The Effects of Linguistic Simplification and Elaborative Modifications on L2 Comprehension

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In the past several years, a number of experimental studies have begun to explore the effects of modifications of target language input on second language learners' comprehension. These studies have typically been designed to test the difference in comprehension resulting from either modifications of input, which are typically considered to be changes in linguistic form, that is, surface syntax, lexis and phonology, or modifications of interaction, which involve features of conversation or discourse function. With the exception of a recent pilot study (Pica, Doughty and Young 1985), the experimental comparisons we are aware of have involved "one-way" texts, or monologues, either lectures or reading passages. As a result, these studies have not been able experimentally to manipulate the critical features of modified "interaction" in the sense of manipulation of the degree of dialogue and negotiation of meaning between conversational participants. Instead, they have focused on manipulation of features of input that are viewed as "simplifications," in the sense of reduced linguistic material or less load on cognitive processing.

Yet, because these studies have revealed differential effects of modified texts that cannot be attributed to either conversational interaction or linguistic simplification, we will suggest here that a specific type of input modification accounts for the differences across studies, and thereby warrants a reconsideration of the factors which underlie successful modification of TL input. We will call this type of modification "elaboration," and will distinguish it from both simplification, and modifications involving the negotiation of meaning in interaction. We will then report a small-scale study designed to explore the effects of elaborative modifications on reading comprehension.

The primary theoretical justification for testing effects of modifications in the target language available as input derives from the

argumentation developed by Krashen (1982), that for second language (L2) learners to progress, they must receive target language (TL) input that is simplified at least to a degree slightly advanced of the rules in their stage of interlanguage (IL) development, and that if this input is comprehensible, learners will acquire the next stage of TL rules. This argument was modified by Long's research (1980,1981, 1983a,b) on the effects of different sorts of input, which suggested that linguistic simplification in input might not have as substantial an impact as interactional modifications, which he exemplified with both conversational devices that promote negotiation of TL input (such as clarification requests and confirmation checks), and other modifications that signal discourse structure or provide redundant information (such as repetition or conversational frames). In order for a link to be established between adjustments of input and L2 acquisition, Long (1983a) argued that modifications (of whatever sort) needed to be shown to lead to comprehension, and then comprehension to result in acquisition. Research on the former issue was sparse at the time of Long's review, although his own research (1980, 1981) had led him to suspect that modifications of input, in the sense of simplification of linguistic form, were not as important for comprehension and eventual acquisition as modifications of interaction. He has argued that conversational interaction on meaningful tasks should lead to a greater incidence of speech adjustments, or modifications, which in turn result in more comprehensible speech.

While we believe that this may be true, research on comprehension of monologue texts leads us to investigate the precise effects of input modifications, where we propose that the modifications most critical for comprehension are in fact repetitions or redundancy, and clearer signalling of the thematic structure of the communication. Historically, this has been borne out by suggestions that there are at least two types of simplification in input. Ferguson (1977) and Meisel (1977) observed with L1 baby talk and L2 foreigner talk, respectively, and Chaudron (1981, 1983a) illustrated in ESL teacher talk, that simplification in speech to language learners involved both structurally simplified forms (fewer forms and less marked or less complex surface structure), and cognitively simplified forms achieved through redundancy and other devices. Because these latter simplifications do not involve two-way interaction, we include them under the rubric of

modifications of input, but we want to distinguish them from simplifications by calling them elaborative modifications.   [fn 1]

Footnote 1:   Two-way interaction may more fully provoke or exploit these kinds of modification, but it does not necessarily cause them, nor is it the only source of them.

These differences between modifications involving simplification of input, elaboration of input, and modifications in conversational interaction are summarized in Figure 1.

Insert Figure 1 about here

In the first column of Figure 1, we list the typical features of linguistic form that have been shown to be modified to less complex forms or measures in studies of foreigner talk, baby talk, and teacher talk (see Snow 1977, Long 1980, 1981, Clyne, ed. 1981, Chaudron in press, for reviews).   These include shorter utterances (in words or in T-units), less complex syntax (in clauses or S-nodes per T-unit), smaller type-token ratios, and omission of sentence elements or morphological inflections.

Illustrated in the third column of Figure 1 are characteristics of conversational interaction which Long (1983a, b) has suggested can be modified to increase comprehensibility.   These include clarification requests, comprehension checks, confirmation checks, completion and repetition of others' utterances, and a variety of topic- and turn-management acts.   Since these interactive acts have not been manipulated in the experiments we are aware of (though a comment on Pica, et al. 1985, will be made), we cannot judge their effects on L2 interlocutors' comprehension.

In the middle column, we propose that a number of characteristics noted in speech addressed to L1 and L2 learners do not belong in any intrinsic sense in the category of modifications of interaction with the interlocutor,

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since the presence of an interlocutor is not critical to their existence.   [fn 2]

Footnote 2:   Long (personal communication) points out that these may still be considered as "modifications of interactional structure."   His use of the term thus considers that they constitute adjustments by the writer/speaker that possibly derive from concern for the reader's/listener's needs.

Nor, although they certainly constitute "input," do they belong in the category of modifications as simplifications of linguistic form.   Rather, these input modifications can be characterized as modifications of elaboration -- the addition of redundancy, and the explicit realization of underlying thematic relations which we will term "thematic structure."   Thus, features such as slower speech, clearer articulation and emphatic stress, paraphrases, synonyms and restatements, rhetorical signalling devices, self-repetition, and suppliance of optional syntactic signals (e.g. relative and complement clause markers) serve neither to "simplify" nor "complexify" the surface form, nor to create opportunities for "interaction;" rather, they are clarifications of meaning only, opportunities for the listener/reader to better decode the communication.   Precisely because these features do not depend on an interactive setting (although they may of course be promoted through an interactive context), they are of considerable interest to teachers and researchers as important devices to use for L2 learners in written texts and in oral presentations, such as academic lectures.

Interactive Modifications

In the one experimental study we are aware of that compared interaction modifications [fn 3] with input modifications, Pica, et al. (1985)

Footnote 3:   Interaction in the sense of two-way communication.   Other studies have called elaborative modifications of one-way texts modifications of interaction, which we feel can be misleading, because of the standard use of the term to mean conversation.

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constructed two conditions for giving instructions. Starting with a number of baseline (NS-generated) texts used for instructions, one condition was a modification of each instruction reduced in syntactic complexity, but also incorporating more words, repetitions and paraphrases. The second condition involved the same texts of instruction as in the baseline, but the NNS participant could question and the NS participant could respond and interact in the process to clarify meanings. The researchers found that the interaction condition led to much greater quantity and redundancy of input, and greater complexity than the input condition. However, it was superior in promoting comprehension for only about a third of the instruction texts, and equal or slightly inferior to the input modifications on the remaining two-thirds. A post hoc analysis of the significant differences between the most and least successful sets of interaction-generated instructions shows that it was principally the greater quantity of speech, repetitions, and redundancy in the successful sets that distinguished them from the least successful sets. They did not differ in syntactic complexity. While truly interactive modifications possibly led to this increase in quantity and redundancy, there was a non-significant difference in number of interactive modifications between the two sets of interaction instructions.

Input Modifications

About a dozen experimental studies have been conducted using either written or aural monologic texts, usually of an academic nature, to test the comprehensibility of different modifications. Typically, their designs have involved the presentation of a "natural" or "native speaker" text to one group of L2 learners, and the presentation to comparable groups of equivalent texts that are modified in certain ways. Thus far, the accumulated results of these studies have indicated that linguistic simplifications such as simpler syntax and simpler vocabulary do not have as significant an effect on L2 comprehension as elaborative modifications. Unfortunately, few of these studies have avoided confounding the categories, and their failure to investigate modifications of conversational interaction leaves many questions unresolved as to the possible origins of appropriate modifications in natural speech. Table 1 outlines the major features of the design and results of these studies.

Aural texts

As an example of such a study with aurally presented texts, Long's two studies (reported in 1985a) compared a "native speaker" (NS) version of a short lecture on Mexico with a "foreigner talk" (FT) version constructed following the content of the native speaker one, but which was spoken a little more slowly, using simpler syntax (S-nodes per T-unit), and with a number of rephrasings and restatements. A 20-item multiple choice test that was answered while listening to the lectures was the dependent measure of comprehension. University-level L2 students performed significantly better on the test when listening to the FT version than when listening to the NS one. Unfortunately, like many of the studies using aural texts, Long's experiments involved the two potentially different measures of input modifications, namely linguistic simplification and elaborative modifications. The lower complexity alone may have made the difference, although Pica, et al.'s (1985) study, and several others to be discussed below, suggest that it may not have. On the other hand, the slower speech, a redundancy-enhancing modification, may have made the most difference. Kelch (1985) found, for instance, that L2 university students were superior in producing a dictation when hearing a substantially slower version of a passage (about 130 wpm versus about 195). Discourse redundancies in this passage (added paraphrases, synonyms, and parallelism) did not have an effect on dictation scores, except when the modified discourse version was combined with a slower rate of delivery and the dictation was scored on the basis of equivalent meaning, instead of exact words.

In one study examining syntactic simplification of texts, there was no effect on comprehension (Speidel, Tharp, and Kobayashi 1985). In other studies, the effect of linguistic simplifications cannot be separated from the effect of rate of delivery (Fujimoto, Lubin, Sasaki, and Long 1986, Mannon 1986). Thus, the effect of strictly simplifying linguistic modifications of aural passages on comprehension remains to be shown. Nevertheless, one important effect found by Fujimoto, et al. (1986)

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resembles results on studies with written texts: although both versions had a slower rate, their version of the lecture with elaborative modifications was just as successful as the one with linguistic simplification. Since the text with extra redundancy was of approximately equal syntactic complexity to the NS version (measured in S-nodes per T-unit), the learners were evidently not bothered by the syntactic complexity, and this text could thus be considered to be a more natural substitute for the NS text. This is to say that linguistic simplification may not be necessary for optimum comprehension to occur. Finally, comparing different signals of discourse structure in a 25-minute lecture, Chaudron and Richards (1986) found significant effects favoring comprehension of the version with signals of higher-order structure over the version with only inter-sentence signals. This result is ambiguous with regard to our position, in that it only compares between thematic structuring at different levels of rhetorical structure.

Written texts

The results with written texts are precisely parallel to those with aural texts, but most importantly, several of them have controlled for degree of syntactic simplification versus elaborative modifications, and rate of delivery is no longer a factor. Whereas Johnson (1981) found rather small effects favoring a simplified over a "regular" text, the modifications again appear to have confounded syntactic ones with elaborative, redundant ones (paraphrases). Blau (1982), however, found a trend towards an advantage for texts with more complex syntax over ones with simpler syntax, at least for the same groups of subjects in the 8th grade. She found moreover, that of two versions of more complex texts, those which had clearer surface signalling of underlying syntactic relationships (e.g. with relative clause markers versus omitted markers), tended to be perceived by college sutdents as easier to understand.

Just as Fujimoto, et al. (1986) had found with listening texts, Brown (1985) and Tsang (1987), who replicated Brown's study on a different, homogeneous Chinese L1 population, found that redundancy-modified texts (with paraphrases and synonymns, etc.) were equally successful in promoting comprehension as syntactically simplified texts. However, this effect was found only for the lowest levels of learners (9th and 10th grade), where the

9th graders comprehended the linguistically simplified passage best.

The clear suggestion of these studies of input modifications in aural and written texts appears to be that comprehension is consistently enhanced when elaborative modifications are present, although these were confounded at times with linguistic simplification. Linguistic simplifications are not consistently superior, when their effects can be disambiguated from those of redundancy and explicitness of thematic structure. As several studies have suggested (e.g. Fujimoto, et al. 1986, Brown 1985, Tsang 1987), if one is inclined to present the most native-like TL input, one should modify the input in the direction of elaborative alterations rather than syntactic simplification, for these would allow more native-like complexity and be at least equally successful in promoting comprehension, if not better. [fn. 4]

Footnote 4: These effects are probably most beneficial for low-level learners. Blau (1982), Brown (1985), and Tsang (1987) all noted that the most advanced learners performed equally well on all text versions, presumably because even the NS versions were below their level of competence in readability measures.

On the basis of these studies, we cannot be confident as to the precise nature of elaborative modifications that best enhance comprehension. Redundancy in the form of slower speech, repetitions and paraphrases seems to aid comprehension, even as measured by equivalent meaning in dictation (Kelch 1985). But how is the other form of elaboration, thematic structure, best marked or made more explicit? And how do modifications of redundancy and thematic structure work together? These issues have not been directly investigated with L2 learners' comprehension.

Thematic Structure

There seems to be a universal preference across languages to place information that is known to the participants to the left, and information that is being introduced to the right. Hetzron (1975) gives cross-linguistic evidence for similar types of constructions that place the most important

information to be remembered to the right, and he calls this "presentative movement." [fn. 5]

Footnote 5:   Whether in fact constructions such as existentials, clefts, or extraposition involve movement from a more canonical sentence or are seen as separate constructions is not relevant here.

Tomlin (1986) gives cross-linguistic evidence for the universality of a "theme-first principle."   The theme of the discourse, or the known information, generally precedes information that is less thematic.   These two principles attempt to encompass the distinctions made by various writers between old-new, given-new, theme-rheme, and topic-comment.   For the purposes of this paper, we are assuming that there is a clear distinction between information that is thematic, and information that is presentative. In psychological experiments involving native speakers of English, there is evidence that information that follows the thematic-presentative ordering is easier to process.   In various experiments, subjects were confronted by pairs of sentences with either the thematic information preceding the new information or vice versa.   When they were asked to make judgments of coherence, follow certain instructions, or supply correct conjunctions, they made more accurate judgments and responded with faster reaction times when the thematic information preceded the new information (Tomlin and Kellogg 1985; McClure and Geva 1983; Newman 1985).

In order to facilitate the processing and storage of information, languages will use various means available within the language system to make the thematic-presentative relationships clear.   For example, redundancy is one category of elaboration that clearly marks the theme.   It serves to set the theme apart from the following presentative information. In English, this includes the use of left-dislocation, anaphoric demonstrative NPs, and a special use of generic NP.   The other category of elaboration also being considered in this paper is called thematic structure.   This includes any non-canonical word order that has the functional purpose of placing the known information first, and the new information second.   These types of modifications clearly separate thematic information from presentative

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information. In English this is achieved syntactically by means of prepositional and adverbial phrase preposing, various types of cleft constructions, and various types of extraposition. For example, in the example given below, there are three instances of these elaborations shown in italics:

> *What* separates the expert from the novice *is* the expert's ability to remember
> board positions. *This ability*, *it appears*, is related to superior knowledge of
> the game, not to superior memory.

The wh-cleft in the first sentence serves to separate the theme (which follows *what*) from the information that is being presented (which follows *is*). The demonstrative NP in the second sentence is a redundancy that makes it very clear that *ability* is the theme of the following sentence. In addition, the use of an extraposition construction at this point reinforces the fact that the following information is presentative. These two devices, redundancies and thematic structure, work together to clearly mark the thematic-presentative relationships of the information to be conveyed.

Hypotheses

In order to test the idea that the ideal modified (non-interactive) input is to be found in a combination of redundancy and thematic structure, we formulated the following hypotheses:

1. Thematic structure and redundancy will together lead to greater comprehension in reading, as measured by cloze recall of new information.

2. Thematic structure alone will lead to greater comprehension in reading, as measured by cloze recall of new information.

3. Redundancy alone will lead to greater comprehension in reading, as measured by cloze recall of new information.

4. Thematic structure will have a greater effect than redundancy on the recall of new information.

Method

Design

This study involved the presentation of two written passages to two groups of learners of English as a second language. One passage represented an unmodified version, while the other included two types of elaborative modifications, redundancies and thematic structure, each defined according to specific syntactic rules. The independent variable of passage was randomly assigned to the learners, and their comprehension was measured by means of a reading cloze test. A one-way analysis of variance on the cloze test results determined whether the hypothesized superior effects of elaborative modifications, whether redundancies or thematic structure, were reliable. A within-subjects analysis of variance on cloze outcomes comparing between redundancies and thematic structure determined which of these two, or their combination, was superior in promoting comprehension.

Subjects

The subjects for the study were 43 undergraduate and graduate students at two tertiary level institutions in Hawaii. They were predominantly of Asian background (Chinese, Korean, Japanese, and southeast Asian), with some Pacific Islanders. They were enrolled and tested in special reading classes for non-native speakers of English. Table 2 displays some basic data on these subjects (TOEFL and reading placement scores were unavailable for one class, who are suspected to be lower in proficiency than the rest). The subjects were evenly distributed by native language in the passage groups, and as Table 2 shows, there was only one background variable, mean years of residence in the U.S., which was significantly different between the groups. It is not believed that this difference would have specific effects on the test outcomes.

Insert Table 2 about here

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Materials

Reading Passages

The two versions of the reading passage were based on an article from "Psychology Today" (Trotter 1986) on the development of expertise. In general, passage A retained all the redundancy and thematic structure that occurred naturally in the article, as well as being modified with some additional changes of the same type. Passage B had all redundancies eliminated, and all the thematic structure reduced to canonical word order form. Every sentence in the two passages was modified in some way, some with more than one type of device. Redundancy and thematic structure were explicitly defined prior to modification. Examples of each type, and the resulting passage versions, are illustrated in Figure 2. It can be seen here that, in addition ot reorganizing thematic information, several redundancy and thematic elaborations create extra T-units, and some extra S-nodes are inserted for the same basic propositions.

Insert Figure 2 about here

Overall, as shown in Table 3, these changes resulted in Passage A being somewhat longer in words, sentences, and T-units, but shorter in words per sentence and T-unit, and with fewer S-nodes per T-unit. The more elaborated passage is thus slightly simpler in syntactic complexity, although both passages are at the high end of complexity relative to the typical passages used in previous studies (cf. Long's 1985, 1.94 S-nodes per T-unit in the NS version).

Insert Table 3 about here

Cloze Tests

The cloze measure consisted of the same passage version which the subject was reading. Following an example practice passage, the passage and corresponding cloze tests were presented in nine alternating sets of about one paragraph in length. There were two types of deletions in the

clozed version of the passage: rational and fixed-ratio. The rational deletions (k =51) were chosen on the basis of the elaborative modifications that were made, according to strict guidelines for which informative word would be best focused on by the modification (usually the very next main word providing new information). The same items were clozed in both versions. The fixed-ratio deletions (every 15th word) were used both as distractors from the selectivity of the rational items, and to provide an independent measure of reading proficiency for all the subjects. These items (k =27) differed between the versions, because of the different locations of the target items between versions. An exact-word method was used to score the tests. Reliabilities of the results on both passages and even on subsets of very few items were satisfactorily high (see below, Table 4).

Procedure

Reading passages were randomly distributed to the subjects in their regular reading class. Instructions were given, and subjects recorded basic personal information, after which a practice passage was read and a cloze version was completed. Regular intervals of about 2.5 minutes were signalled by the experimenter in order to pace the subjects through the reading of each passage and each correponding cloze test on the passage segment. In this fashion, all subjects completed the exercise at the same time.

Results

Table 4 displays the main results for exact word cloze scores between the two groups. Twenty-two subjects read Passage A, and twenty-one subjects read Passage B. Analysis of variance on the total scores and on the different subscores for fixed ratio items and for rational deletions following redundancy and thematic structure revealed no significant differences.

Insert Table 4 about here

The first three hypotheses of this study are thus not supported. Before we consider the fourth hypothesis, regarding the relationships between the different types of elaboration, this unexpected insignificant difference needs interpretation. We believe that at least two explanations are possible. First, the overall lexical and syntactic difficulty of both passages for these learners may have negated any potential effects of modifications. For these learners, comprehension of more difficult vocabulary and complex syntax may demand so much processing time and access to their TL grammars that the thematic modifications used here cannot exert much influence on them. In other studies (Brown 1985, Tsang 1987), it was shown that more advanced learners were not influenced by modifications in passages, especially when these passages were approximately at their level of reading ability. With the current passages, which may have been beyond these subjects' abilities (overall difficulty about 50%), it is possible that the modifications were simply not sufficient to enhance comprehension, and that more severe types of redundancy, in the form of paraphrases and complete repetitions, would be needed to promote successful recall cloze responses.

Second, successful response to the rationally-deleted cloze items, which were specified as the first new information following the modifications, may not be sensitive to the additional contextual signalling provided by the elaborated modifications. Although rational cloze has been shown to be a reliable measure of both L2 reading and listening comrehension (Chaudron 1985, Bachman 1985, Chaudron, Lubin, Sasaki, and Grigg 1986), the local context for rational blanks may not be the only critical factor in determining learners' reconstruction of the appropriate item from recall (in the case of cloze recall tests).

On the other hand, it is worth noting in Table 4 that, despite no significant differences between the two passage versions on any of the subsets of items, the reliabilities (Cronbach's alpha) of the two passages are markedly different, with Passage A being consistently higher than Passage B. This result derives from the greater variance in Passage A than in Passage B. Greater variance is desirable in a general proficiency test, and the reason for the one passage to exhibit this for two otherwise virtually identical groups of subjects is worth considering briefly. In tests of the intercorrelations of the different subsets of items on the two passage forms, and the

correlations between these scores and independent measures of reading proficiency (placement tests and TOEFL), it was found that Passage A had consistently higher Pearson product-moment correlations between the measures than Passage B. [These will be displayed in another table in a final paper.] For example, a salient result was that the intercorrelation between the total passage score and the multiple choice placement reading test score for the subgroups of subjects with placement scores was .84 (N=17) for Passage A, and .10 (N=16) for Passage B. This sort of result indicates that in some way, the modified Passage A was more like a normal reading passage possibly because it was more coherent and well-structured.

As for the fourth hypothesis, that thematic modifications will have a greater effect on recall than redundancy, multivariate tests of within-subjects variance on scores by type of modification for the Passage A group did result in a significant effect for type (p < .001, df=3/19). This result did not support the hypothesis, however, for the significant effect was evidently due to the lower scores for items following a combination of thematic and redundant modifications. Moreover, a similar result was found for the scores on the identical sets of items in Passage B, where the elaborative modifications did not occur. Therefore, very little of the differences between types of tiems can be attributed to the direct effects of modifications; they are more likely a result of overall differences in the meaningfulness and recallability of the items in the text.

Despite these null findings, we believe that a more detailed analysis of specific types of modifications and items leads to a valuable basis for further research on this topic. Among the types of thematic modifications, there is a rather clear distinction between those involving cleft and extraposition, and those involving the preposing of subordinate or thematic information. The former are syntactic devices that serve much more clearly to highlight the new information which follows, whereas preposed adverbials and the like have more varied functions. We therefore conducted another analysis, splitting up the thematic items into these two groups. Several items involved both types of thematic structure, so these were combined with the earlier groups that involved both redundant and thematic modifications, as a "combined" group. Multivariate analysis of variance, with item type as a within-subject variable, and passage modification as between-subject, resulted again in a significant effect for item type, but

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most importantly, a nearly significant effect for the interaction of item type and passage (F (4/38) = 2.52, $p < .06$). As shown in Table 5, t-test comparisons between means revealed this interaction to be the result of the superiority of cloze recall of cleft and extraposition items in the modified Passage A over their recall in Passage B ($p < .05$), and the reverse superiority of Passage B over A on the items that involved combinations of modification types on Passage A. Although precise interpretation of this result must await a more careful analysis of the effects for specific items, it gives us reason to consider further investigations of the effects of these modifications on reading and listening comprehension.

Insert Table 5 about here

Conclusion

In this paper, we considered the effect of modified target language input on second language learners' comprehension. We distinguished between three types of modified input: interaction, simplification and elaboration, and then tested the effect of elaborated input on the comprehension of a written text. We defined elaborated input as a combination of features of redundancy and thematic structure. Although we found no significant effect for the elaborated passage over the non-elaborated passage in cloze test scores, the higher reliability and greater correlation with other measures of the elaborated passage indicated that it was more natural. This suggests that elaborated input, which does not hinder comprehension but appears to be more natural, may be a better choice than non-elaborated input in language classrooms. In addition, different types of elaborative modifications had different effects on the comprehension scores. What is needed is further experimentation which considers the differences between interaction, simplification and elaboration in both written and aural texts, as well as the effect of specific types of modifications within these larger categories. This will lead to a greater understanding of the role of modified input in comprehension, and ultimately, acquisition of second languages.

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Figure 1

Types of Modifications

Modifications of Input		Modifications of Interaction
Simplification	Elaboration	
Shorter utterances	Redundancy	Clarification requests
fewer words per utterance	repetition of constituents	Comprehension checks
fewer words per T-unit	paraphrase	Confirmation checks
fewer T-units per utterance	use of synonyms	Utterance completion
	use of left dislocation	Other repetition
Less complex syntax	slower speech	Decomposition of
fewer clauses per T-unit	clearer articulation	propositions via dialogue
fewer S-nodes per T-unit	emphatic stress	
omission/deletion of sentence	rhetorical signalling or	
elements	framing	
omission of inflections	suppliance of optional	
	syntactic markers	
Less complex lexis		
smaller type-token ratio	Thematic structure	
	presentative movement	
	extraposition	
	cleft constructions	

Table 1

Experimental Studies of Input Modifications

Study	List./ Read.	Text Versions	Level and N	Measure	Significant Outcomes	Simplification?	Elaboration?
Cervantes 1983	List.	A) NS passage B) Repeated passage	ESL University N = 16	Dictation exact morpheme equivalent meaning	B) > A)	- - - -	Yes
Long 1985 (two studies)	List.	A) NS passage B) FT passage less complex (1.68 vs. 1.94 S/T) slower rate (128 vs. 139 wpm) rephrasings/restatements	ESL University N = 87	Comprehension multiple choice while listening	B) > A)	?	?
Kelch 1985	List.	A) NS passage (191 wpm) B) Slower rate (124 wpm) C) FT modifications (200 wpm) synonyms, paraphrases, parallelism D) FT modifications + slower rate (140 wpm)	ESL University N = 26	Dictation exact word equivalent meaning	B,D) > A,C) (exact word) B,D) > A,C) D) > C) (equiv. meaning)	- - - - - - - - - - - -	Yes Yes Yes
Speidel, Tharp, Kobayashi 1985	List.	A) Complex syntax B) Simple syntax	Standard and Hawaiian English 2nd graders N = 120		Not significant	No	- - - -
Mannon 1986	List.	A) NS lecture (live) 123 wpm, 16 repetitions 1.99 S./T, uncontrolled discourse B) lecture to NNSs (live) 112 wpm, 28 repetitions 1.72 S/T, uncontrolled discourse	ESL University N = 28	Multiple choice following list.	Not significant but trend for B) > A)	?	?

Study		Conditions	Population	Measure	Result		
Fujimoto, Lubin Sasaki, Long 1986	List.	A) NS passage 140 wpm, 2.11 S/T B) Modified input 117 wpm, 1.15 S/T C) Modified "interaction" 124 wpm, 2.15 S/T repetitions and paraphrases	ESL University N = 53	Multiple choice following list.	B) > A)	?	?
Chaudron and Richards 1986	List.	A) Normal lecture B) Micro-level discourse markers C) Macro-level discourse markers D) Micro and macro level *	ESL University N = 146	Cloze recall while listening	C) > B)	- - - -	?
Johnson 1981*	Read.	A) Regular B) Modified simplified syntax paraphrases	ESL University N = 46	Multiple choice following reading Recall protocols	B) > A) (on recall from culturally unfamiliar texts)	?	?
Blau 1982	Read.	A) Simple passages B) Complex with surface clues C) Complex without surface clues	ESL University N = 85 ESL 8th grade N = 111	Multiple choice following reading	Not significant (univ.) Trend for B,C) > A) (8th grade)	No	- - - -
Brown 1985	Read.	A) NS passage 10th grade readability B) Modified input syntactically simplified 5th grade readability C) Modified "interaction" paraphrase, synonyms 9th grade readability	ESL 9th - 11th N = 30	Multiple choice during reading	B,C) > A)	Yes	Yes
Tsang 1987	Read.	Same passages as Brown (1985)	ESL 9th - 13th N = 401	Multiple choice during reading	B,C) > A) (effect for 9, 10th grade)	Yes	Yes

key: S/T = S-nodes per T-unit   - - - - = not tested

*This study involved other factors not relevant to the present study

Figure 2

Elaborative Modifications and Clozed Items by Passage Type

Elab. Type	Modification Type	Passage A	Passage B
Redundancy	Left-dislocated NPs, Qs	a. The master chess player, the Olympic swimmer, the prize-winning physicist. They're all <u>experts</u> . . .	a. The master chess player, the Olympic swimmer, the prize-winning physicist are all <u>experts</u> . . .
		b. How do experts achieve their high levels of performance? How do they differ from those of us who are merely competent? The answers to these questions may eventually <u>help</u> us . . .	b. The answers to how experts achieve their high levels of performance, how they differ from those of us who are merely competent may eventually <u>help</u> us . . .
"	"Generic" NP	a. Experts are people who do a skilled <u>job</u> effortlessly.	a. Experts do a skilled <u>job</u> effortlessly.
		b. A chess master is someone who is able to <u>recognize</u> meaningful board positions.	b. A chess master is able to <u>recognize</u> meaningful board positions.
"	Demonstrative NP, PN	As the novice gains experience in real situations, performance improves to a marginally acceptable level. This <u>encourages</u> the learner to . . .	As the novice gains experience in real situations, performance improves to a marginally acceptable level, which <u>encourages</u> the learner to . . .
Thematic Structure	Preposed PP, AdvP Conjunctive:	a. for example, in other words, for the most part, in general etc.	a. all are deleted
	Informational:	b. With these goals in mind, cognitive <u>psychologists</u> are trying to become experts on expertise.	b. Cognitive <u>psychologists</u> are trying to become experts on expertise with these goals in mind.
		c. To avoid being overwhelmed by this information explosion, the future <u>expert</u> is taught to adopt a hierarchical view of decision making.	c. The future <u>expert</u> is taught to adopt a hierarchical view of decision-making to avoid being overwhelmed by this information explosion.
"	Extraposition	It seems that spatial <u>skills</u> involve the same general principles as do more cognitive skills.	Spatial <u>skills</u> seem to involve the same general principles as do more cognitive skills.
"	Postposed S,NP (extraposition-like)	a. The most important point is that skill <u>performance</u> depends on the knowledge base.	a. Skill <u>performance</u> depends most importantly on the knowledge base.
		b. The primary goal of research on expertise is <u>discovering</u> the conditions of learning that enable people to think like experts.	b. <u>Discovering</u> the conditions of learning that enable people to think like experts is the primary goal of research on expertise.
"	Wh-Cleft	What experts do is <u>develop</u> the ability to perceive large meaningful patterns with such speed that it seems almost intuitive.	Experts <u>develop</u> the ability to perceive large meaningful patterns with such speed that it seems almost intuitive.
"	It-Cleft	It is recognition of similarity that <u>produces</u> a deep situational understanding.	Recognition of similarity <u>produces</u> a deep situational understanding.

key: clozed items are underlined

Table 2

Background Data on Subjects by Passage Group

	Passage A	Passage B
Mean Years of English Study (N=22 & 19)	8.6	9.1
Mean Years in U.S. (N=20 & 21)	2.5	1.1*
Mean Age (N=21 & 20)	24.5	27.7
Mean Scores on Placement Reading Test (N=17 & 16)	33.6	31.2
Mean TOEFL Reading Subtest Scores (N=9 & 13)	53.0	53.3
Mean TOEFL Scores (N=9 & 13)	540	523

*Significantly different $(F_{(1/39)} = 5.52, p < .05)$

Table 3

Linguistic Complexity of Passages

	Passage A (elaborated)	Passage B
Total words	1013	931
Total sentences	46	36
Total fragments	5	4
Total T-units	52	39
Total S-nodes	147	140
Words per sentence	22	25.9
Words per T-unit	18.2	23.5
S-nodes per T-unit	2.8	3.6

Table 4

Results of Exact-word Cloze Scores by Passage and Type of Item*

	Passage A	Passage B
Total Scores (k=78)		
Means	32.4	34.7
Standard deviations	± 18.3	±12.4
Cronbach's alpha	.95	.89
Fixed Ratio Items (k=27)		
Means	11.0	12.0
Standard deviations	±6.0	±3.6
Cronbach's alpha	.89	.67
Redundant Rational Items (k=10)		
Means	4.2	4.4
Standard deviations	±2.3	±2.1
Cronbach's alpha	.71	.62
Thematic Rational Items (k=34)		
Means	15.4	16.4
Standard deviations	±7.1	±4.9
Cronbach's alpha	.88	.76
Both Redundant & Thematic Items (k=7)		
Means	1.7	1.8
Standard deviations	±1.8	±1.4
Cronbach's alpha	.74	.49

*(N = 43 for all analyses)

Table 5

Mean Item Scores by Type of Item*

	Passage A		Passage B		Significance
	Means	s.d.	Means	s.d.	
Redundant Rational Items (k=10)	.42	±.23	.44	±.21	NS
Extraposition or Cleft Items (k=8)	.33	±.27	.25	±.20	p < .05
Preposed Rational Items (k=22)	.50	±.21	.54	±.14	NS
Combination of Types (k=11)	.31	±.23	.39	±.18	p < .06
Fixed Ratio Items (k=27)	.41	±.22	.45	±.14	NS
Total Scores (k=78)	.42	±.20	.43	±.19	NS

*(includes thematic subtypes)