanguage development: Rethinking the connection. In Day, R. (Ed.), (pp. 23-45).

Schmidt, R. W. (1983). Interaction, acculturation, and the acquisition of communicative competence. In Wolfson, N., & Judd, E. (Eds.), Sociolinguistics and language acquisition, (pp. 137-174). Rowley, MA: Newbury House.

Scollon, R. (1979). A real early stage: An unzippered condensation of a dissertation on child language. In Ochs, E., & Schieffelin, B. (Eds.), Developmental Pragmatics, (pp. 215-227). New York: Academic Press.

Seliger, H., & Long, M. (Eds.). (1983). Classroom oriented research in second language acquisition. Rowley, MA: Newbury House.

Sharwood Smith, M. (1986). Comprehension versus acquisition: Two ways of processing input. Applied Linguistics, 7(3), 239-256.

Sokolik, M. E., & Smith, M. E. (1989, March). French gender recognition: A network model and implications for second language acquisition. Paper presented at the Ninth Second Language Research Forum, UCLA, Los Angeles, CA.

Snow, C., & Ferguson, C. (Eds.) (1977). Talking to children: Language input and acquisition. Cambridge, MA: Cambridge University Press.

Sridhar, S. N. (1988). Cognition and sentence production: A cross-linguistic study. New York: Springer-Verlag.

Swain, M. (1985). Communicative competence: Some roles of comprehensible input and comprehensible output in its development. In Gass, S., & Madden, C. (Eds.), (pp. 235-253).

Teichroew, F. J. (1982). Receptive versus productive vocabulary: A survey. Interlanguage Studies Bulletin, 6(2), 3-33.

Tulving, E. (1982). Synergistic ecphory in recall and recognition. Canadian Journal of Psychology, 36, 130-147.

Tulving, E., & Thompson, D. M. (1973). Encoding specificity and retrieval processes in episodic memory. Psychological Review, 80, 352-373.

van Dijk, T. A., and Kintsch, W. (1983). Strategies of discourse comprehension. New York: Academic Press.

VanPatten, B. (1989). Can learners attend to form and content while processing input? Hispania, 72, 409-417.

Varonis, E., & Gass, S. (1985). Non-native/non-native conversations: A model for negotiation of meaning. Applied Linguistics, (6), 1, 71-90.