

The Effects of Negotiated Interaction on the L2 Vocabulary Acquisition: Input or Interaction?

Jong-Bai Hwang
(Konkuk University)

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This study compares the effects of negotiated interaction with those of non-negotiated input only on L2 acquisition of Korean vocabulary. Krashen's (1985) Input Hypothesis emphasizes the importance of comprehensible input as necessary and sufficient for second language learning to take place, whereas Long's (1985) Interaction Hypothesis focuses on the importance of conversational adjustments, or negotiated interaction, which through conversational and linguistic modifications facilitate acquisition of second language. The present study examines the acquisition of Korean kinship terms by beginning learners of Korean. The input-only (IO) group was exposed to the target vocabulary without any interaction between students or between teacher and students. For the negotiated-interaction (NI) group, however, the teacher facilitated interaction between students as well as between teacher and students. It was hypothesized that negotiated interaction would produce the learning of more target vocabulary and enable higher levels of comprehension of L2 word meanings than input only. In addition, NI group was expected to learn and retain more target words. The results of the present study showed that negotiated interaction produced more target word items than non-negotiated input only. However, more repetition in the negotiated-interaction group had no effect on learners' comprehension of L2 word meanings and on their acquisition and retention of vocabulary.

Key words: input, negotiated interaction, comprehension, L2 vocabulary acquisition

1. Introduction

The Input Hypothesis, developed by Krashen (1982, 1985), claims that exposure to comprehensible input is essential for language learning to take place. Krashen (1985) argues, "Humans acquire language in only one

way—by understanding messages, or by receiving ‘comprehensible input’ ... We move from i , our current level, to $i + 1$, the next level along the natural order, by understanding input containing $i + 1$ ” (p. 2). However, the Input Hypothesis has not been easily testable or supported by empirical evidence.

Input certainly plays a central role in the acquisition of second language. The concept of input, however, is not so simple. There are several different types of input, and only a certain type of input is relevant for second language development. According to Gass (1997), not all types of input are equally worthwhile, and input alone, or simplified input, is less likely to result in second language learning. Several studies have argued that discourse elaboration or modification of the conversational structure is more beneficial to learners than simplified input, which is premodified at the linguistic level (Gass & Varonis, 1994; Parker & Chaudron, 1987; Pica, 1994; Yano, Long, & Ross, 1994). During conversation between native speakers and non-native speakers, input can be modified to make it more comprehensible to the second language learners. That is to say, interaction or negotiation of meaning plays a more critical role in the learning of second language than simplified or premodified input.

Long’s (1980, 1981, 1983a, 1983b, 1996) Interaction Hypothesis emphasizes interactional modification or negotiation of meaning, which is believed to facilitate acquisition because conversational and linguistic modifications provide learners with the input they need. Long found that whereas there are few input differences between speech addressed to L2 learners and speech addressed to native speakers, several interactional differences such as conversational modifications exist between them. Communication tasks involving a two-way exchange of information lead to more conversational adjustments than do tasks involving only a one-way exchange of information. Long posited that a second language teaching classroom offers few opportunities for the learner to communicate in the target language or to hear it used for communicative purposes by others. In other words, the lack of meaning negotiation in the ESL classroom makes input difficult to comprehend, impeding second language acquisition.

The present study compares the effects of input only and those of modified input on the acquisition of L2 vocabulary. The acquisition of a new lexical item involves a complex process. Richards (1976) has argued

that research on vocabulary acquisition should address the frequency with which the item is used in speech and writing, its situational and functional uses, its syntactic behavior, its underlying form and the forms that can be derived from it, the network of associations between it and other items, its semantic features and the various meanings associated with the item. Little research has been done on how second language learners gradually acquire all this information. The present study confines its scope to the acquisition of Korean kinship terms, reducing the situational and functional uses of the target vocabulary items and controlling their syntactic behavior and semantic features.

The effects of conversationally modified or negotiated interaction, compared with those of input only, on beginners' acquisition of Korean vocabulary representing family relationships are presented in this study. Through an investigation of the effects of classroom instruction involving two different types of input, that is, input only and negotiated interaction, possible answers to the question whether negotiated interaction results in better comprehension of L2 word meanings, and consequently better acquisition, than non-negotiated input only are offered.

2. Theoretical Background

Long's (1980, 1981, 1983a, 1983b) Interaction Hypothesis is a result of consecutive studies in which he compared the conversations of 16 NS (native speaker)-NS pairs and those of 16 NS-NNS (non-native speaker) pairs. Long found that there was little difference in grammatical complexity between the talks produced by NS-NS and NS-NNS pairs. However, he discovered significant differences between the two pairs with respect to conversational management and language performance. The conversation of the NS-NNS pairs showed the use of many conversational tactics such as repetition, confirmation/comprehension checks, clarification requests as they tried to solve communication problems. According to Long, such collaborative efforts between native speakers and non-native speakers, or between more and less fluent speakers, facilitate the learning of second language. Non-native speakers, or less fluent speakers, seem to expose themselves to comprehensible input by struggling to maximize comprehension and by negotiating their way through communication problems.

Pica, Young, and Doughty (1987) have compared the effects of premodified input and interactionally adjusted input on comprehension. One group listened to systematically premodified input which was intended to increase redundancy and decrease complexity. The subjects were not allowed to ask any questions even when they could not comprehend the input. The other group was provided with interactionally adjusted input and opportunities to seek verbal assistance from a researcher. This group of learners were allowed to participate in negotiation to varying degrees and, as a result, received different amounts of interactionally modified input. The researchers found that the input from the modified interactions was quantitatively greater, more elaborate, and more redundant in comparison to premodified input. They conclude that modifying conversation through negotiation results in better comprehension.

Ellis, Tanaka, and Yamazaki (1994), building on Pica, et al (1987), focus on the extent to which an interactional context facilitates language learning by comparing nonmodified, premodified, and interactionally modified input on both comprehension and vocabulary learning. Their results confirm those of earlier studies regarding the role of interaction in comprehension: interactionally modified input produces better comprehension than premodified input, and interactionally modified input leads to the acquisition of more new words than premodified input. They argue that interaction helps learners work toward comprehension because it gives them control over the input they receive and enables them systematically to identify and solve comprehension problems. Their study supports the claim that interactionally modified input facilitates acquisition.

Gass and Varonis (1994) attempt to reveal the effects of interaction on second language development, exploring the relationship between interaction and learner production through problem-solving communication games in which figures are placed in particular locations on a landscape scene. The experiment consists of two parts: native speakers issue instructions to their non-native interlocuters in the first part; then the non-native speakers pass the same instruction back to their native partners. In the first trial, when the native speakers gave instructions, half of the subjects were given a linguistically pre-modified script, the other half an unmodified script. Each group was divided into two: one was permitted to negotiate about meaning, the other not. The results of

the first trial showed that both the modified script without interaction and the script with interaction increased non-native speakers' comprehension. Only the subjects who received unmodified script without interaction did not significantly increase their comprehension of the instruction from their native interlocutors. In the second trial, the non-native speakers, without receiving any scripts, gave instructions to the native speakers. Half of them was allowed to negotiate about meaning with their interlocutors, and the other half was not. But in the second trial interaction with native speakers was not a significant factor because non-native speakers who had been permitted to interact during the first trial were considerably better at giving directions during the second trial than those who had not had any interaction with their interlocutors in the first trial. Based on these results, Gass and Varonis (1994) suggest that interaction with the opportunity for modifications may affect later language use.

Another study of the relationship between different types of conversational interaction and second language acquisition is Mackey's (1999), which focuses on the development of second language question formation. Adult ESL learners were divided into four experimental groups—(1) Interactors (2) Interactor Unreadies (3) Observers and (4) Scripteds—and one control group. The first group of interactors were free to ask any questions, providing a context for using the target structures, question forms. Thus the input to which this group was exposed can be seen as interactionally modified. The Interactor Unreadies received the same input as the interactors, but it had lower proficiency than the other groups and was not developmentally ready to acquire structures at the highest level. The third group of subjects observed the same input that was given to the interactors, but did not have any interaction. The fourth group received linguistically premodified input. The results of Mackey's study showed that conversational interaction did facilitate second language development. Only the groups that actively participated in the interaction, that is, the interactors, developed and produced significantly higher level structures.

The studies reviewed in this section claim that conversational interaction or negotiated interaction can facilitate the acquisition of second language. However, this claim has not been fully tested with respect to the acquisition of L2 vocabulary, which is a very complex process in which the functional, syntactic, and semantic features all play

a part. The present study investigates the role of negotiated interaction on the acquisition of L2 vocabulary. The following research questions are addressed: (1) Does negotiated interaction result in more repetition of the target words than non-negotiated input only? (2) Does negotiated interaction result in better comprehension of L2 word meanings than non-negotiated input only? (3) Does negotiated interaction result in better acquisition of L2 word meanings than non-negotiated input only? and (4) Does negotiated interaction result in longer retention of the target words than non-negotiated input only?

These research questions led to the following hypotheses:

1. Negotiated interaction will produce a larger number of the target vocabulary than non-negotiated input only.
2. Learners who receive input through negotiated interaction will achieve higher levels of comprehension of L2 word meanings than learners who receive only non-negotiated input only.
3. Learners who receive input through negotiated interaction will learn more L2 words than learners who receive only non-negotiated input only.
4. Learners who receive input through negotiated interaction will retain more L2 words than learners who receive only non-negotiated input only.

3. Method

3.1. Subjects

Participants in this study were 10 adult learners of Korean (5 male and 5 female) who were enrolled in the first year Korean class at a university in the United States. The first year Korean class began the sequence of six courses which all taught the four skills of speaking, listening, reading, and writing. The class was composed of 5 native speakers of English and 5 Korean-American students. Their Korean proficiency, whether spoken or written, was low as they had little formal instruction in the Korean language. Most of the students had, however, taken some foreign language classes, including being acquainted with Chinese, Japanese, and Spanish, but not Korean.

The participants were randomly assigned to two different groups: Input only group (IO group, N = 5) and negotiated interaction group (NI group, N = 5). All the students who were enrolled in the course had taken a placement test which included oral and written tests, and had received similar scores.

3.2. Materials and Procedure

The target words chosen for the study were 12 kinship terms in Korean (*father, mother, grandfather, grandmother, aunt, uncle, brother, sister, etc.*). The concept or semantics of the words is assumed to be very familiar to the subjects since they are common and represent universal relationships.

There was no pretest on the subjects' knowledge of the vocabulary because of their general unfamiliarity with the target vocabulary. The instruction took the form of problem solving activities. The subjects were given a picture of a family tree and instructed to look for two persons in the family tree. The subjects in the input only group listened to a recording which identified the relation between two persons in the family tree. They were not allowed to ask any questions or permitted any interaction. For the negotiated interaction group, interaction was encouraged between students as well as between the teacher and students. During the interaction, the teacher asked leading questions about the students' own families to facilitate the use of the target vocabulary. The interaction or instruction lasted 90 minutes with no breaks.

Two days after the experiment, subjects in both groups took a listening comprehension test consisting of dialogues between two native Korean speakers in which a person is discussed. The subjects had to identify this person in another family tree. Both the IO and NI groups listened to the same recorded dialogues, and did the same problem solving tasks. The subjects' comprehension was measured by the number of correct answers that they provided.

Immediately after the problem-solving comprehension check, the degree to which learners acquired vocabulary was ascertained through a written translation test made up of sentences which included the kinship terms on which they had been instructed. Other words and phrases included in the test were those which the subjects had already learned. Both groups

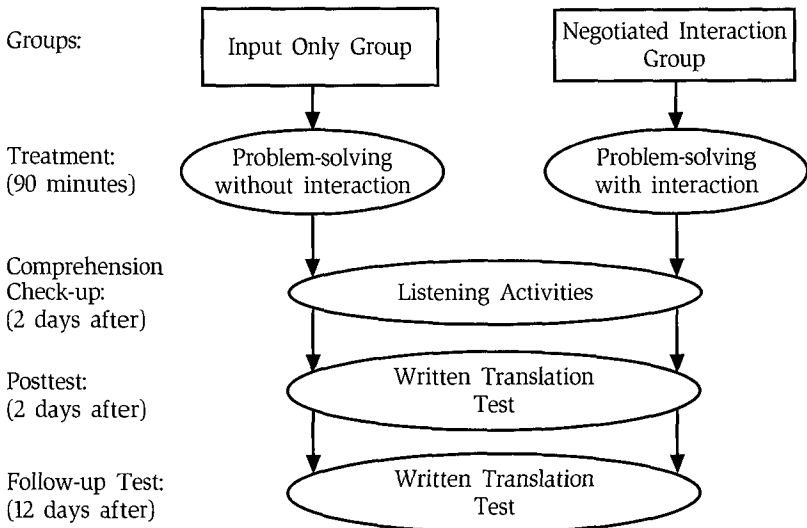
took the same translation test.

Ten days after the posttest, a follow-up test which had the same pattern as the posttest was given. The subjects had to translate Korean and English sentences into English and Korean respectively. The follow-up test included all the target kinship terms that had been taught during the experiment. The experimental design of the present study is briefly summarized in Figure 1.

3.3. Analysis

The current study investigates the effects of two different types of input, input only and negotiated interaction, on L2 learners' acquisition of Korean vocabulary. It compares the input only group and negotiated interaction group with respect to the quantity of the target words and their comprehension and acquisition. The difference in the quantity of the target words between the groups is examined, and then the effects of treatment on comprehension, vocabulary acquisition, and the retention of word meanings. All of these effects are compared by means of one-way ANOVA. In addition to the ANOVA, correlational analyses between the redundancy of the target words and each test score (comprehension test, posttest, and follow-up test) were done.

Figure 1. Experimental Procedure of the Study



4. Results

The two groups received input through two different ways. The input only (IO) group just listened to recorded sentences explaining relationships in a family tree, not being allowed to ask questions or interact with others. In contrast, the negotiated interaction (NI) group received the same input with opportunities to interact with other students and the teacher, and to ask any questions.

Quantity of input differed according to the way instructions were conveyed. The IO group received no more than the number of target words which were included in the recorded sentences, since the subjects in the IO group were not allowed to interact or ask questions. However, the subjects in the NI group were expected to get more target words during the interaction with others. Table 1 compares the degree of redundancy of the target vocabulary for the two groups, which was determined by the number of repetitions of all the target words. The total number of the target words that the IO group received was 121, which was a mean of 7.12 per word. The total number of the target words for the NI group was 304, which was a mean of 17.88 per word. The degree of redundancy of the target words for the NI group was more than two times the degree for the IO group. The subjects in the NI group, therefore, heard the target words twice as often as the subjects in the IO group. The difference of the degree of redundancy between the two groups is large enough to confirm the first hypothesis of this study, which stated that negotiated interaction would produce a larger number of the target vocabulary than non-negotiated input only.

Table 1. Redundancy Degree of the Target Words

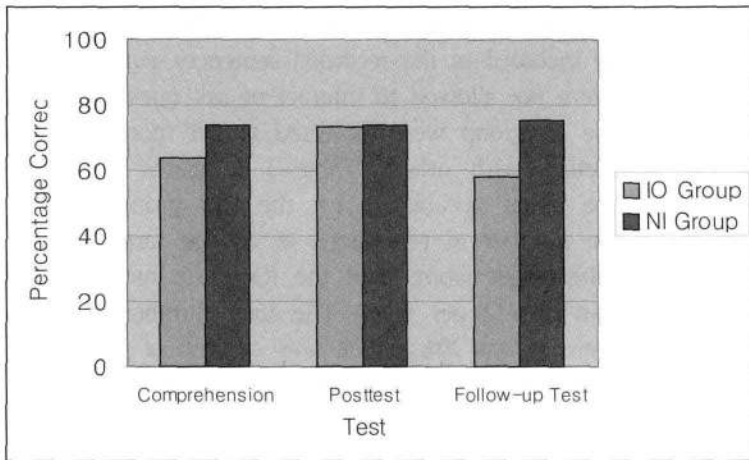
Group	Total Number	Redundancy per word
IO Group	121	7.12
NI Group	304	17.88

The results of the three tests (the comprehension test, the posttest, and the follow-up test) are presented in Table 2 in terms of means and standard deviations of correct percentage for each test. The comprehension test results reveal a sizable difference between the groups: 63.58 for the IO group and 73.67 for the NI group. However, there was little

Table 2. Comparison of Means and SD for Comprehension Test, Posttest, and Follow-up Test

Group	Comprehension Test		Posttest		Follow-up Test	
	Mean	SD	Mean	SD	Mean	SD
IO Group	63.58	16.54	73.42	13.79	58.17	19.48
NI Group	73.67	13.03	73.67	21.81	75.33	20.74

Figure 2. Comparisons of Mean Score of the Three Tests



difference between the groups on the posttest: 73.42 for the IO group and 73.67 for the NI group. The final test results show the biggest difference between the groups: 58.17 for the IO group and 75.33 for the NI group.

In summary, there seems to be a significant difference between the groups in the comprehension test and the follow-up test. The difference can be seen in Figure 2. However, the significance of the differences was statistically measured by a one-way ANOVA. (See the results in Table 3.)

The statistical analyses reveal rather unexpected results regarding the significance of the difference between the groups in the comprehension test. The difference between the IO group and the NI group in the comprehension test was over 10 points in the mean scores, but the difference was found to be non-significant from a statistical point of view ($F(1, 22) = 2.75, p > .05$). It implies that the students in the NI group did not achieve significantly higher comprehension than the students in the IO group. Therefore, Hypothesis 2, which predicted that learners who

received input through negotiated interaction would achieve higher levels of comprehension of L2 word meanings than learners who received only non-negotiated input only, should be rejected.

The results of the statistical analyses for the posttest, which was expected to reveal the difference between the groups in the acquisition of the target vocabulary through a written translation test, also show no significant difference between groups ($F(1, 22) = 0.001, p > .05$). Therefore, Hypothesis 3, which predicted that learners who received input through negotiated interaction would learn more L2 words than learners who received only non-negotiated input, should be rejected.

Hypotheses 2 and 3, which predicted the superior effects of negotiated interaction over those of only non-negotiated input in the comprehension and acquisition of target word meanings, were both disproved by statistical analyses. However, the differences in learners' retention, or delayed acquisition, of the target words between the two groups remain significant. The degree of learners' retention of the target words was examined through a follow-up test, which was administered ten days after the posttest and 12 days after the experiment. The results of the statistical analyses of the follow-up test, presented in Table 3, show significant difference between the groups ($F(1, 22) = 4.37, p < .05$). Though the actual significance level of the follow-up test is 0.048, which is too marginal a figure to draw definitive conclusions, it does offer moderate evidence to support Hypothesis 4, which predicted that learners who received input through negotiated interaction would retain more L2 words than learners who received only non-negotiated input.

Table 3. ANOVA Summary Table for the Three Tests

Source	df	SS	MS	F
Comprehension Test				
Between Groups	1	610.04	610.04	2.75
Within Groups	22	4879.58	221.80	
Posttest				
Between Groups	1	0.38	0.38	0.001
Within Groups	22	7641.58	347.35	
Follow-up Test				
Between Groups	1	1768.17	1768.17	4.37*
Within Groups	22	8906.33	404.83	

* $p < .05$.

We also calculated the correlation between input redundancy and the three test scores for each target vocabulary in order to examine the probable effects of repetition in detail. Table 4 shows the number of repetition of each target words and the three test scores for each word.

According to our calculations, the largest Pearson correlation coefficient is .472 between input redundancy and the posttest scores in the IO group. The other correlation coefficients are very low, ranging from .016 through .418. From these figures, we may conclude that the relationships between the input redundancy and the three test scores for each target word are not very strong. Surprisingly, the results of the correlational analyses show that in the negotiated interaction group the repetition of the target words had hardly any effect on learners' comprehension of L2 word meanings and on the acquisition and retention of target L2 words. Correlational analysis for each target word also demonstrated that relationship between input redundancy and learners' comprehension, acquisition, and retention of L2 vocabulary was weak.

5. Discussion and Conclusion

The present study sought to confirm the beneficial effects of negotiated interaction on L2 acquisition by examining Korean kinship terms. However, the results of this study supported only two of the four hypotheses regarding the effects of negotiated interaction on the production of target words and on their retention. Negotiated interaction created an environment that encouraged the use of target words, which learners were able to retain longer in memory.

The study failed to confirm the hypotheses regarding the role of negotiated interaction in the comprehension of the meanings of target words and in the acquisition of the target words which were both measured through a written translation test. Repetition was not a factor in the context of negotiated interaction as learners of this group did not understand L2 word meanings better than the learners in the input-only situation. Furthermore, the study did not support the claim that the learning environment of negotiated interaction had superior effects on acquisition than that of input-only.

It is dangerous to conclude, based on the results of this single study, that negotiated interaction does not affect the comprehension and

Table 4. Comparison of Input Redundancy and Test Scores for Each Target Word in Each Group

Target Words	Redundancy	Comprehension	Posttest	Follow-up test
IO Group				
father	18	88	93	85
mother	5	95	100	90
son	8	70	80	82
daughter	6	72	72	63
husband	7	56	67	48
wife	10	67	90	42
grandmother	6	50	68	36
grandfather	6	46	68	48
brother (male)	6	47	58	72
younger brother	8	67	72	48
aunt	6	63	50	36
cousin	7	42	63	48
NI Group				
father	39	83	100	95
mother	9	100	100	100
son	23	83	83	95
daughter	15	67	50	48
husband	14	67	67	50
wife	26	67	50	67
grandmother	22	50	100	95
grandfather	22	83	100	100
brother (male)	23	67	50	48
younger brother	22	83	67	72
aunt	11	67	50	67
cousin	14	67	67	67

acquisition of L2 vocabulary, for several limitations prevent generalization. First, the nature of the negotiated interaction that one of the experimental groups in the study received needs to be carefully considered. The teacher facilitated the use of the target words in the classroom by questioning students about their families and by encouraging students to talk to each other. However, the interaction was somewhat artificial, not a "real" conversation involving negotiation of meaning between interlocutors. The provision of authentic contexts is necessary to gauge the true effects of interaction on the acquisition of L2

grammar or vocabulary. Methodology that can facilitate real negotiation between students or between teacher and students is required.

Secondly, the number of subjects who participated in the study was only ten, five in each group. The small size of the participants makes it difficult to generalize the results of the present study. Therefore, future studies which will include large number of participants are required to exactly compare the effects of input-only and negotiated interaction.

Finally, the present study could not show how input-only or negotiated interaction facilitates comprehension or acquisition of L2 words. The results of the experiment only recorded the final outcomes of two different types of instruction involving input-only and negotiated interaction. We can only infer how learners comprehend and acquire L2 words through input-only and negotiated interaction. Negotiated interaction may, for instance, draw learners' attention to target items that cause their comprehension problems.

We could not address in this study exactly when, where, or why learners comprehend and acquire L2 word meanings. To solve these problems, future researchers should adopt methodology such as the Flatland protocol suggested by Tomlin (1994), which permits the consistent collection of comparable interactive discourse data from a variety of learner-tutor pairs. Congruent with task-based, communicative language teaching theory, the protocol can be used to examine the earliest development of listening comprehension abilities in nil proficiency learners.

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Jong-Bai Hwang
Department of English Language and Literature
Konkuk University
1 Hwayang-dong, Gwangjin-gu
Seoul 143-130, Korea
E-mail : jongbai@konkuk.ac.kr

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