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ABSTRACT

This study investigated whether second language (L2) learners' interaction with other learners is as effective as interaction with native speakers (NSs) in addressing three theoretical needs: (1) L2 input modified toward comprehensibility; (2) feedback focused on form; and (3) modification of output. The interactions of five dyads of English L2 learners were compared with those of five dyads of learners and English NSs on two communication tasks. Results revealed similarities in the types of modified output and feedback the learners were offered from other learners and NSs in their respective dyads, and in both the type and amount of output modification they produced. Differences were found in the amount of modified input the learners were provided, with less provided by other learners than by NSs. This suggests that while interaction between L2 learners can address some input, output, and feedback needs, it does not provide as much as interaction with NSs. Contains 63 references. (MSE)

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What Can Second Language Learners Learn from Each Other? Only their Researcher Knows for Sure

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This study asked whether second language (L2) learners' interaction with other learners can adrdress three of their theoretical needs for L2 learning in ways that interaction with native speakers (NSs) has been shown to do, i.e., the need for L2 input modified toward comprehensibility, for feedback focused on form, and for modification of output. To address this question, the interaction of five dyads of English L2 learners was compared with that of five dyads of learners and English NSs on two communication tasks. Results of the comparison revealed similarities in the types of modified input and feedback the learners were offered from other learners and NSs in their respective dyads and in both the type and amount of output modifications they produced. Differences were found in the amount of modified input the learners were provided, with less modified input from other learners than from NSs. The study thus indicated that interaction between L2 learners can address some of their input, feedback, and output needs, but that it does not provide as much modified input and feedback as interaction with NSs.

It has long been believed that participation in verbal interaction offers language learners the opportunity both to follow up on new words and structures to which they have been exposed during language lessons, and to practice them in context. Indeed, many traditional as well as current teaching methods and materials reflect this point of view; see, for example, overviews by Brown (1994), Richards and Rodgers (1986), and Savignon (1983). In addition, there is a growing body of evidence that participation in interaction can play an even broader and more theoretically important role in the learning process. Such participation does so by assisting language learners in their need to obtain input and feedback that can be linguistic data for grammar building. Interaction also assists learners in modifying and adjusting their output in ways that expand their current interlanguage capacity. (Hatch 1978a, 1978b; Long 1983, 1985, 1991; Pica 1991; Schachter 1983, 1984, 1986, 1991; Swain 1985). Much of this evidence has come from studies of second language (L2) learners engaged in interaction with native speakers (NSs).[1]

For many L2 learners, however, opportunities for either extensive interaction with NSs are all too infrequent, and often simply unavailable. This is especially so for learners in foreign language contexts, where classrooms of non-native speaking teachers and other L2 learners are the basis for most of their interaction. Even when NS teachers are available, if small group and pair work, role plays, and discussion are emphasized in the curriculum, then learners experience greater verbal contact with each other than with their teachers for much of class time (Wong-Fillmore 1992). Further restrictions on interactions with NSs can be found across educational settings when L2 learners are required to use a language at school that is different from languages spoken in their home and community. If these learners outnumber those who speak the school language with native or near-native mastery, it is the learners who become each other's principal interlocutors in the classroom.

Thus, across a wide range of settings, including second and foreign language classrooms and classrooms oriented toward more general educational pursuits, language learners enter into interactions with each other on a daily basis, and are thus frequently and increasingly each other's resource for language learning. How does learners' interaction with other learners affect their learning? Is it helpful for certain aspects of learning, but not others? Is it of little, or any, consequence at all? Some preliminary answers to these questions are suggested by the present study on learner interaction, which itself was motivated by a series of recent studies on L2 interaction and on a particular variety of interaction known as negotiation.

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[1] This article was written while the senior author was Ethel G. Carruth Associate Professor of Education and while Lincoln-Porter and Paninos were U.S. Office of Bilingual Education and Minority Affairs Title VII Doctoral Fellows.

Interaction, Negotiation, and L2 Learning

While almost any experience that engages learners in meaningful interaction is believed to promote opportunities for L2 learning, research has shown that when interaction is modified through negotiation, such opportunities are increased and enhanced considerably. (Long 1980, 1983, 1985; Pica, Young, & Doughty 1987; Pica, Holliday, Lewis, & Morgenthaler 1989; Pica, Lewis, & Holliday 1990; Pica, Holliday, Lewis, Berducci, & Newman 1991; see also Pica 1991, 1992a, 1992b, 1993, 1994, in press). Negotiation between learners and interlocutors takes place during the course of their interaction when either one signals with questions or comments that the other's preceding message has not been successfully conveyed. The other then responds, often by repeating the message or by uttering a modified version. This latter might take the form of a word or phrase extracted from the original message utterance, a paraphrase, or a synonym substitution thereof.

The processes and outcomes of negotiation and the opportunities it can provide for L2 learning are illustrated in Excerpts (1) through (3), as English L2 learners and English NSs took turns describing pictures for each other to draw or select.[2] In (1), for example, the learner interrupted the NS description of a drawing to signal with a question about *chimney* (signals are italized in the examples). The NS responded by segmenting *chimney* from the prepositional phrase, *with a big chimney*, and then incorporating *chimney* into a statement which described one of its features. The learner was then able to draw a chimney. From the learner's reaction, it would appear that the NS follow-up response on *chimney* made this message more comprehensible. The NS response also showed the learner that *chimney* could function as both object of the preposition *with* and subject of the utterance, *chimney is where the smoke comes out of* (reponses are bolded in the examples). In this way, negotiation offered L2 input which segmented *chimney* from prior utterances of both learner and NS highlighted its meaning, form, and use in context.

(1)

Learner	**NS Interlocutor:**
	okay, with a big chimney
what is chimney? (signal)	**chimney is where the smoke comes out of** (response)
OK	

(Pica, in press)

In (2) the NS also modified a prior message, but here, the modification was made to what the learner had said, i.e., *you mean the trees have branches?*. The NS signal segmented *tree* from the learner's initial utterance, then added a plural *-s* morpheme and substituted *branches* for *stick*. In so doing, the NS not only confirmed the learner's original message, but also displayed to the learner a morphologically and lexically modified version which showed greater conformity to the standard variety of English which was the learner's presumed target.

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[2] The data for these transcripts come from studies reported on in Pica et al. (1989), Pica et al. (1990), and Pica et al. (1991) and have also been discussed in Pica (1990, 1992a, 1992b, Pica 1993, Pica, 1994, and Pica in press).

(2)

Learner:	**NS Interlocutor:**
and tree with stick	*you mean the trees have branches?* (signal)
yes (response)	

(Pica 1992a; Pica 1994: 515)

Finally, as shown in (3), negotiation with NSs can offer learners a speaking context in which they too can manipulate and modify their messages toward greater comprehensibility. Simple clarification requests and signals from the NS such as *what?* or *you did what?* have been found to be particularly effective. (Holliday 1987, 1988; Pica 1987; Pica et al. 1989; Pica et al. 1991). Thus, in (3), the learner responded to the NS question, *you have what?* by segmenting *glass* from his initial utterance, and then clarified its pronunciation as *grass* and added to its meaning the related lexical item, *plants*.

(3)

Learner:	**NS Interlocutor:**
around the house we have glass	*you have what?* (signal)
uh grass, plants and grass (response)	

(Pica 1992a)

Learner Interaction and Language Learning: Research Issues and Questions

The signal and response utterances of negotiation in Excerpts (1) through (3) modify prior utterances by retaining or extending their meaning and repeating or reshaping their form. They illustrate some of the ways in which learners' negotiation with NSs is believed to have considerable theoretical significance for their L2 learning. NS responses to learner signals are rich in lexical and structural modifications that not only enhance message comprehensibility, but also serve as input on L2 form and meaning. NS signals offer feedback to learners ranging from open queries about their prior utterances to modified versions thereof, and these can be used by learners to modify their output.

As noted above, however, many learners have little opportunity to interact or to engage in topics that promote negotiation with with NSs. Instead, they often find themselves involved in learner-to-learner communication, using whatever L2 resources they have in order to do so.[3] Yet research on learner-to-learner interaction has shown that learners do indeed negotiate when given the opportunity to do so, often with greater frequency and elaboration than they do with NSs. (Porter 1983, 1986; Gass & Varonis 1985). Thus, in order to address the possible ways in which learners' negotiation with other learners might contribute to their learning, the present study set up situations which might promote negotiation, then posed questions about the extent to which learners' negotiation might play a role in assisting each others' input, feedback, and output needs. These questions were informed initially by previous research on learners as negotiators, which led to six predictions, to be described below.

L2 Learners as Negotiators: Research Findings as Predictors for L2 Learning

In the next section we review studies on input, feedback, and output. Predictions with respect to learning will be made within each review.

Input Studies and Predictions:

Do learners' responses during learner-learner negotiation provide input that is similar to that available in learner-NS negotiation? Studies on learner-NS negotiation (Pica et al. 1989; Pica et al. 1990; Pica et al. 1991; Pica 1992b) have provided considerable evidence that when learners negotiate with NSs, both the learners and the NSs respond to each other's signals with the kinds of lexical and structural modifications that can assist L2 learning processes. However, learners have been shown to differ from NSs in ways that might bear on their ability to assist each other's input needs during learner-learner negotiation.

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[3] All L2 learners are NNSs of the L2 they are learning. Not all NNSs, however, are L2 learners. Included here would be those who have completed their formal study and no longer consider themselves to be in the process of acquiring an L2. It also includes fossilized speakers of stabilized interlanguage varieties. Since the subjects in the present study were all enrolled in English L2 classes and presumably making progress in their learning, we use both learners and NNSs to refer to them. Our exclusive use of NNSs in discussions of research which has informed our study reflects conventions of the literature in which this research has been published, as it is likely that the NNS subjects in this research were L2 learners as well.

First, with respect to amount of modification, learners have been found to produce much less modification of prior utterances in response to NS negotiation signals than NSs produce in response to learner signals. In Pica et al. (1990) and Pica (1992a, 1992b), learners modified 40 % of their prior utterances, as compared to 70 % on the part of NSs, whereas learners, on the whole, restricted their modified responses to instances of NS signals which were open clarification questions such as *what?* or *could you repeat that?* These clarification questions were much less frequent than closed signals where learners' prior utterances had been modified by the NSs. Further, when NS signals were modified versions of learners' prior utterances, the learners did not respond with yet another modification, but instead, used expressions such as *OK*, *all right*, variants of *yes* or *yeah*, or simply said *no*.

On the other hand, when NSs responded to learner signals, they very typically did so with additional modification regardless of whether learner signals were open queries or modified versions of their original message. Thus, as was shown in (1), the NS response to the learner's *what is chimney?* was a modified version of the original utterance, whereas in (2), the learner's response to the NS's *you mean the trees have branches?* was a simple *yes*. This difference between learner and NS responses is important because if learners' suppliance of modified input in their responses to other learners is as restricted as it has been shown to be in their responses to NSs, the modified input they might contribute to each other's learning will not be as readily available as the modified input from NSs.

A second difference between learners and NSs as input providers has been found in the proportional distribution of modification types across their responses to NS signals. Although the learners modified their responses in a variety of ways, both lexically and structurally, their predominant manner of modification was to repeat an isolated word or phrase from a prior utterance, through a form of modification we have referred to as "segmentation," based on Peters (1977, 1980, 1985; see also Pica 1992a, 1992b, 1994; Pica, et al. 1990). Such segmentations were also evident among the NSs, but were complemented by a wide range of other modifications involving lexical substitution and paraphrase. This difference can be seen by comparing the learner response in (4) with that of the NS in (1). In (4), the learner segmented *glass* from preceding utterances whereas in (1), the NS defined and described the previous utterance of *chimney*.

(4)

Learner	**NS Interlocutor**
next to the notebook	
there is there is a pen	uhuh
and next to the pen	
there is a glass	*does the glass have anything in it?*
	does the glass have anything in it?
	glass? glass? oh glasses? (signals)
	oh glasses? (signal)
glass (response)	
glasses glasses (response)	

(Pica 1993: 443)

This excerpt highlights one of the key differences between learners and NSs with respect to the functional range of modifications in

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their responses as input for each other's learning. Segmentation, as learners' predominant type of modification type with NSs, can extract content words from prior utterances for isolation or incorporation into a follow-up response. However, segmentation does not relate these content words to new and alternate encodings. To accomplish that, lexical modifications such as paraphrase, description, and exemplification are needed. Thus, in our studies of learners and NSs, we found that the learners appeared to be more limited than NSs in the relating L2 form and meaning.

These findings led to the first two predictions of the study. We hypothesized that learners would provide less modified input than NSs in their responses to other learners' signals of negotiation. Further, we hypothesized that the modifications in their responses would be less evenly distributed than those of NSs with respect to modification type, such that the learners would segment individual words and phrases from their prior utterances more often than they would provide other modifications such as lexical substitution and paraphrase.

A final, and perhaps all too obvious, difference between learners and NSs as providers of modified input concerned the "grammaticality" of their responses. We did not make predictions as to the conformity of learner versus NS responses with respect to rules of L2 morphosyntax, as we were quite certain that such rules would be followed less frequently in the responses of learners. Indeed, the linguistic inadequacies of learners' interlanguage as a source of L2 input have been described elsewhere, and have been held to account for incomplete L2 development in immersion and bilingual classrooms where learners have limited contact with NSs and work with each other most of the time. (Lightbown 1992; Lightbown & Spada 1991; Plann 1975; Porter 1983, 1986; and Wong-Fillmore 1992)

Within this context, therefore, we focused on possible differences among the learners' response types as a source of grammatical input for language learning. We believed it was important to know if certain types of response utterances might conform more to features of L2 morphosyntax, and therefore perhaps be more useful as input for L2 learning.

It was this latter possibility that led to the third hypothesis of the study. We predicted that learner responses that were simple extractions or segmentations of their prior utterances would conform more to L2 morphosyntax than responses characterized by other modification types.[4] This hypothesis was based on our observations regarding the brevity and simplicity of segmentation as a type of modification, compared to lexical and structural adjustments such as paraphrase, embedding, or relocation of utterance constituents. We believed that in extracting a single word or short phrase from a preceding utterance, then uttering it in isolation, learners would be more likely to reproduce this with L2 morphosyntax than if they attempted to substitute new words for it or to incorporate it into a more grammatically complex response. These three hypotheses on input form only a subset of the predictions of this study; other predictions were based on feedback and output studies. It is this work that we next refer to.

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[4] This hypothesis about learner responses addressed their "conformity to L2 syntax," rather than their "grammaticality" because of the well established view on interlanguages as rule-governed, predictably variable, and "systematic". See early works by Nemser (1971), Selinker (1972), Tarone (1982), for example, as well as an overview in Larsen-Freeman & Long (1991). Such a view implies that interlanguages have a grammar, even though not all of the rules and forms of this grammar conform to those of an L2 target. Thus, in shaping our final hypothesis about learner responses as input for L2 learning, our prediction was made, not with respect to the grammaticality of utterances generated by the learner's interlanguage system, but rather, in terms of the conformity of these utterances to those of the L2.

Feedback Studies and Predictions

Do learners' signals to each other during learner-learner negotiation provide the kinds of feedback available in learner-NS negotiation? That learners can be active feedback providers to other learners has been documented in a number of studies on learner interaction. Thus, Bruton and Samuda (1980) found that learners working together in the classroom made numerous correction moves. Similar patterns have also been revealed in conversations of L2 learners, as studies by Gass and Varonis (1985, 1989), Pica and Doughty (1985a, 1985b), and Porter (1983, 1986), have located many instances of learners calling attention to each other's errors as they negotiated toward comprehensibility of message meaning. Learners not only call attention to each others' errors, but they usually do this without miscorrection as observed in a variety of contexts of peer feedback (Rodgers 1988; Jacobs 1989). These maneuvers on the part of learners could be regarded as an implicit rather than an explicit form of correction.

For the present research, therefore, it was assumed that learner signals could serve to alert other learners as to the comprehensibility of their message utterances as well as the conformity of such utterances to L2 morphosyntax. Of concern for hypothesis testing, however, was the extent to which learner signals were actually encoded with L2 morphosyntax, and therefore might provide data for L2 learning. Here, again, our hypotheses were informed by our earlier studies on learners' use of segmentation as a type of modification in their negotiation with NSs. (Pica et al. 1990; see also Pica 1992a, 1992b, 1994). Based on these studies, we predicted that learners' signals which simply extracted single words or phrases from each other's prior utterances would outnumber their signals that modified these prior utterances in other ways. For example, signals can modify utterances through lexical adjustments of paraphrase and word substitution or through structural changes of embedding or relocation of prior utterance constituents. Continuing with the reasoning of our third hypothesis, on the grammaticality of learner responses as modified input, we also hypothesized that as a type of modification, learner signals that were simple structural segmentations of each other's prior utterances would conform more to L2 morphosyntax than their signals characterized by other modification types.

Output Studies and Predictions

Do learners modify their output when they participate in learner-to-learner negotiation? Research has revealed that learners are able to adjust and expand their original utterances when they respond to negotiation signals from NSs. (Pica 1989; Pica 1992a, 1992b, 1993, 1994, in press; Pica et al. 1990; Pica et al. 1991). That learners can have a comparable effect on each other's production has also been demonstrated in several of the studies noted above, among them, Bruton and Samuda (1980), Gass and Varonis (1989), Pica and Doughty (1985a, 1985b), and Porter (1983, 1986). These studies, though few in number, do suggest that, as learners interact among themselves, they provide each other with opportunities to modify their output toward conformity to L2 morphosyntax.

This pattern led to a prediction for the present study that learners would modify their production as they negotiated among each other as they have been shown to do during their negotiation with NSs. The hypotheses which followed, however, went beyond acknowledgment that learners would be able to modify their output during negotiation with each other. These hypotheses also took into account what studies of learner-NS negotiation had revealed about the effect of signal type on the modification process. (Holliday 1987, 1988; Pica 1987; Pica et al. 1989; Pica et al. 1991).

First, it should be noted that our previous research revealed few differences in the distribution of signal types across learners and NSs. Thus, of the learner signals we studied in learner-NS negotiation, close to 88 % of them repeated or modified their interlocutor's prior utterance while 12 % offered simple, open-ended questions and requests for greater message comprehensibility such as *what?* or *please repeat*. These figures were almost identical for NS signals to the learners. However, as noted above, our studies showed differences between our learners and the NSs in the responses they gave to each other's signals. NS use of modification was pervasive across their responses to learner signals, whereas learner modification was contingent on the way in which the NS signal was encoded.

Thus, when NS signals were open-ended, the learners in those studies responded with modified versions of their prior utterances. However, when NS signals modified learners' prior utterances and offered them L2 models, the learners responded with *yes* or *no*, seldom with yet another modification of their own. Thus, as in (2), the learner simply said *yes* when the NS signal (here, *you mean the trees have branches?*) took the form of a modification of an original utterance (in this case, *and tree with stick*), but in exchanges such as that of (4), the learner produced an elaborated response when asked the more open-ended *you have what?* Why did the learners in our studies modify their prior utterances much more often in response to open question signals than to signals which themselves supplied a modified version of a prior utterance? There were a number of possible explanations for these results.

One explanation of these modifications was related to the redundancy that the learners would have introduced by providing yet another modification to their original message. It was possible that the learners may have believed it communicatively unnecessary for them to further modify those NS signals which themselves offered a modified version of their prior utterances. A second possible explanation was related to the perceived L2 expertise of learners and NSs as negotiators. The learners might have regarded the NSs as L2 experts and, therefore, seen little reason to attempt yet another modification of their output. This explanation followed from our first, i.e., that learners perceived that further modification on their parts was not needed for comprehensibility of their message once the NSs had recoded it for them. Finally, the differential moves toward modification in learner and NS responses may have been due to the learners' relative lack of linguistic resources in this area. There was thus the possibility that, even if they had wanted to do so, the learners were unable to provide yet another modification because of either a limitation on their current L2 knowledge or an inability to formulate a modification spontaneously within the time demands of their negotiation.

These possible explanations for the output modification in learners' responses resulted in our final two hypotheses. Based on our earlier research on learners' negotiation with NSs, we predicted that learners' modified signals would not be any more effective than those of NSs in drawing forth modification of output from other learners, this due to learners' perceptions about their lack of need for further modification and/or their lack of linguistic resources for providing further modification. We predicted, therefore, that when learners were given signals from other learners that modified their previous utterances, the percentage of modified output in their responses would not differ from that in their responses to NSs.

On the other hand, the mutual lack of L2 expertise among learners made for the possibility that they would be more effective than NSs in drawing forth linguistic modifications from each other. This

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is plausible because the learners would perceive that each other's signals were offered to get them to make their messages more comprehensible, but not that the signals were offered as models of how this should be done. Thus, our final hypothesis was that when learners were given signals from other learners that modified their previous utterances, the percentage of modified output in their responses would be greater than that in their responses to native speakers.

Research Methodology

Subjects

The subjects for the study, all adult male volunteers, were thirty learners and ten NSs of English. Twenty of the learners were paired into one of ten dyads of learner-to-learner interactants and ten were assigned to ten NS-learner dyads. The learners were Japanese L1 speakers, enrolled in preacademic, low- intermediate level classes at university-based English language programs. Their mean TOEFL scores were in the 400-500 range. The NSs were college-educated speakers of standard English. Their assignment into dyads was based primarily on their availability for participation in the study. Since availability of many of the subjects was constrained by their school schedules, the dyads could not be assembled on the basis of random assignment.

Data Collection Procedures

Each subject dyad participated in a series of communication tasks, one of which was created for the present study, and the others were adapted from tasks used in previous, related studies (See, for example, Futaba 1993, Holliday 1993, Lewis 1993, Pica et al. 1990, Pica et al. 1991). A researcher introduced the subject dyads to each other, reviewed instructions for taping, then left them to work independently. An initial task was used as a warm-up activity whereby subjects could become familiar with each other linguistically and socially. This was followed by two experimental tasks, known popularly as jig-saw tasks and described below, that gave each subject potentially equal control over the information needed to carry out the tasks. The subjects were required to exchange this information with each other in order to execute the task successfully. See Doughty & Pica (1986) and Pica, Kanagy, & Falodun (1992) for a review of these and other tasks.

Based on previous research on task interaction, (Pica et al. 1992), it was believed that jig-saw tasks would provide a context for learners to negotiate with NSs and with each other in ways that could inform the questions underlying our study. It was also believed, following work of Damon and Phelps (1989), for example, that the research tasks would allow for co-construction of meaning among our language learner "novices," and thereby enable them to manipulate their output to a greater degree than in other types of groups in which knowledge is less equally distributed.

The first jig-saw task for five NS-learner dyads and five learner-learner dyads was to reproduce an unseen sequence of pictures of houses by exchanging verbal descriptions of their own uniquely held portions of the sequence. This "house sequence" task was described in Pica et al. (1989). The jig-saw task for the remaining five dyads of learner-learner and learner-NS dyads was to compose a single story based on individually held pictures from the story line of "The Uninvited Visitor," a story created for research purposes. Here, a woman forgot that she had turned on her gas stove as she proceeded to answer her door and sat down to a conversation with an unexpected guest. This "story task" focused on the sequencing of activities in the story and the foregrounding and backgrounding of story details.

As jig-saw tasks, both tasks were comparable in their interactional structure and in their distribution of information within the dyads. In addition, each dyad member was given the same number of pictures to describe. Within each task, the pictures themselves followed a similar format. There were comparably constructed houses in each of the "house sequence" pictures and the same story characters throughout the "story" task pictures. For both tasks, a screen was placed between the subjects which was sufficiently high for them to be unable to see each other's pictures, but low enough to allow them to look at each other's faces.

The reason that two different jig-saw tasks were used was that it was believed that their different emphases would allow the subjects to produce a broad range of input, feedback, and output modifications during their negotiation. As such, the "house sequence" task would engage learners in describing attributes, states, and conditions in their pictures. Such description might lead to negotiation which involved names and features of objects, individuals, and contexts. The "story" task, on the other hand, with its emphasis on a sequence of events, might lead to negotiation over actions and experiences, with reference to time sequences and relationships among events.

Data Coding and Analysis

Tape-recorded conversations were coded within a slightly modified framework and categories that had been used in a series of studies (Pica 1987; Pica et al. 1989; Pica et al. 1991), where both the framework and coding categories are described in detail. In the framework used to code the present data and to describe the learner-NS Excerpts (1) - (4), inter-coder agreements ranged from .88 to 100.

Coded as lexical modifications were synonym substitution and paraphrase of all or part of prior utterances that triggered the signals and responses of a negotiation. Examples of these can be found in the discussion of Excerpts (1) through (4). Also referred to and described in Excerpts (1) through (4) are codings for structural modification. These include simple segmentations of individual constituents such as lexical items and phrases from prior utterances, segmentation with embedding into longer phrases or more complex utterances, and segmentation with relocation of prior utterance constituents, for example, from object in a prior utterance to subject in a modified utterance. This latter type of modification had been noted in the discussion of Excerpt (1).

Hypotheses 1 through 3 focused on utterances of response. Hypothesis 1 was tested by comparing the percentage of learner utterances of response that lexically and/or structurally modified their prior utterances during learner-NS negotiation with the percentage of NS utterances of response that did likewise during learner-NS negotiation. Hypothesis 2 was tested by comparing the percentage of learner utterances of response that modified their prior utterances through simple structural segmentation during learner-learner negotiation with the percentage of NS modified utterances of response that did likewise during learner-NS negotiation. Finally, Hypothesis 3 was tested by first identifying learner response utterances that showed conformity with L2 morphosyntax and then comparing the percentage that were simple structural segmentations of learners' prior utterances with those that contained other modification types.

Hypotheses 4 through 6 focused on signal utterances. Hypothesis 4 was tested by comparing the percentage of learner signal utterances that modified their prior utterances through simple structural segmentation during learner-learner negotiation with the percentage of NS signal utterances that did likewise during learner-NS negotiation. Hypothesis 5 was tested by first identifying learner signal utterances that showed conformity to L2 morphosyntax and then comparing the percentage that were simple structural segmentations of their prior utterances with the percentage of those that contained other modification types. Hypotheses 6 and 7 were tested by comparing the percentages of learner-modified responses that followed learner versus NS modified signal utterances during learner-learner and learner-NS negotiation.

Results and Discussion

Analysis of data and χ^2 testing of results found support for only Hypothesis 6 of the study, which had predicted that learners would not modify their output in response to other learners any more than they would in response to NSs. In addition, a trend was seen in support of Hypothesis 5, which had predicted that learner feedback signals of simple structural segmentation would show greater conformity to NS morphosyntax than their other signals.

Support was found for two other hypotheses, but not equally for both tasks used in the study. Hypothesis 1, which had predicted that learners would provide each other with less modified input than NSs, was supported on the "house sequence," but not on the "story" task. Hypothesis 4, which had predicted that learners would be given more feedback signals of simple structural segmentation from other learners than from NSs, was supported on the "story" task, with a trend toward significance on the "house sequence."

Many differences between learners and NSs as interactants, negotiators, and input providers was observed during data coding and examined in follow-up analysis. The most salient of these was the tendency among learners in the learner-learner dyads to extend each other's unfinished utterances with propositional content, either in isolation or incorporated into new structures. This pattern was also observed in the learner-NS dyads, but was not as prevalent therein. The results of hypothesis testing, observations, and follow-up analyses are discussed below.

Hypotheses 1, 2 and 3

These hypotheses addressed the relative contributions of learners compared to NSs as providers of the types of input that are considered important to L2 learning, with particular focus on the modified input offered during their responses of negotiation.

Hypothesis 1 had predicted that learners would offer each other proportionately fewer lexically and structurally modified utterances of response in their negotiation with each other compared to the NSs in learner-NS dyads. This was found to be the case for the "house sequence" task ($\chi^2 = 9.6482$, df = 1. $p < .05$). However, there was no difference between the proportions of learner versus NS modified responses on the "story" task ($\chi^2 = 0.78523$, df = 1, n.s.).

As shown in Table 1, the learners on the "house sequence" task produced 23 modified utterances of response to other learners in learner-learner dyads. These modified utterances were only 49 % of their total utterances of response. The NSs, however, produced 34 modified utterances of response to learners in the learner-NS dyads. This was 83 % of their total utterances of response. On the "story" task, as also shown in Table 1, the proportions of modified utterance of response were 57 % for the learners and 67 % for the NSs. Compared to the "house sequence" task, these figures were somewhat higher for the learners and considerably lower for NSs. These results suggest that it is not the learners that differ so much across tasks, but the NSs who do.

Hypothesis 2 had predicted that learners' responses of modified input during learner-learner negotiation would offer a greater number of structural segmentations of prior utterances, formed through isolated words and phrases, when compared to the number of NS responses of modified input during learner-NS negotiation. No support was found for this hypothesis. As shown in Table 2, both learn-

Table 1

Comparison of Learner v. NS modified utterances of response as modified input. (Hypothesis #1)

Communication Tasks	Response Type	Learner n	Learner %	NS n	NS %	Total	χ^2
House Sequence							*9.65
	Modified	23	49	34	83	57	
	Other	24	51	7	17	31	
Story							0.79
	Modified	31	58	58	67	89	
	Other	22	42	28	33	50	

Frequency and percentage of Learner and NS (Native speaker) Modified responses (Modified) + Other responses (Other). Total responses for House Sequence and Story communication tasks.

$^*p < .05, df = 1$

Table 2

Comparison of Learner v. NS segmented utterances of response as modified input on two tasks. (Hypothesis #2)

Communication Tasks	Response Type	Learner n	Learner %	NS n	NS %	Total	χ^2
House Sequence							0.19
	Segmented	6	26	6	18	12	
	Other	17	74	28	82	45	
Story							0.09
	Segmented	18	51	33	57	51	
	Other	17	49	25	43	42	

Frequency and percentage of Learner and NS (Native speaker) Segmented responses (Segmented) + Other modifications (Other). Total responses for House Sequence and Story communication tasks.

$^*p < .05, df = 1$

ers and NSs used segmentation for only a small percentage of their total modified utterances of response on the "house sequence" task: 26 % for the learners and 18 % for the NSs.

The percentage of such structures among the learners was much higher on the "story" task, with segmentations of prior utterances constituting 51 % of learners' responses to each other. However, this percentage was close to the 57 % found for NS responses. There were no significant differences between learners and NSs on either task (χ^2 = 0.1898, df = 1, n.s. for the "house sequence" and (χ^2 = 0.08898, df = 1, n.s.) for the "story." The differences, then, appeared to be between the impact of the tasks on learner-NS negotiation, not between learners and NSs.

Hypothesis 3 had predicted that the modified input offered through learners' segmented utterances of response would show greater conformity to L2 morphosyntax than that offered through their other modified utterances of response. However, this hypothesis was not supported (χ^2 = 1.49197, df = 1, n.s., for the "house sequence" and χ^2 = 0.13857, df = 1, n.s., for the "story"). Despite this result, however, closer examination of learner segmentations indicated that they were indeed a source of input on L2 morphosyntax. Yet, as noted in the above discussion of results on Hypothesis 2, there were simply too few of them relative to other modified utterances of response to support the hypothesis that segmentations would constitute learners' predominant source of modified input for L2 morphosyntax. This was especially evident on the "house sequence" task.

On the "house sequence" task, as can be seen in Table 3, all 6 learner segmented utterances of response showed conformity to L2 morphosyntax. However, compared to the total number of learner modified utterances of response that conformed to L2 morphosyntax, the 6 segmentations constituted only 38 %. As such, the infrequency with which the learners segmented their prior utterances in responding to each other made this type of modification an unlikely candidate as each other's principal source of grammatical input, even though the segmentations themselves were all encoded with L2 morphosyntax.

This disproportion was not as evident on the "story" task. As shown in Table 3, learners' utterances of response that conformed to L2 morphosyntax were divided evenly between segmentations and other modification types. In fact, there was a considerable amount of such conformity within the segmented utterances of response, as only 33 % were lacking in conformity to NS morphosyntax. Again, however, there were few segmented utterances of response relative to the total number of modified utterances of response. As revealed by results of hypothesis testing, learner segmentations of prior responses offered L2 morphosyntax, but, unfortunately, their infrequency suggested that they were not a major source of L2 morphosyntax during learner-learner negotiation.

Hypotheses 4 and 5

The next two hypotheses addressed the question of learners as a source of feedback for L2 learning, particularly for feedback whereby one would signal a need for message comprehensibility through segmentations of the other's prior utterances, and for feedback that could offer L2 morphosyntax. Hypothesis 4 had predicted that learner utterances as signals for each other's message comprehensibility during learner-learner negotiation would offer proportionately more feedback of simple structural segmentations of prior utterances compared to NS signals during learner-NS negotiation. This received considerable support, as learners were given larger proportions of utterances of this kind by other learners compared to NSs.

As shown in Table 4, learner signals that were simple structural

Table 3

Comparison of Learner segmented utterances of response v. other modified utterances of response in negotiation for conformity with L2 morphosyntax on two tasks (Hypothesis #3)

Communication Tasks	Response Type	Learner Conform		Learner Not Conform		Total	χ^2
House Sequence							1.49
	Segmented	6	38	0	0	6	
	Other	10	63	6	100	16	
Story							0.14
	Segmented	9	50	4	33	13	
	Other	9	50	8	66	17	

Frequency and percentage of Learner and NS Segmented responses (Segmented) + Other modifications (Other). Total responses for House Sequence and Story communication tasks.
$*p < .05, df = 1$

segmentations of each other's prior utterances were 79 % of their total number of modified signals compared to 56 % among the NSs on the "house sequence" task and 71 % of their modified signals compared to 22 % for the NSs on the "story" task (see Examples 5 and 6). These differences were significant for the "story" and not significant for the "house sequence," although there was a trend toward significance on this task. ($\chi^2 = 2.01231$, df = 1, n.s., for the "house sequence" and $\chi^2 = 19.905$, df = 1, $p < .05$., for the "story").

This result was distinctive not only because it was one of the only hypotheses that was supported through testing, but also because it revealed that learners could indeed produce a predominance of simple structural segmentation in their modification of prior utterances. As was noted above, a similar result had been predicted, but not supported, through testing Hypothesis 3. The distinction for Hypothesis 5, however, was that segmentation was tested with respect to learners' need to signal each other's prior utterances rather than to modify their own. Thus, when signaling for message comprehensibility, learn-

Table 4

Comparison of Learner v. NS segmented signal utterances in negotiation as feedback on two tasks (Hypothesis #4)

Communication Tasks	Signal Type	Learner n	Learner %	NS n	NS %	Total n	χ^2
House Sequence							2.01
	Segmented	26	79	10	56	36	
	Other	7	21	8	44	15	
Story							*19.91
	Segmented	30	71	10	22	40	
	Other	12	29	36	78	48	

Frequency and percentage of Learner and NS Segmented signals (Segmented) + Other modified signals (Other). Total signals for House Sequence and Story communication tasks.
*$p < .05$, $df = 1$

ers simply segmented a portion of each other's message utterances. However, when responding to signals for message comprehensibility, learners produced a variety of modifications to prior message utterances of their own.

There are a number of possible explanations for learners' different choices in their modification of signals versus responses. Segmentation in their signals might have been due to their wish to preserve either what they perceived to be the most salient part of the message and/or what they understood. Such a motivation might not have been warranted for follow-up responses to signals because in follow-up responses to signals the need was to restate and rephrase prior utterances that had not been understood. Another possibility is that the simple structural modification of one learner's feedback signal may have led the learner at whom the signal was directed to feel free or perhaps even obligated to attempt a variety of modification types to provide alternative versions of his original message.

Although an exact explanation for these different patterns in modification across learner signals and responses of negotiation could not

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be made on the basis of the data used in hypothesis testing, the different patterns are evident throughout the learner transcripts, represented in Excerpts (5) and (6), which contrast segmentation in one learner's signals with the more extensive modification produced by the other learner's responses. Both excerpts are from the "house sequence" task.

(5)

Learner	**Learner**
...the house has two maybe two stone steps **yeah steps its a entrance**	*two stone steps?* (segmented signal)

(6)

Learner	**Learner**
its wall is completely white yeah completely white it looks not wood it looks ah concrete	*completely white?*

The prediction of Hypothesis 5 was that learners' segmentation of each other's prior utterances would provide their main source of feedback on L2 morphosyntax. This prediction was somewhat complementary to that made for Hypothesis 3, which was that learners' segmentation of *their own* prior utterances would be their predominant source of *modified input* on L2 morphosyntax. As had been found for Hypothesis 3, Hypothesis 5 was not supported at the .05 level of significance ($\chi^2 = 2.922$, df = 1, n.s. for the "house sequence" and $\chi^2 = 3.3532$, df = 1, n.s. for the "story"). However, there was a trend in the direction of support, which held across both the "house sequence" and "story" tasks. Thus, as shown in Table 5, learners' segmentations constituted a large proportion of their modified signals that conformed to L2 syntax. This figure was 86 % on the "house sequence" task and 81 % on the "story" task. What must also be noted, however, was that learners showed conformity to L2

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morphosyntax across their modified signals overall, not only in those that were modified through segmentation. Such conformity was shown in 85 % of learners' modified signals for the "house sequence" and in 74 % for the "story."

Results on Hypotheses 4 and 5 thus indicated that, with respect to feedback, learners were given signals from other learners that were in keeping with what had been predicted. As such, the signals were predominantly segmentations of other learners' prior utterances, modified as isolated words and phrases, with conformity to L2 morphosyntax. This was a type of modification that learners had also been found to use in their responses to feedback signals, though to a much smaller extent in that context.

Hypotheses 6 and 7

Hypotheses 6 and 7 were based on a research question regarding negotiation between learners as a context for their production of modified output. As such, the hypotheses focused on possible contingencies between learners' modification of prior utterances in their responses of negotiation and the signals they were given to elicit these responses. Of particular interest was whether or not learners would produce modified output in response to each other's signals, even if the signals themselves had already modified the learners' utterances for them.

Results of hypothesis testing supported Hypothesis 6, that learners would not modify their output to a greater degree in negotiation with other learners than in negotiation with NSs ($\chi^2 = 2.064$, df = 1, n.s. for the "house sequence" and $\chi^2 = 0.174698$, df = 1, n.s., for the "story"). As shown on Table 6, on the "house sequence" task, learners responded to 26 signals from other learners that modified their previous utterances. Of these responses, only 31 % were modified versions of their previous utterances. This compared with 44 % in response to modified signals from the NSs. These figures were a

Table 5

Comparison of Learner segmented signal utterances v. other modified signal utterances in negotiation for conformity to L2 morphosyntax on two tasks (Hypothesis #5)

Communication Tasks	Signal Type	Learner Conform		Learner Not Conform		Total	χ^2
		n	%	n	%	n	
House Sequence							2.92
	Segmented	24	86	2	40	26	
	Other	4	14	3	60	7	
Story							3.35
	Segmented	25	83	5	17	30	
	Other	6	50	6	50	12	

Frequency and percentage of Learner and NS Segmented signals (Segmented) + Other modified signals (Other). Total signals for House Sequence and Story communication tasks.
*$p < .05$, $df = 1$

little higher on the "story" task. There, learners used modification on 64 % of their responses to modified signals from other learners and on 43 % of their responses to modified signals from NSs. Of interest, though not of statistical significance, was the finding that on the "house sequence" task, learners actually produced a smaller proportion of their modified utterances of response to modified signals from other learners than they produced in response to modified signals from NSs.

As discussed above, there are several possible explanations for these results. This includes the explanations based on the limited linguistic resources that learners have available to them to produce output modified through interaction and/or intervention. In the present study, such limitations of repertoire might have inhibited learners from attempting new forms and structures, even when they were interacting in peer relationships with other learners on tasks with an equal distribution of information and opportunities for participation.

Summary of Results of Hypothesis Testing

Taken together, results of hypothesis testing revealed that learners' negotiation with other learners addressed their needs for L2 learning in ways that were not always comparable to their negotiation with NSs, particularly with respect to their need for modified input in general and more specifically, for input modified in ways that conformed to features of L2 morphosyntax.

With respect to learners' need to produce modified output, however, results showed comparable production, whether learners negotiated with NSs or with each other. It must be recalled, however, that previous research had shown that learner-NS negotiation was not a particularly rich context for learners' production of modified output. When NSs offered signals to learners that modified the learners' own prior utterances, the learners' responses simply acknowledged these signals in lieu of further modification. Results of the present study, therefore, suggest only that negotiation with other learners is not any more limited than negotiation with NSs in helping learners to produce modified output.

Learners' strongest contribution to each other's needs appeared to be in the amount and type of feedback they provided through their signals of negotiation. Their signals segmented portions of each other's utterances, which often conformed to L2 morphosyntax. These signals, however, did not have an immediate impact on learners' modified production ,as indicated through their limited production of modified input and output in their responses. Additional follow-up comparisons of the learner and NS dyads, however, revealed potential assistance to L2 learning beyond that revealed through hypothesis testing. This was accomplished through their use of utterance scaffolding and completion, to be discussed below.

Table 6

Comparison of Learner modified utterances of response to Learners v. NS modified signal utterances in negotiation on two tasks (Hypotheses #6 & 7)

Communication Tasks	Response Type	to Learner M Signals n	%	to NS M Signals n	%	Total n	χ^2
House Sequence							2.06
	Modified	8	31	7	44	15	
	Other	18	69	9	56	27	
Story							0.18
	Modified	23	64	21	47	44	
	Other	13	35	24	53	37	

Frequency and percentage of Learner Modified Responses (Modified) + Learner Other Responses (Other) to Learner Modified Signals (Learner M Signals) + Native Speaker Modified Signals (NS M Signals). Total responses for House Sequence and Story communication tasks
$*p < .05$, $df = 1$

Completions

Though the focus of this study was on negotiation, in the course of analyzing our data we observed a phenomenon we call completions. Their existence which had been previously identified in a study by Pica and Doughty (1985a) as utterances in which interlocutors supply appropriate words or phrases to complete each other's utterances. Though completions did not occur inside any of the negotiation sequences in our current data, they seem to be a type of scaffolding (Slobin 1982), in that they are another way for interlocutors to continue communication (or meaning-making) by supplying each other with input to move the discourse forward. We found two types of completions in our data: those in which the word chosen for the completion had been previously used and those in which it had not. An example of each follows. Completions are shown in italics.

Learner A:	**Learner B:**
Hm. With who?	With someone.
Husband I think. No?	But uh
someone	someone.

In this exchange, Learner B hesitates, prompting Learner A to supply the word "someone" from Learner B's previous utterance.

Learner A:	**Learner B:**
is located the right side of the house	ah like a like a
like a cheese	yes cheese yes okay

In this exchange, Learner B's hesitation seems to indicate that he is having difficulty completing his utterance, whereupon Learner A repeats part of Learner B's utterance and suggests "cheese," a word not previously mentioned in the discourse, to complete the utterance. Learner B then expresses acceptance.

Our data revealed that completions constituted 3.9% of the total number of utterances in the learner-learner dyads versus. only .53% of the total utterances the learner-NS dyads. Thus we found almost eight times the number of completions among the learners when interacting with each other. The direction of this finding is consistent with that of Pica and Doughty (1985a). So then, while the quantity of negotiations is lower in learner-learner dyads, there may be other opportunities for learners to supply each other with input through discoursal components and thereby facilitate their learning. While we found that negotiations decrease in learner-learner dyads, it is possible that there were other sources of input and opportunities to produce output. In the case of completions, however, the input and output production was not of the kind researchers have considered "modified," and therefore, may not be relevant for the learners.

Conclusion

The present study was motivated by research on L2 learner interaction in general and negotiation in particular, which had generated the following questions and concerns: Can learners help one another to do what has been claimed to aid L2 learning, i.e., to modify their output lexically, morphologically, and syntactically? Through their output modifications, can learners make input and feedback which provide data on L2 lexis and morphosyntax accessible to each other? The study sought to move beyond endorsement of learner-to-learner work with respect to its contributions toward learner communication; we expand the work by asking questions about such interaction in terms of its contributions to L2 learning. The study sought to answer these questions within current theoretical perspectives on the roles of modified L2 input and feedback and the production of modified output in the L2 learning process.

On the question of whether learners can aid one another in L2 learning by modifying their speech, our research revealed that learners can be a limited source of modified input and modified output and that they can provide opportunities for accurate feedback, albeit in a simplified form. On the question of accessibility, the findings indicated that our learners provided more utterances of feedback of the simple segmentation type than did our NSs. These utterances were proportionately high in terms of L2 morphosyntax and therefore, might also have served as a source of useful L2 input. Thus, while our learner-NSs interactions did seem to provide more negotiations considered important for L2 learning, results suggested that learners could provide morphosyntactially adjusted L2 signals of the segmentation type when working with each other.

In summary, we found that negotiation between learners provided fewer quantitatively rich data for L2 learning than that between learners and NSs, but that it did offer data of considerable quality, particularly in the area of feedback. In pedagogic terms, we hope that these findings will be useful to classroom teachers with respect to the deci-

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sions they must make, especially when they feel logistically constrained to use dyads of learners in their classrooms. As researchers, we too were constrained by the limitations of our own research design and by our underlying theoretical assumptions about the input, feedback, and output requirements of learners for success with their L2 learning. We now await learners and their teachers at work in their classrooms to further inform our questions and concerns.

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