# Language Learning through Interaction: What Role does Gender Play?[1]

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This investigation of Native Speaker with Non-Native Speaker (NS-NNS) interaction in same and cross-gender dyads on four information exchange tasks revealed that male and female NNSs make and receive comparable opportunities to request $L_2$ input and modify interlanguage output during interaction with female NSs. During interaction with male NSs, these opportunities are significantly lower for female than male NNSs. In addition, more request-response exchanges are found on tasks in which either NS or NNS is given initial control over task related information. Findings of the study are attributed to cultural similarities and differences in the interactional behaviors of the participants.

## Introduction: Purpose of the Study

The relationship between language and gender has become an important thrust of research in a variety of disciplines, most notably linguistics, anthropology, and sociology. Several lines of research have been undertaken: Studies have compared the language spoken to and produced by men vs. women. Investigations have been made into gender-based differences in the structure of social interaction. The impact of this research on second language ($L_2$) teachers and researchers has been to heighten their sensitivity to possible ways in which the gender of learners might influence their $L_2$ access and exposure and their linguistic performance on classroom tasks, research interviews, and other domains of discourse.

In spite of this heightened sensitivity to gender, research has only recently begun to examine how, and indeed, *whether*, learners' gender affects their $L_2$ access and performance in ways which might impact on their language learning. The few studies which have addressed these questions, (e.g., Gass and Varonis, 1986; Markham, 1988; Pica, Holliday, Lewis, and Morgenthaler, 1989) have begun to shed light on gender-related differences in areas such as learners' strategies for $L_2$ comprehension, their modification of interlanguage, and their interactional moves with $L_2$ interlocutors. In view of the theoretical importance which has been given to $L_2$ comprehension, interlanguage modification, and negotiated interaction in the learning process, findings from these studies raise the possibility that language learning opportunities and experiences may not be quite the same for male and female learners. To further explore this possibility and to add to the small body of research on learner gender, the present study was undertaken.

The study was framed by the following question: When learners engage in $L_2$ interaction, are their opportunities to comprehend and produce the $L_2$ conditioned by their gender and/or by the correspondence between their gender and that of their interlocutor? To address this question, we compared ways in which male and female non-native speakers of English (NNSs) and native speakers of American English (NSs) in same and cross-gender dyads (1) requested and received help in comprehending and responding to new and unfamiliar $L_2$ input and (2) responded linguistically to explicit and implicit feedback on their production, as they worked on oral, information-exchange tasks.

## Background to the Research

### Theoretical Interest in Interaction as an Aid to Second Language Learning

This research was framed within the perspective of current second language acquisition (SLA) theory. Learners' comprehension and production of $L_2$ are claimed to be essential to their internalization of $L_2$ rules and structures. Further, their participation in social interaction with interlocutors is seen as the context in which the $L_2$ can best be comprehended and produced.

Claims regarding the contributions of comprehension to language learning (originating with Krashen, 1980 and Long, 1980; 1983; 1985) are based on both argument and evidence that exposure to a language is not sufficient for its acquisition. Thus, in order to recognize and eventually internalize $L_2$ forms and structures, learners must first understand the meaning of utterances which these forms and structures encode.

Claims regarding the role of production in the learning process are based on observations (Swain, 1985) that learners' $L_2$ comprehension in itself does not appear to be sufficient for their acquisition of $L_2$ forms and structures. Swain notes that it is often possible for learners to understand the meaning of an utterance without reliance on or recognition of its morphology or syntax. To convey meaning, however, learners must be able to structure and organize their output. Thus she argues that learners must be given opportunities to refer linguistically to agents, actions, and objects and to express relationships among them if they are to master $L_2$ morphosyntax.

For Schachter (1983; 1984; 1986), learners' production is also important because it provides a basis from which they can receive input in the form of feedback on the clarity and precision of their interlanguage. This feedback can then be used by a learner in modifying interlanguage morphosyntactic rules and features toward an $L_2$ target. These experiences in $L_2$ production, as described by Swain and Schachter, appear to help learners manipulate and modify their interlanguage in ways which have an impact on their internalization of $L_2$ forms and structures.

These theoretical claims regarding the contributions of comprehension and production to $L_2$ learning have also viewed learners' participation in social interaction as the context in which their

comprehension and production can best be served. As Long has argued, (1980, 1983, 1985) what are especially important are opportunities for learners to engage with their interlocutors in a negotiated exchange of message meaning. During negotiation, both learners and interlocutors can check the comprehensibility of what they themselves say, request clarification, confirmation, or reiteration of what the other has said, and modify and adjust their speech toward greater clarity and comprehensiblity. In this way, they can potentially reach mutual understanding through modifications of and adjustments to the sounds, structures, and vocabulary of their responses.

Three examples of negotiated interaction are shown below. The first one appears to have been motivated by the learner's need for greater clarity, the following two, by the NS's need for clarity.

| | **English $L_2$ Learner:** | **English NS Interlocutor:** |
|---|---|---|
| (1) | okay, with a big chimney | |
| | | what is chimney? |
| | chimney is where the smoke comes out of | |
| (2) | around the house we have glass | you have what? |
| | uh grass, plants and grass | |
| (3) | you have a three which is ...white | |
| | square of which appears sharp | huh? |
| | you have a three houses ... | |
| | one no-no-not- one is not square | |
| | and one is square | |

As these examples illustrate, negotiation has an immediate impact on learners' receptive and expressive experiences in an $L_2$. Request-response exchanges such as (1) offer learners opportunities to hear $L_2$ input modified and adjusted to their comprehension needs and exchanges such as (2) and (3) provide them with feedback through which they can modify and adjust their output both semantically and structurally. One additional contribution of negotiated interaction is that it provides the learners with modified $L_2$ input which contains information on structural relationships within the $L_2$. In excerpt (1), for example, the NS modification reveals that *chimney* can be both object of the preposition *with* and subject of the utterance *chimney is where the smoke comes out of*. Such structural relationships have already been described in research on mothers' input to their children (See Hoff-Ginsburg, 1985) and are being explored in current $L_2$ studies by Holliday (in preparation) and Pica, Holliday, and Lewis (1990).

## Research on Language and Gender

Until recently, there has been relatively little empirical work on language and gender due to the long-abiding acceptance of popular stereotypes about male and female speech patterns. In Western societies, for example, it was held widely, but erroneously, that women's speech was a deviant version of the speech used by men. It was assumed to contain a smaller, yet more emotionally laden vocabulary (Jespersen, 1922), and to be simpler, more fragmented, non-assertive, and excessively polite (Lakoff, 1973). However, over the past decade, researchers have

shown a great deal of interest in language and gender, much of it in response to the claims of Jespersen and Lakoff. Researchers have addressed questions pertaining to the relationship between language and gender by looking for differences in several areas:

(1) Characteristics of the language used to refer to men and women. Relevant research has ranged from studies regarding perceptions of males and females associated with the generic pronouns *he* and *they* (Frank and Anshen, 1983; Mackay and Fulkerson, 1979; Martyna, 1978), to work on the frequency and type of metaphoric and derogatory language used to describe females compared to males (e.g., by Spender 1980), to surveys on the prevalence of sexism in language teaching materials (Hartman and Judd 1978, Porreca 1984).

(2) Phonological, lexical, morphosyntactic, and discoursal features of the language used by men and women (for example, by Labov, 1966 and 1984; and Wolfram, 1969 in the U.S.; Keenan, 1974 in Malagasy; and Trudgill, 1972 in Britain).

(3) Speech behaviors in evidence when men and women address each other in speech events (See, e.g., work by Brouwer, Gerritsem and deHaan, 1979 on ticket-selling transactions) and as they carry out speech acts (See Wolfson and Manes, 1978 and 1980; and Wolfson ,1984 on compliments ).

(4) Features of interaction such as topic initiation and control (Fishman, 1983), floor holding and turn taking (Edelsky, 1981), or interruptions and repair (Zimmerman and West, 1975).

A number of studies on language and gender has shown that gender in itself is not necessarily responsible for differences in features of language used by and addressed to men and women. Rather, perceptions about social status, expertise, and control over valued information appear to play a more important role than gender itself in much of the speech behavior of males and females and in the judgements made about it. Among the most illustrative studies are those of O'Barr and his associates (Conley, O'Barr, and Lind 1978, Lind, O'Barr, et al. 1979, O'Barr and Atkins 1980). Their comparisons of the speech of male and female courtroom witnesses have uncovered no gender-related differences among them. Instead differences in the witnesses' speech patterns appear to be based on whether they are experts or non-experts on the area for which they have been asked to testify. Thus, the data on *both* male and female non-expert witnesses revealed hesitation and fragmentation phenomena generally associated with female speech (cf. Lakoff 1973, above) whereas *neither* the male nor female expert witnesses displayed these speech patterns. In the courtroom context, and perhaps other contexts as well, expertise and control over relevant information seemed to have a more powerful influence than gender on certain aspects of speech behavior.[2]

Research on Second Language and Gender

The research outlined above has given a more critical perspective to popular notions about males, females, and language and has provided insight into gender-related constraints on the behaviors of native speakers of individual languages in particular societies and specific social events. Findings from this research are of great relevance to language learners and their teachers with regard to the linguistic rules and patterns of speech behavior expected in $L_2$ contexts to which the learners seek access. As noted earlier, however, only a small amount of research on language and gender has focused directly on language learners themselves as they attempt to produce and understand a second language. Among these are the above-mentioned studies by Markham (1988), Gass and Varonis (1986), Pica et al. (1989) which are now reviewed in greater detail since they have provided an impetus for the present study.

Markham, in researching English $L_2$ listening comprehension, found that the gender of the NS lecturer affected NNSs' recall of information. Recall was greater for lectures delivered by male NSs than by female NSs. He found, however, that this gender bias could be neutralized by introducing an "expertness" factor. Thus, recall of information was much greater with an "expert" female speaker than with a non-expert female speaker, a finding which is reminiscent of the native speaker research by O'Barr and associates, discussed above.

Two $L_2$ interaction-based studies (Gass and Varonis, 1986; Pica et al., 1989) have also helped to illuminate the impact of interlocutor gender on the learner. These studies revealed that the pairing of learners with interlocutors of same or opposite gender conditioned both the number of opportunities and degree of success that male learners achieved in modifying their production compared with female learners. However, the extent of cross-gender sampling in both studies was insufficient to warrant gender-based generalizations about language learning. Gass and Varonis (1986) studied learners interacting exclusively with other learners and not with native speakers. Pica et al. (1989) restricted their comparison of male and female learners to interactions with female native speakers and did so only through post hoc analysis of results for a study whose original purpose had nothing to do with gender. Results of the studies by Gass and Varonis and Pica et al. (1989) thus suggested a need for expanded research on the possible relationships between the gender of learners and the language learning opportunities given to and taken by them during their interactions with interlocutors. The present study was designed to address this need.

## Research Design

Subjects

Subjects included 12 male and 20 female native speakers of American English (NSs) and 17 male and 15 female Japanese Ll speakers learning English $L_2$ (NNSs), all low-intermediate level, within a 400 range on the TOEFL examination. Subjects from the same first language ($L_1$) and

similar $L_2$ achievement scores were targeted to control for $L_1$ background and $L_2$ placement variables as closely as possible. The subjects were recruited primarily from a large urban university and its surrounding community. NNSs included students from a preacademic English language institute. NSs came from a variety of academic and employment backgrounds, but were predominantly graduate and undergraduate students and trained workers and professionals. In an effort to provide a degree of uniformity among the NSs, mothers and persons experienced in dealing with NNSs were excluded from the study.

Based on subjects' availability for taping, they were arranged by the researchers into the following dyads: Ten same-gender dyads, consisting of 5 female NSs - 5 female NNSs, 5 male NSs - 5 male NNSs and 10 cross-gender dyads, consisting of 5 female NSs - 5 male NNSs and 5 male NSs - 5 female NNSs. The larger number of subjects than dyads reflects conditions under which data were collected for the study. Ten of the female NSs had participated in an earlier study with 5 male and 5 female NNSs which involved three communication tasks, to be described below. Since data on one additional task was required for the present study, it was necessary to include ten additional female NSs interacting with five additional male and female NNSs on the additional task. In a few cases, newer subjects were unable to participate in all four tasks; this required additional subjects for remaining tasks. In forming the ten same and ten cross-gender dyads for analysis, the researchers matched the NNSs subjects according to their TOEFL scores. For example, Yoko, who had scored 463 on TOEFL and interacted with Alice on three of the four tasks was matched with Nari, whose TOEFL was 450, and NS partner Mary. Thus, data on these 2 NNS and 2 NS subjects were combined into one NNS-NS dyad for purposes of analysis .

Data Collection Procedures

All subject dyads participated in two rounds of each communication task, distributed randomly to control for the possible influence on results of task ordering or practice effects. These tasks are described below. The researchers introduced the subject dyads to each other and reviewed instructions for taping. The dyads then worked independently of the researchers during the tasks. These dyadic interactions were taped. Data from the second round of tasks were transcribed, coded, and analyzed for purposes of the present study.

Three communication task types and four tasks altogether were used in data collection. These tasks provided a context for predicting and observing how learners could gain opportunities to (1) obtain and make use of their interlocutor's help in understanding unfamiliar input needed for interlanguage development and (2) respond to their interlocutors' requests for greater clarity and comprehensibility of their interlanguage output, the second necessary factor in SLA from the interactionst perspective. The tasks were designed to provide subjects with different degrees of control over the information needed to carry them out. It was believed that as they needed to

request or supply information, the subjects would adjust their speech to reach mutual understanding.

Tasks

**(a) Two Information Gap tasks:** In these the NNS and NS interlocutors were asked to take turns, one drawing and then describing an original picture, the other replicating the picture, based solely on the drawer's descriptions and comments, and follow-up responses to the replicator's questions. Neither was allowed to look at the other's picture as it was being described. The Information Gap task is designed to give greater control over information to the interlocutor who describes the picture. However, in carrying out the task, the picture describer does not work in isolation, as there is one principal goal to the task -- the picture replication -- toward which both describer and replicator must work. In the present study, each NNS and NS subject participated in Information Gap 1, in which the NNS was asked to draw and describe a picture and in Information Gap 2, in which the NS was asked to draw and describe. This task has has been used extensively as an instrument for data collection in research on both learners' second language production and the input available to them, and has itself been the object of research in studies by Gass and Varonis (1985, 1986) and Pica et al. (1989).

**(b) A Jig-Saw task:** This required the NNS and NS interlocutors to reproduce an unseen sequence of pictures by exchanging their own uniquely held portions of the sequence. As in the Information gap tasks, both interactants were asked to work convergently toward the same outcome, but the relative quantity of information required in meeting the goal of this task was distributed evenly between them, rather than held by one of them alone. The Jig-Saw task has been used in prior research on ESL learners and NS interlocutors (See, e.g., Doughty and Pica 1986, Pica 1987). In the present study, a picture sequence of cars was used for Round One of data collection and a sequence of houses was used for Round Two. Both of these tasks were pre-tested on NS-NS dyads. A version of the houses task can be found in Appendix II.

**(c) An Opinion Exchange task:** In this the NNSs and NSs were told to share their views on the language learning contributions of the preceding tasks. This task, with its more open-ended, divergent goals, gives both interlocutors potentially equal control over information, but, based on previous research (Holliday 1987, 1988 and Pica 1987), appears subject to domination by the more $L_2$ proficient, NS interactant.

As shown in surveys by Pica, Falodun, Farrah, Kanagy, Unger, and Zhang, (1989) and Pica, Kanagy, and Falodun, (1989), each of the task types of the present research can be linked to specific learning materials currently used in second and foreign language classrooms. It was believed, therefore, that even though the present research was to be carried out in a controlled setting, the tasks would have considerable face validity for participants in the study, and further,

that findings about their use by these subjects would be relevant to classroom concerns and instructional decisions.

Data Coding

An interactionist perspective was taken in coding the data collected for the study, in order to be able to describe, analyze, and quantify the negotiations made by NNSs and NSs in attempting to understand and be understood by each other during their collaboration. A framework was developed which attempted to capture the negotiated nature of speech adjustments, to show, for example, how they can be triggered by and reflected in the form, structure, and content of what NSs and NNSs say to each other. Earlier versions of this framework have been used, (with inter-coder agreement ranging from .92 to .97) in a series of studies (including published versions in Pica ,1987; Pica et al., 1989). Its most up-to-date version (inter-coder agreements range from .88 to .100) is shown in Appendix I.

As shown in Appendix I, in the course of negotiation, both the NNS and NS can signal a need for clarification, confirmation, or reiteration of the other's utterance, which serves as a trigger for the negotiation sequence. As shown in categories 2a-c, these signalling utterances are directed toward the structure, form, and/or meaning of the trigger, and can be questions, statements, phrases, or words which do not in themselves incorporate the trigger (as in 2a) or they can be repetitions of the trigger (as in 2b). The signals shown in 2c modify the trigger semantically, morphologically, or syntactically, these latter signals made by segmenting one or more constituents of the trigger, then producing them in isolation or incorporating them into a longer utterance.

When produced by the NS, the signalling utterances of category 2 are believed to function as what Schachter (1983) calls "negative input," in that they provide learners with metalinguistic information about their interlanguage and the $L_2$ variety of their interlocutor. They are believed to provide opportunities for NNSs to test interlanguage hypotheses and segment and restructure interlanguage grammar and, according to Swain (1985), provide a context for responses of "comprehensible output," in which NNSs can modify their interlanguage output toward greater comprehensibility and accuracy.

When produced by learners, the signalling utterances of category 2 are believed to function as cues to NSs that they need to repeat or modify their $L_2$ output to make it more comprehensible. Through such signals, learners are believed to give themselves another opportunity to hear and come to understand $L_2$ input, as well as an opportunity to focus their attention on $L_2$ forms and features.

NNS and NSs can respond to these signals in a variety of ways as shown in categories 3a - g. For example, they can respond by (3a) switching to a new or related topic, or by (3b) repeating their initial trigger or (3c) their interlocutor's signal. They can also modify (3d) the trigger or (3e)

their interocutor's signal, and do so semantically, morphologically, or syntactically. The modifications in (3d) and (3e), when made by NNSs, provide them with opportunities to exploit and adjust their interlanguage resources. When NSs produce these modifications, they reveal to NNSs $L_2$ semantic relationships of synonymy and paraphrase as well as patterns of morpheme affixation, phrase structure, and constitutent movement.

Other category 3 responses (i.e., 3f and 3g) which simply confirm the signal or indicate an inability to respond to it, are believed to maintain or alter the flow of interaction. However, they do not, in themselves, provide opportunities for NNSs to hear modified $L_2$ or to modify their interlanguage.

To complete the negotiation, the NS or NNS can supply either (4a) an explicit signal of comprehension or (4b) a topic continuation move. Whether, indeed, these latter are true indications of comprehension is an empirical question, one which was not a concern of the present research. Our focus in coding was on the signals and responses of learners and their interlocutors as contexts for learners to request and receive modified $L_2$ input, to gain feedback on their own production, and to modify their interlanguage output.

Predictions

In light of the limited amount of empirical work on the role of gender in language learning, the present study sought to describe gender-related influences on learner-interlocutor interaction as much as it aimed to test predictions about these processes. Thus a limited number of predictions was made about the linguistic output and interactional behavior of the NS-NNS interlocutors as they worked in dyads of same and opposite genders on the communication tasks. Based on results of very scant, and only partially relevant, previous research on learner gender as a factor in social interaction (e.g., Gass and Varonis, 1986; Pica et al., 1989), the following predictions were made regarding the effects that learners' gender and gender pairing would have on NS-NNS negotiated interaction, and in turn, on opportunities for NNSs to request and receive modified $L_2$ input and to modify their own production in response to requests:

**Hypothesis 1:** Greater amounts of negotiated interaction, i.e., signal-response exchanges, would occur in cross-gender dyads of male NSs - female NNSs and female NSs - male NNSs than in same-gender dyads of male NSs to male NNSs and female NSs to female NNSs. This prediction has been supported for NNS-NNS interaction in Gass and Varonis (1986), but has not been tested for NS-NNS interaction.

**Hypothesis 2:** female NNSs would produce more signals than male NNSs. The prediction of this hypothesis was also supported in the Gass and Varonis (1986) study on NNS-NNS interaction, but again, has not been tested for NS-NNS interaction.

**Hypothesis 3:** Male NNSs would be given more NS signals than female NNSs. This hypothesis was supported by findings of Pica et al. (1989); however, only female NSs were included in that study. No study has yet examined both female and male NSs as signal providers to male and female NNSs.

**Hypothesis 4:** Male NNSs would produce more modification of their speech in response to NS signals than would female NNSs. This hypothesis was also based on Pica et al. (1989). Again, however, only female NSs were examined as a source of signals to and receiver of responses from male and female NNSs.

These four hypotheses, when viewed in terms of possible language learning opportunities and experiences, suggested that (1) cross-gender pairings, compared to same-gender pairings, would provide greater opportunities for NNSs to hear modifed $L_2$ input and to modify their own production; (2) female NNS subjects, as more frequent signal producers than males, would be given more opportunities to hear modified $L_2$ input; (3) male NNS subjects, as more frequent signal receivers than females, would receive and act upon more opportunities to modify their interlanguage output.

Four additional predictions were made, again with considerable caution, in light of the small body of gender-related language learning research. Also contributing to these predictions were findings from studies by Markham and O'Barr et al., as noted above, which have shown that among English NSs, speaker expertise and information control can often play a more critical role than speaker gender with regard to features of speech production. Thus, it was predicted that the distribution and control of information on the communication tasks used to gather the data for the study would interact with the gender and gender pairing of subjects in a number of ways. These possibilities were addressed through the following hypotheses:

**Hypothesis 5:** Hypotheses 2-4 would be supported in all tasks except the Jig-Saw task. It was believed that the gender-related effects predicted in Hypotheses 2-4 would not be seen on the Jig-Saw task because the equal control given to both NNSs and NSs over the information needed to carry out this task would outweigh any effects for gender differences. The other tasks, with their initial and/or potential imbalances of information control between NS and NNS would provide evidence for the sensitivity to gender predicted in Hypotheses 2 - 4.

**Hypothesis 6:** The results predicted in Hypothesis 2 would be most evident in Information Gap 2 and the Opinion Exchange tasks. This was because the NSs were told to begin the Information Gap 2 task by holding all information about the picture to be drawn. The NNSs needed access to this information in order to carry out the task. Thus, the female NNSs, as predictably more frequent signallers, would take greater advantage of opportunities to signal for information they could not understand.

As for the Opinion Exchange task, it was believed that this would provide *potentially* equal opportunities for male and female NNSs to signal their NS interlocutors. However, in light of the open-ended nature of this task type, and the possibility for NS domination, it was believed that the female NNSs would take greater advantage of signalling opportunities brought about as NSs raised most of the points to be discussed.

**Hypothesis 7:** The results predicted in Hypothesis 3 would be most evident in Information Gap 1 and Opinion Exchange tasks.

**Hypothesis 8:** The results predicted in Hypothesis 4 would be most evident in the Information Gap 1 and Opinion Exchange tasks.

Both male and female NNSs would begin the Information Gap 1 task by holding all information about the picture to be drawn, but as male NNSs were predicted to be greater receivers of NS signals and responders to those signals, it was believed that such a predicted effect would be more apparent on this task. It was also believed that, along with the Information Gap task, the Opinion Exchange task would provide the strongest context to support Hypotheses 3-4. Based on the results of Pica et al. (1989) with female NSs, it was believed that, compared to female NNSs, the male NNSs would take greater advantage of the open-ended nature of this task to respond frequently to signals from both male and female NSs and to do so with modified interlanguage output.

Hypothesis Testing and Data Analysis:

All transcripts of interactional data were coded based on the categories of the Framework displayed in Appendix I.

Hypothesis 1 was tested by counting and comparing the number of signal and response utterances (i.e., utterance types 2 and 3 in the framework shown in Appendix I.) per total number of utterances across the four dyad categories and the combined cross vs. same-gender dyads.

Hypotheses 2 and 3 were tested by counting and comparing the number of signal utterances (type 2) per total number of utterances produced by (for Hypothesis 2) and received by (for Hypothesis 3) male vs. female NNSs across the four dyad categories.

Hypothesis 4 was tested by counting and comparing the proportion of modified responses (Utterance types 3-d and 3-e) per total number of response utterances produced by male and female NNSs across the four dyad categories.

Hypotheses 5-7 were tested by further dividing the data which had been used for testing Hypotheses 1-4 into the tasks from which these data had been collected.

Results and Discussion

Analysis of data and $X^2$ testing of results found little direct support for the hypotheses of the study. Thus, no support was found for Hypothesis 1, which had predicted that more negotiated interaction would occur in cross-gender pairs of male NS-female NNS and female NS-male NNS than in same-gender pairs of male NS-male NNS and female NS-female NNS. Nor was support found for Hypotheses 2, 3, and 4 which had predicted distinctions between male and female NNSs such that female NNSs would produce more signals, male NNSs would be given more NS signals, and male NNSs would produce more modification of their speech in response to NS signals. The lack of evidence to support these hypotheses, in turn, brought about rejection of Hypothesis 5, which had predicted that results of testing Hypotheses 2-4 would hold on all tasks except Jig-Saw.

Hypothesis 6, which had predicted that females NNSs would produce more signals than male NNSs on Information Gap 2 and Opinion Exchange tasks, was also rejected as was Hypothesis 8, which had predicted that male NNSs would produce greater proportions of modified to unmodified responses on the Information Gap 1 and Opinion Exchange tasks. The remaining hypothesis of the study was not rejected completely, but was given only partial support. Thus Hypotheses 7, which had predicted that male NNSs would be given more NS signals on Information Gap 1 and Opinion Exchange tasks, was shown to be significant only for the Opinion Exchange task.

Even though the results did not support predictions regarding the effects of NNS gender, NS-NNS gender pairing, and communication task on features of negotiation, follow-up analyses of these results did reveal several consistent patterns for both gender and task variables: negotiation and negotiation utterances appeared to be affected by gender, but it was the gender of the NS rather than the NNS member of the dyads which seemed particularly crucial. The types of tasks in which the NS - NNS dyads engaged also played a role in negotiation, as there were differences in the frequency of negotiation signals and modified responses produced during the different task types. These follow-up analyses are addressed in more detail in the discussion of results below.

**Hypothesis 1:** No support was found for Hypothesis 1, which had predicted that more negotiated interaction, i.e., greater proportions of signal and response utterances to total utterances, would occur in cross- than same-gender NS-NNS dyads. Instead, the opposite was indicated. As shown in Table 1, the proportions of signal and response utterances were actually larger among the same-gender dyads compared to cross-gender dyads, i.e., 20% vs. 18% for the sum of the four tasks in which they engaged. Although this was not a significant difference, ($X^2 = 3.76$ , d.f. = 1, n.s.), it was only .08 below the figure of 3. 84 required for significance at the .05 level. As

such, it indicated a trend for significance in the opposite direction of what Hypothesis 1 had predicted.

Closer examination of the data revealed that this trend in favor of the same-gender dyads was due to the relative lack of negotiation in cross-gender dyads composed of male NSs - female NNSs. As shown in Table 1, the proportions of signal and response utterances to total utterances for the sum of the four tasks were a similar 19% for male NS - male NNS, 20% for female NS - female NNS, and 21% for female NS - male NNS, but only 16% for male NS-female NNS. Statistical analysis showed significant differences between same-gender dyads of female NS - female NNS vs. cross-gender dyads of male NS- female NNSs ($X^2 = 20.22$, d.f. =, $p < .05$). However, there were no statistically significant differences for same-gender dyads of male NS - male NNS vs. cross-gender dyads of female NS - male NNS ($X^2 = 3.21$, d.f. =, n.s.).

In summary, contrary to the prediction of Hypothesis 1, negotiation was not greater among dyads of cross vs. same-gender. Rather, results showed that negotiation was significantly greater among same gender dyads for female NNSs and about equal in both same and cross-gender dyads for male NNSs (see table 1).

**Table 1**
**Negotiated Interaction in Relation to Gender Pairing and Task**

Frequency and Percentage of NS-NNS Signal + Response (S+R) and Other (OTH) Utterances. Total Utterances on Information Gap 1 (INFO GAP1), Information Gap 2 (INFO GAP 2), Jig-Saw (JIG-SAW), Opinion Exchange (OPINION EXCH.), and sum of the four tasks (SUM OF TASKS) by Male (M) and Female (F) Native and Non-Native Speakers (NSs and NNSs).

| | | INFO GAP 1 | | | INFO GAP 2 | | | JIG-SAW | | | OPINION EXCH. | | | SUM OF TASKS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S+R | OTH | TOT | S+R | OTH | TOT | S+R | OTH | TOT | S+R | OTH | TOT | S+R | OTH | TOT |
| M NS - F NNS | n | 187 | 703 | 890 | 251 | 880 | 1131 | 35 | 685 | 720 | 22 | 379 | 401 | 495 | 2643 | 1427 |
| (CROSS GENDER) | % | 21 | 79 | | 22 | 78 | | 5 | 95 | 5 | 95 | 16 | 84 | | | |
| F NS - M NNS | n | 204 | 702 | 906 | 164 | 478 | 642 | 149 | 756 | 905 | 80 | 304 | 384 | 597 | 2242 | 8370 |
| (CROSS GENDER) | % | 23 | 77 | | 26 | 74 | | 16 | 84 | | 21 | 79 | | 21 | 79 | |
| M NS - M NNS | n | 271 | 904 | 1175 | 206 | 743 | 949 | 120 | 684 | 804 | 46 | 378 | 424 | 643 | 2709 | 3352 |
| (SAME GENDER) | % | 23 | 77 | | 22 | 78 | | 15 | 85 | | 11 | 89 | | 19 | 81 | |
| F NS - F NNS | n | 256 | 824 | 1080 | 259 | 592 | 851 | 103 | 869 | 972 | 27 | 276 | 303 | 645 | 2561 | 3206 |
| (SAME GENDER) | % | 24 | 76 | | 30 | 70 | | 11 | 89 | | 9 | 91 | | 20 | 80 | |
| SAME GENDER | n | 527 | 1728 | 2255 | 465 | 1335 | 1800 | 223 | 1553 | 1776 | 73 | 654 | 727 | 1288 | 5270 | 6558 |
| (COMBINED) | % | 23 | 77 | | 26 | 74 | | 13 | 87 | | 10 | 90 | | 20 | 80 | |
| CROSS GENDER | n | 391 | 1405 | 1796 | 415 | 1358 | 1773 | 184 | 1441 | 1625 | 102 | 683 | 785 | 1092 | 4887 | 5979 |
| (COMBINED) | % | 22 | 78 | | 23 | 77 | | 11 | 89 | | 13 | 87 | | 18 | 82 | |

Additional analyses revealed that the types of tasks in which the dyads engaged was a discriminating factor in the quantity of their negotiation relative to their total interaction. This finding was consistent for both cross and same-gender dyads. Thus, for cross-gender dyads, signal and response utterances were 22% and 23% of the total number of utterances on the Info. Gap 1 and 2 tasks respectively, but only 11% on Jig-Saw and 13% on Opinion Exchange.

Similarly, in same-gender pairs, signal and response utterances were 23% and 26% of the total utterances on Info. Gap 1 and 2 respectively, but only 13% on Jig-Saw and 10% on Opinion Exchange. These patterns suggested that negotiation was greater when, at the beginning of a task, opportunities for information control were given solely to one member of the NS-NNS dyad. Negotiation was not as frequent when initial information was shared between both members of the dyad, whether explicitly, as in a Jig-Saw task, or implicitly for the Opinion Exchange task.

**Hypothesis 2:** No support was found for Hypothesis 2, which had predicted that female NNSs would produce more signals than male NNSs. As shown in Table 2, both female and male NNS signal utterances were 11% of their total number of utterances on the sum of the four tasks, with frequency data revealing no significant differences between them ($X^2 = .035$, d.f. = 1, n.s.).

**Table 2**
**Frequency and Percentage of NNS Signal (S) and Other (OTH) Utterances/Total (TOT) NNS Utterances**

| | | INFO GAP 1 | | | INFO GAP 2 | | | JIG-SAW | | | OPINION EXCH. | | | SUM OF TASKS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT |
| F NNS to M NS | n | 14 | 428 | 442 | 113 | 336 | 479 | 11 | 330 | 341 | 5 | 161 | 166 | 143 | 1285 | 1248 |
| | % | 3 | 97 | | 24 | 76 | | 3 | 97 | | 3 | 97 | | 10 | 90 | |
| F NNS to F NS | n | 31 | 436 | 467 | 109 | 253 | 362 | 16 | 384 | 400 | 1 | 112 | 113 | 157 | 1185 | 1342 |
| | % | 7 | 93 | | 30 | 70 | | 4 | 96 | | 1 | 99 | | 12 | 88 | |
| Total F NNS to M NS + F NS | n | 45 | 864 | 909 | 222 | 619 | 841 | 27 | 714 | 741 | 6 | 273 | 279 | 300 | 2470 | 2770 |
| | % | 5 | 95 | | 26 | 74 | | 4 | 96 | | 2 | 98 | | 11 | 89 | |
| M NNS to M NS | n | 23 | 530 | 553 | 87 | 209 | 2965 | 34 | 288 | 322 | 9 | 137 | 146 | 153 | 1164 | 1317 |
| | % | 4 | 96 | | 29 | 71 | | 11 | 89 | | 6 | 94 | | 12 | 88 | |
| M NNS to F NS | n | 22 | 423 | 445 | 63 | 198 | 261 | 38 | 375 | 413 | 3 | 175 | 178 | 126 | 1171 | 1297 |
| | % | 5 | 95 | | 24 | 76 | | 9 | 91 | | 2 | 98 | | 10 | 90 | |
| Total M NNS to M NS + F NS | n | 45 | 953 | 998 | 150 | 407 | 557 | 72 | 663 | 735 | 12 | 312 | 324 | 279 | 2335 | 2614 |
| | % | 5 | 95 | | 27 | 73 | | 10 | 90 | | 4 | 96 | | 11 | 89 | |

Closer analysis of the signal data revealed that, in some instances, frequency of signals among female NNSs was conditioned by the gender of their NS interlocutor and the task types in which they engaged. Thus female NNSs tended to signal more frequently when they interacted with female NSs than with male NSs. This was especially apparent on Information Gap tasks, reflecting another facilitating effect for this task on negotiation as had been revealed in testing of Hypothesis 1. On the Information Gap 1 task, female NNS signals constituted 7% of their total utterances when interacting with female NSs, but only 3% of their total utterances when interacting with male NSs. This difference was significant. ($X^2 = 5.81$, d.f. = 1, $p < .05$). Significant differences were found on the Information Gap 2 task, as female NNS signals were 30% of their total utterances when interacting with female NSs and 24% of their total utterances when interacting with male NSs. ($X^2 = 4.51$, d.f. = 1, $p < .05$). As can be seen in these results, when female NNSs participated in tasks on which either they or their interlocutor held initial control over

information, they were more likely to signal for help with $L_2$ input from their female than male NS interlocutors.

On the other tasks of the study, in which both NSs and NNSs had initial control over task-related information, female NNSs were found not to make significant distinctions in their signals to male and female NSs. On the Jig-Saw task, female NNS signals were 4% of their total utterances to female NSs and 3% to male NSs ($X^2 = 0.314$, df = 1, n.s.). On the Opinion Exchange task, in which female NNSs signals were 1% of their total utterances to female NSs and 3% to male NSs, there were too few tokens to be tested for statistically significant differences.

Unlike female NNSs, the frequency of male NNS signals was not conditioned by the gender of their NS interlocutor. Thus, male NNSs did not display significant differences in their signals to female and male NSs. On the Information Gap 1 task, male NNS signals were 5% of the total utterances to female NSs and 4% to male NSs ($X^2 = 0.353$, d.f. = 1, n.s.). On the Information Gap 2 task, proportions of signal to total utterances were 24% to female NSs vs. 29% to male NSs ($X^2 = 1.95$, d.f. = 1, n.s.). On the Jig-Saw task, these proportions were 9% vs. 11% ($X^2 = 0.378$, d.f. = 1, n.s.). Greater differences were found on the Opinion Exchange task, i.e., male NNSs signals were 2% of their total utterances to female NSs and 6% to male NSs, but, again, as in female NNS interaction on this task, there were too few signal tokens to be tested statistically. Overall, results showed that the frequency of male NNS signals to male vs. female NSs was not affected by their initial control over task-related information.

**Table 3**
**Frequency and Percentage of NS Signal (S) and Other (OTH) Utterances/Total NS Utterances**

| | | INFO GAP 1 | | | INFO GAP 2 | | | JIG-SAW | | | OPINION EXCH. | | | SUM OF TASKS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT | S | OTH | TOT |
| F NS to M NNS | n | 77 | 384 | 461 | 8 | 373 | 381 | 33 | 459 | 492 | 31 | 175 | 206 | 149 | 1391 | 1540 |
| | % | 17 | 83 | | 2 | 98 | | 7 | 93 | | 15 | 85 | | 10 | 90 | |
| M NS to M NNS | n | 108 | 514 | 622 | 5 | 648 | 653 | 21 | 461 | 482 | 13 | 265 | 278 | 147 | 1888 | 2035 |
| | % | 17 | 83 | | 1 | 99 | | 4 | 96 | | 5 | 95 | | 7 | 93 | |
| Total F + M NS | n | 185 | 898 | 1083 | 13 | 1021 | 1034 | 54 | 920 | 974 | 44 | 440 | 484 | 296 | 3279 | 3575 |
| to M NNS | % | 17 | 83 | | 3 | 97 | | 6 | 94 | | 9 | 91 | | 8 | 92 | |
| F NS to F NNS | n | 96 | 517 | 613 | 17 | 472 | 489 | 33 | 539 | 572 | 12 | 178 | 190 | 158 | 1706 | 1846 |
| | % | 16 | 84 | | 3 | 97 | | 6 | 94 | | 6 | 94 | | 8 | 92 | |
| M NS to F NNS | n | 79 | 97 | 369 | 448 | 3 | 649 | 652 | 6 | 373 | 379 | 6 | 235 | 94 | 2620 | 1714 |
| | % | 18 | 82 | | 0 | 100 | | 2 | 98 | | 3 | 97 | | 5 | 95 | |
| Total F + M NS | n | 175 | 886 | 1061 | 20 | 1121 | 1141 | 39 | 912 | 951 | 18 | 407 | 425 | 232 | 3326 | 3578 |
| to F NNS | % | 16 | 84 | | 2 | 98 | | 4 | 96 | | 4 | 96 | | 6 | 93 | |

**Hypothesis 3:** Hypothesis 3 that male NNSs would be given more NS signals than female NNSs was supported only on the Opinion Exchange task. As shown in Table 3, the proportion of NS signal utterances to total utterances directed to male NNSs on the Opinion Exchange Task was 9%, whereas this figure was 4% for female NNSs. This difference was statistically significant

($X^2 = 8.39$ , d.f. = 1, $p < .05$). Few differences were found among NS signals to male vs. female NNSs across the other three tasks. Thus, on the Information Gap 1 Task, NS signals were 17 % of their utterances to male NNSs and 16% of their total utterances to female NNSs. On the Information Gap 2 Task, these figures were 3% to male vs. 2% to female NNSs, and on the Jig-Saw Task, they were 6% to male vs. 4% to female NNSs.

Hypothesis 3 had predicted that the frequency of NS signals to NNSs would differ according to NNS gender, i.e., whether the NNSs had been male or female. Results showed that NNS gender did affect the frequency of NS signals to NNSs on the Opinion Exchange task, but, for the other task types, it was the gender of the NS signal producer which had a more differentiating effect than the gender of the NNS signal receiver. Proportionately more of the total number of NS utterances given as signals came from female (9%) than from male NSs (6%), ($X^2 = 16.92$, df = 1, $p < .05$). Differences between signals given to NNSs by male and female NSs were significant for:

(a) Male and female NNSs on the sum of the four tasks: thus, as displayed in Table 3, signals to male NNSs constituted 10% of the total utterances produced by female NSs vs. 7% of the total male NS utterances. ($X^2 = 6.62$, d.f. = 1, $p < .05$). Similarly, signals to female NNSs were 8% of the total female NS utterances vs. 5% of male NS utterances ($X^2 = 12.77$, d.f. = 1, $p < .05$).

(b) Male NNSs on the Opinion Exchange Task: also shown in Table 3, female NS signals were 15% of their total utterances to male NNSs, but male NS signals only 5% of their total utterances to male NNSs. ($X^2 = 15.40$, d.f. = 1, $p < .05$).

(c) Female NNSs on Jig-Saw Task: again, as indicated in Table 3, female NS signals were 6% of their total utterances to female NNSs, while male NS signals were only 2% of their total utterances to female NNSs. ($X^2 = 6.63$, d.f. = 1, $p < .05$).

**Hypothesis 4:** No support was found for Hypothesis 4 that male NNSs would produce more modification of their speech in response to NS signals than would female NNSs. As shown in Table 4, proportions of modified responses to total response utterances by male vs. female NNSs were about the same for the sum of the four tasks (46% by males and 48% by females, $X^2 = 0.21$, d.f. = 1, n.s.).

Overall, results for testing Hypothesis 4 were of little statistical significance. Thus, as shown in Table 4, on Opinion Exchange, male NNSs produced greater proportions of modified responses than female NNSs. However, this difference was not statistically significant ( $X^2 = 2.69$, df = 1, n.s.). On Jig-Saw, male NNSs actually produced smaller proportions of modified responses than female NNSs, but again, this result was not significant ($X^2 = 1.34$ , d.f. = 1, n.s.).