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"Information Gap" Tasks: Do They Facilitate Second Language Acquisition?

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This article reports the findings of the latest of a series of studies conducted to determine the effects of task type and participation pattern on language classroom interaction. The results of this study are compared to those of an earlier investigation (Pica & Doughty, 1985a) in regard to optional and required information exchange tasks across teacher-directed, small-group, and dyad interactional patterns. The evidence suggests that a task with a requirement for information exchange is crucial to the generation of conversational modification of classroom interaction. This finding is significant in light of current theory, which argues that conversational modification occurring during interaction is instrumental in second language acquisition. Furthermore, the finding that group and dyad interaction patterns produced more modification than did the teacher-fronted situation suggests that participation pattern as well as task type have an effect on the conversational modification of interaction.

Efforts to teach second languages within a communicative framework have led to certain methodologically motivated organizational changes in the classroom environment. To aim at specific needs of students as well as to captivate their interest, current ESL classrooms often feature a diverse assortment of instructional materials, learning activities, and student-teacher or student-student interactional patterns. In addition to using lessons in which they fully control classroom interaction, many teachers have regularly begun to employ small-group and pair work as a means of increasing their students' target language practice time. Classroom assignments now feature not only activities involving the introduction and practice of usage rules, but also tasks which encourage

the use of the target language in problem-solving and decision-making situations.

In sum, the *kinds* of activities students are engaged in and the *interlocutors* with whom they interact have changed with recent years. In light of these organizational changes in the ESL classroom, a series of empirical studies was conducted to examine the possible effects on classroom second language acquisition of learning tasks and interactional patterns currently in use (Pica & Doughty, 1985a, 1985b, 1985c).

PREVIOUS RESEARCH: THE EFFECT OF PARTICIPATION PATTERN

An initial study (Pica & Doughty, 1985a) compared conversational interaction in teacher-to-student and student-to-student interactional patterns during decision-making exercises of the kind well known in ESL materials. Of particular interest was the identification of differences in (a) grammaticality of input, (b) the amount of speech produced, and (c) the amount of modified interaction which occurred during these conversations. *Modified interaction* is defined here as that interaction which is altered in some way (either linguistically or conversationally) to facilitate comprehension of the intended message meaning. In the teacher-fronted activity, individual classes, together with teachers, who directed the interaction, had to arrive at a solution to a problem. As a class, they were given information about five families living in the 21st century, and then they had to choose which one was most eligible to adopt a child. In the group situation, 4 students working together had to choose among six potential recipients for a heart transplant. Thus, both teacher-fronted and group tasks involved arriving at a decision based on a description of a situation.

Although it had been hypothesized that there would be more conversational modification (operationalized as confirmation and comprehension checks and clarification requests, as defined by Long, 1980, and repetitions) by students in groups than with their teachers, these predictions were not borne out. In fact, the teacher-fronted situation engendered more conversational adjustments than did the group format. These counterintuitive results could not be considered to have great significance, however, because very little conversational modification was observed in either situation.

In view of the importance attached to conversational modification in making input comprehensible and thereby promoting second language acquisition (Long, 1981), it appeared that neither

participant-pattern format was especially conducive to the acquisition of a second language in the classroom environment. However, two potentially confounding factors—one having to do with the task, the other related to classroom pattern—may have influenced the results. These two factors, discussed below, led to the design of a second experiment.

The first concern was with the task employed in the investigation. Davies (1982) and Long (1980, 1981, 1983a, 1983b) have stressed the importance of using activities with a built-in, two-way information gap. *Information gap* refers to the existence of a lack of information among participants working on a common problem, but the term does not define the nature of the gap. *Two-way information gap tasks* are here defined (following Long, 1980) as those tasks which require the exchange of information among all participants, each of whom possesses some piece of information not known to, but needed by, all other participants to solve the problem. In this article, such tasks are referred to as required information exchange tasks to emphasize the obligatory nature of the gap and to avoid confusion, as the exchanges that occur are actually multidirectional rather than two-way. Long (1981) claims that such activities promote optimal conditions for students to adjust their input to each other's levels of comprehension (i.e., modify the interaction) and thereby facilitate their second language acquisition.

One-way information gap tasks are usually defined as tasks which do not require an exchange of information; they are referred to here as optional exchange tasks. In optional exchange tasks, participants decide whether or not to contribute to the solution of the problem. Often, as discussed below, confident and proficient speakers carry the conversation, and weaker students tend to opt out of the task altogether.

The decision-making activities used in the first study, while communicative in emphasis, were nevertheless not required information exchange tasks. Each participant's contribution to the decision, primarily in the form of arguments and opinions, may have been useful in helping other participants arrive at a group solution but was not necessarily required for making the final decision. In other words, completion of the task did not oblige participants to pool information known only to individuals as would be required by a multi-way information gap task.

As a result, the teacher and a few class members monopolized the conversational interaction in the teacher-fronted lesson, and the more fluent students did likewise within their individual groups. Thus, there were no constraints on all students to participate or to

adhere to any one topic. Many students tended to go along with the majority opinion of both their class and group when it came time to articulate the final decision; this occurred in spite of the fact that they had given prior indications of disagreement with their classmates. In some cases, if the students were not able to reach a unanimous decision, they would simply shift to a different aspect of the problem, thereby abandoning the topic at hand altogether.

Typically, in the face of group or class conflict of opinion, the less linguistically proficient students opted to avoid participation, and the less skillful debaters tended to capitulate rather than to make sure that their opinion was taken into account. The more expressive participants, including the teacher of course, dominated the interaction and supplied most of the input. The input generated by the proficient students and the teacher apparently was either beyond the processing capacity of weaker students, and hence incomprehensible to them, or simply was at their current processing level, and therefore did not necessitate interactional modification.

In the second instance, when students did not go beyond their existing level of understanding, they may have been influenced by the lack of motivation to reach a truly unanimous decision. Thus, in both teacher-fronted and group interaction during decision-making tasks, students may either have failed to have any idea of message content or may have understood messages so well that they did not need to ask for or provide adjustments in target language use.

The second possible explanation for the counterintuitive outcome of the initial study was that group work, for many of the reasons outlined above, may not have been the optimal format for activating modified interaction among the students. As happened in the teacher-fronted situation, the more fluent student(s) among the 4 in each group studied tended to dominate the decision-making activity, often providing input so far above the comprehension level of the other students that it was not challenged. At other times, the language produced by individual group members was easily understood so that little modification was needed; hence few adjustments were requested or produced in the group interaction.

We suspected that a combination of factors contributed to the null findings of this teacher-fronted versus group-work comparison. Potentially the most important factor was that the tasks employed did not require an exchange of information and thus resulted in a small number of confirmation and comprehension checks and clarification requests, all of which are believed to be vital to second language acquisition. For that reason, the number of conversational modifications which occurred in *either* participation-pattern format

was extremely low. Second, we had predicted that during interaction with a full class, the teacher would control the interaction in such a way that little modification would be required. Surprisingly, however, the students working in small groups *also* tended to structure the discourse so as to limit the need for adjustments. Thus, what we had thought were different participation patterns were more similar than we realized.

PRESENT RESEARCH: THE EFFECTS OF TASK AND PARTICIPATION PATTERN

Purpose and Hypotheses

A second study was conducted to examine these two factors. The major differences between this study and the earlier research are that (a) tasks were employed which had a *requirement* for information exchange and (b) in addition to comparing teacher-fronted versus group work on these tasks, a third interactional pattern—the student dyad—was introduced into the experimental design.

Our first hypothesis was that activities which required an information exchange for their completion would generate substantially more modified interaction than those in which such exchange was optional. Thus, there would be more comprehension and confirmation checks, more clarification requests, and more repetitions in the former than in the latter activity. Furthermore, we predicted that the number of interlocutors and the presence or absence of the teacher would influence the amount of modified interaction in the activity.

We believed that the teacher, more experienced in making sense out of interlanguage productions, would be less likely to seek clarification or confirmation of student utterances. The more proficient students would be more confident that their target language could be understood and therefore would be less likely to check the comprehension of their interlocutors. Less linguistically proficient students might feel reluctant or embarrassed to indicate their lack of comprehension in front of their teacher or a large number of classmates. Thus, we anticipated that the presence of the teacher and the dynamics of a large group of interlocutors should reduce the amount of modified interaction.

In the group situation, on the other hand, we felt that participants, sitting in closer, face-to-face view than in the teacher-fronted situation, might notice confusion on the part of fellow interactants and would therefore be inclined to check their comprehension. In

addition, we believed that the face-threatening nature of the task would diminish as the number of interactants decreased. Thus, opportunities for modification would be even more pronounced in the dyad situation, in which participants interacted only with each other.

This reasoning led to our second hypothesis: Although interaction is generated by all required information exchange tasks, more modified interaction would occur in the dyad situation than in the group situation, which would in turn provide more opportunity for modification than the teacher-fronted situation.

Subjects

The subjects in both the earlier and present studies were adult students and teachers from six intermediate ESL classes (three classes in each of the two studies). Classes were selected according to proficiency level: Pilot testing revealed that the task was challenging, yet not too difficult, for intermediate-level students. Those students who participated in group and dyadic activities were chosen at random by the classroom teachers. The students came from a variety of L1 backgrounds; the teachers were native speakers of English, all of whom had had several years of teaching experience.

Data Collection

To insure the validity of comparisons, data were collected for the present study through the same procedures used in the earlier study. Since the two sets of data were collected from different sets of subjects, the classrooms selected to participate in the present study were carefully matched to those in the earlier study on the variables of proficiency level, age, size (in both studies, class size ranged from 11 to 15), and teacher experience. Each activity was audiotaped, and as in the previous study, the researchers were not present during taping so that data could be collected as unobtrusively as possible.

Materials and Procedures

The required information exchange task developed for this study was carried out in each of three interactional patterns: teacher fronted, small group, and dyad. For the teacher-directed activity, each participant, including the teacher, was given a felt-board

"garden" and a number of various loose felt flowers which were to be "planted" (see Figure 1). At the beginning of the task, each board contained a tree, which was glued down in the center and served as a point of reference, and a display of a small number of flowers which had already been planted (i.e., glued down). No two boards contained the same display of already-planted flowers.

The object of the task was to plant the garden according to a master plot, which was not shown to participants until after they had completed the task. Individual boards displayed a different portion of the master plot to each participant, who was to instruct other participants on which flowers to plant and where to put them. Together, the participants possessed all the information to complete the task. (All the felt-board gardens superimposed on each other would comprise the master plot.) Individually, however, participants possessed only a few pieces of the garden puzzle.

All work had to be carried out by each participant behind the board, which was held in a semi-vertical position. The students and teacher were required to keep their own gardens and unplanted flowers out of sight of the other participants and were not allowed to hold up the unplanted flowers so that they could be seen by others. After completing the task, the students and teacher together compared their own gardens to the master plot.

Each individual was required to contribute because no other participant possessed the same information regarding the location of certain flowers on each felt-board garden. Furthermore, all participants had to understand each other's information about flower locations in order to accomplish the task successfully. Thus, we predicted that more modified interaction would be generated.

For the small-group task, the teacher was asked to choose, at random, a group of 4 students. This time the task involved arranging a new set of flowers of different shapes and colors into another configuration. For the dyad situation, the teacher chose 2 students from the group of 4, again at random, and a third distinctive arrangement of flowers had to be planted.

Ten-minute samples from each activity were later transcribed and analyzed to compare several features of interaction generated by the multi-directional, required exchange tasks in the three interactional situations.[1] These activities were conducted in the following order: teacher fronted, small group, dyad.

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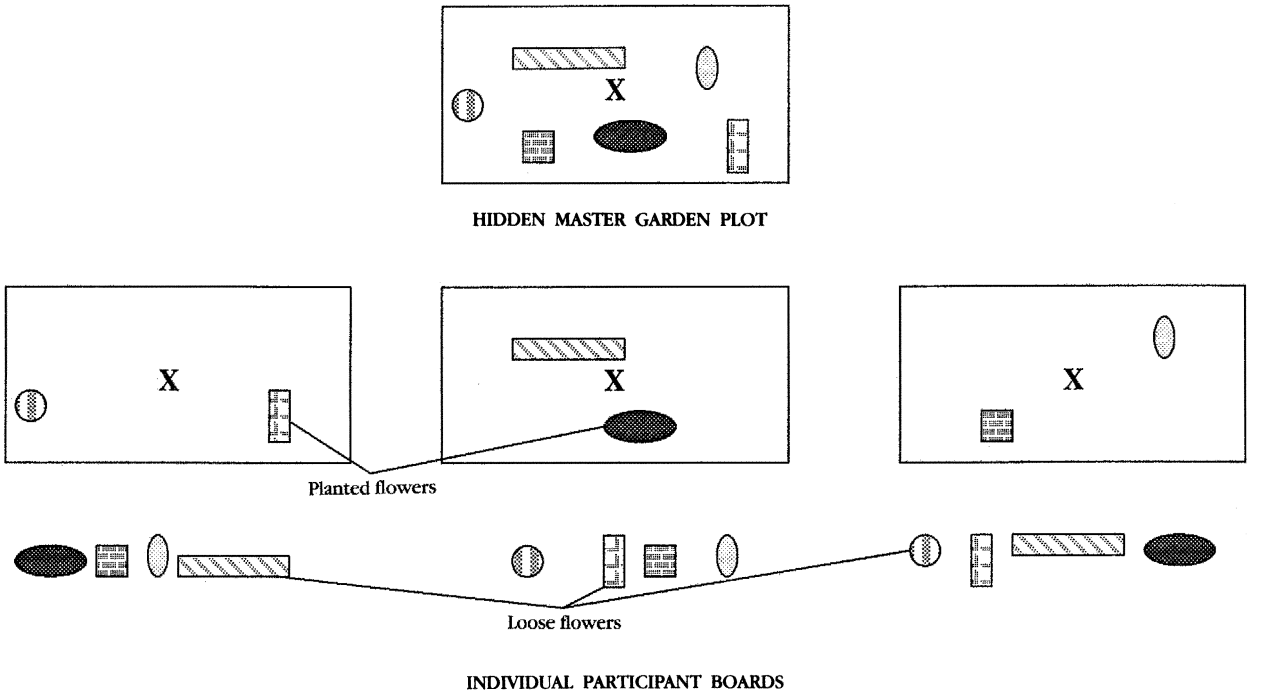
[1] Each sample was coded independently by both researchers. Interrater reliability scores of .88 for repetitions and .93 or higher for all other features of interactional modification (see Analyses) were obtained.

FIGURE 1
Required Information Exchange Task



Note: This is a reduced version, using abstract figures to represent the flowers used in the task.

To insure that differences among the three participation patterns were not due to a practice-on-task effect, two precautions were taken. First, the teacher conducted a demonstration lesson with the class, during which directions for planting the garden were given, the various materials to be employed in the tasks were introduced and described, and frequent checks of students' comprehension were made. Second, the teacher-fronted lesson, although always conducted before the group or pair work, was carried out in two parts. After 15 minutes of activity, the teacher stopped the task and conducted a question/answer period and class discussion. Then the task was completed. The 10-minute sample used for research purposes was taken from the last third of this phase, when the activity had been taken up again.

In all cases, the activity had been in progress for at least 20 minutes before the 10-minute sample for transcription was selected. We believed that by that time, students would be familiar with all the materials and with the procedures involved in exchanging information about them. Thus, any modification which arose would be due only to the need to exchange information (equal in all three tasks) and not to a need to clarify the procedures of the tasks (likely to be unequal across the tasks, as the first time through would be more difficult than the third).

Analyses

The features of modified interaction used in the analysis of the data collected for the present study are the same as those used in the earlier research. They include clarification requests, confirmation checks, and comprehension checks. *Clarification requests* occur when one interlocutor does not entirely comprehend the meaning and asks for clarification, as in the following example:

A: She is on welfare.

B: What do you mean by welfare?

In making *confirmation checks*, the listener believes he or she has understood but would like to make sure:

A: Mexican food have a lot of ulcers.

B: Mexicans have a lot of ulcers? Because of the food?

In making *comprehension checks*, the speaker wants to be certain that the listener has understood:

A: Do you know what I mean?

Several other features of modification are subsumed by the general label *repetition*. The categories of repairing, preventive, and reacting repetitions (Doughty & Pica, 1984) were developed to distinguish between classroom-related moves and the modification of interaction which has been claimed to be necessary for second language acquisition (Long, 1981).

In the analysis of the data for earlier research (Pica & Doughty, 1983), it was observed that many classroom repetitions are used for such purposes as (a) initiating topics during structuring moves, (b) insuring adherence to a topic or completion of a task when students' attention wanders, or (c) offering feedback to students regarding appropriateness of student responses. These classroom-related moves, called structuring and feedback repetitions (described more fully in Pica & Doughty, 1985b), were eliminated from analysis in the present study.

The only repetitions considered were those which occurred during actual or perceived communication breakdowns or when *both* interlocutors took an active role in establishing or developing topics. Such repetitions were examined both in the case of repeating one's own utterance (self-repetition) and restating another's utterance (other-repetition).

RESULTS AND DISCUSSION

The aims of this discussion are (a) to compare the amount of modified interaction generated in teacher-fronted and group interactional patterns when the nature of the task was manipulated, specifically, optional versus required information exchange tasks; (b) to compare the amount of modified interaction generated when the task was held constant and the participation pattern was manipulated, in this case, teacher-fronted versus small-group versus dyad participation patterns in required information exchange tasks; (c) to examine the role of repetition; and (d) to present ancillary findings on the total amount of interaction produced during a task.

The Effects of Task and Participation Pattern on the Modification of Interaction

A requirement for information exchange generated more modification of interaction than did a task with no such requirement. A two-way analysis of variance (ANOVA) revealed that the main effect for task was statistically significant, thus confirming the first hypothesis of this study (see Tables 1 and 2). The ANOVA also

showed that while the main effect for participation pattern was nonsignificant, there was a significant interaction of the two variables of task and participation pattern.

TABLE 1

The Effects of Task Type and Participation Pattern on Total Interactional Modification

	Modification		
Class	Teacher-fronted	Group	Total
	Optional exchange task		
1	52.4	47.5	
2	50.7	36.7	
3	41.4	36.1	
Total	144.5	120.3	264.8
	Required exchange task		
4	50.4	76.5	
5	47.1	56.3	
6	38.3	58.2	
Total	135.8	191.0	326.8
TOTAL	280.3	311.3	591.6

TABLE 2

Two-Way ANOVA: Task Type x Participation Pattern

Source of variance	*SS*	*df*	*MS*	*F*
Between-groups	0.093	3	0.031	
Task type	0.032	1	0.032	5.372*
Participation pattern	0.008	1	0.008	1.228
Task type x Participation pattern	0.053	1	0.053	8.815*
Within-group	0.048	8	0.006	
Total	0.140	11	0.013	

* $p < .05$.

The Effect of Participation Pattern on the Modification of Interaction

The results of a one-way ANOVA revealed a statistically significant main effect for participation pattern (see Tables 3 and 4). Modification of interaction was higher in the group than in the

teacher-fronted participation pattern. However, there was virtually no difference between the group and dyad interaction patterns in the amount of modification, as can be seen in the very similar modification scores. Thus, the second hypothesis of this study was confirmed insofar as group participation pattern resulted in more modification than did the teacher-fronted pattern; however, our prediction that the dyad would facilitate even more modification was not borne out.

In comparing the results of the analyses for both hypotheses, we observed that when both task and participation pattern are independent variables (i.e., manipulable by the teacher), task type has the overwhelming influence on the amount of modification. However, participation pattern is not unimportant: This is suggested by the interaction obtained between the two variables and is confirmed when task is removed as a variable and participation pattern then produces a significant main effect.

TABLE 3
The Effect of Participation Pattern on Total Interactional Modification

	Modification		
Class	Teacher-fronted	Group	Dyad
4	50.4	76.5	86.9
5	47.1	56.3	56.7
6	38.3	58.2	61.7
M	45.3	63.7	68.4

TABLE 4
One-Way ANOVA

Source of variance	*SS*	*df*	*MS*	*F*
Between-groups	2.16	2	1.08	76.01*
Within-group	0.09	6	0.01	

* $p < .01$.

Regarding the experimental design, although the group and dyad activities always occurred after the teacher-fronted task, there was clearly no practice-on-task effect. Practice on task would have

resulted in fewer modifications as participants became more familiar with the task and the task-related materials and thus became less likely to need clarifications on how to complete the activity. Instead, more interactional modification occurred during the group and dyad activities than during class interaction with the teacher.

One factor which may have helped produce these results is the *interactional* experience that comes from repeating a task. As Pica and Long (in press) have argued, native speakers (NSs) become more skilled in modifying interaction with nonnative speakers (NNSs) as they accumulate experience in NS-NNS conversation. It is possible that NNSs make similar gains through experience in interacting with other NNSs; however, there is as yet no research which equates NS gains in experience with NNS gains in experience. Assuming that experience *does* affect NNS-NNS interaction, the NNS students who completed all three tasks would have been better at modifying interaction on the third task than on the first. Clearly, NNS gains in linguistic and conversational modification skills through repeated experience in NNS-NNS interaction is an area of research which demands fuller investigation.

The Role of Repetition

In further analysis of the data, additional effects of the manipulation of task type and participation patterns were examined (see Tables 5, 6, and 7). These analyses, though somewhat more speculative, suggest implications for future research.

As discussed elsewhere (Pica & Doughty, 1985b), repetitions, while functioning in an important role as modifications of interaction, are puzzling at best to analyze. Much repetition occurs without affecting the interaction at all (e.g., the case of a teacher who repeats an utterance several times, even though students understood the first time). We found it useful to eliminate repetitions entirely from the analyses to insure that the results would be robust (i.e., not influenced by coding or interpretive factors).

Three features form a crucial subset of interactional modifications: clarification requests, confirmation checks, and comprehension checks. Table 6 presents the results of a two-way ANOVA of the difference in the amount of these modifications across task and participation pattern. These results are consistent with those which included repetition (see Tables 1-4) and thus eliminate any

TABLE 5

The Effects of Task Type and Participation Pattern on a Subset of Interactional Modification

Class	Modification		Total
	Teacher-fronted	Group	
	Optional exchange task		
1	12.4	13.1	
2	10.6	20.0	
3	9.4	8.3	
Total	32.4	41.4	73.8
	Required exchange task		
4	18.6	24.9	
5	14.1	34.5	
6	12.1	18.6	
Total	44.8	78.0	122.8
TOTAL	77.2	119.4	196.6

TABLE 6

Two-Way ANOVA: Task Type x Participation Pattern

Source of variance	*SS*	*df*	*MS*	*F*
Between-groups	0.048	3	0.016	
Task type	0.033	1	0.033	16.535**
Participation pattern	0.003	1	0.003	1.722
Task type x Participation pattern	0.012	1	0.012	6.062*
Within-group	0.016	8	0.002	
Total	0.064	11	0.006	

* $p < .05$. ** $p < .01$.

apprehension about the definition and role of repetition in interactional modification.[2]

The smaller number of confirmation and comprehension checks and of clarification requests which occurred during both teacher-

[2] In work currently under way (Pica, Doughty, & Young, 1985), we have attempted to clarify the definition of repetition, and by using videotaping techniques, we are now able to determine when and how repetition affects interaction. Repetition, we have found, may in fact be the most critical interactional modification; thus, it is important to continue to develop sophisticated data-collection instruments which can accurately record this variable.

fronted task types suggests that students may have been reluctant to indicate a lack of understanding in front of their teacher and an entire class of students. Thus, they may have attempted to behave as though they understood, even when they did not.

It is therefore possible that both teacher-fronted task types did not generate enough modification to make classroom input comprehensible to individual students. In the case of the garden-planting task, one of the participating teachers noted informally that in the teacher-fronted format, individual students' boards did not often correspond to the instructions given. In striking contrast, the participants in group and dyad interaction did manage to replicate the master plot quite closely.[3]

Total Amount of Interaction

Another area of interest is the total amount of interaction produced during a task. *Total amount of interaction* is defined as the sum of all T-units and fragments (Hunt, 1970). As shown in Table 7,[4] when teacher-fronted and group participation patterns were compared on both optional and required information exchange tasks, we found that there was more total interaction produced in the teacher-fronted pattern than in the group in both types of task. We also found that for *both* participation patterns, the total amount of speech increased when the exchange of information was required. However, the increase in the group was almost *10 times* that in the teacher-fronted situation—45.6% and 4.6% respectively. Thus, on the participation pattern variable, more total interaction was generated whenever the teacher was present, and on the task variable, more interaction was generated during the compulsory information exchange task. The teacher-fronted interaction on a required information exchange task generated the most total interaction, while the group interaction on the optional exchange task generated the least.

[3] Based on these informal findings, another series of studies is now being conducted to determine whether modification makes input sufficiently comprehensible for the successful execution of such tasks. In these studies, students are being videotaped to determine if their comprehension is sufficient for following directions about the placement of items on a board game (Pica, Doughty, & Young, 1985, 1986).

[4] The data in Table 7 are presented somewhat more informally than those presented thus far because two of the data samples for the groups working on decision-making tasks (collected in the earlier study) were 5 instead of 10 minutes in duration. For purposes of comparison with all other samples, the number of modified and unmodified utterances for these two samples was doubled, and percentages were calculated on the basis of these adjusted numbers. Only these two scores were adjusted; the others were used in their original form. However, since these are extrapolated numbers, no formal statistical procedures were performed.

TABLE 7

Total Interaction (T-Units and Fragments)

Task	Interaction		
	Modified	Unmodified	Total
	Teacher-fronted		
Optional exchange	406	412	818
Required exchange	385	471	856
	Group		
Optional exchange	180	234	414
Required exchange	400	203	603

In itself, this finding is not particularly astonishing. After all, teachers do tend to talk a great deal, speak more quickly, and hesitate less often in comparison with ESL students struggling to learn a new language. Thus, their fluent native speech would add to the total amount of interaction. Indeed, during the decision-making tasks of the first study, this was clearly the case. During these tasks, teachers produced almost half of the total number of utterances in reaching a decision with their classes. In other words, teachers spoke about as much as the total number of students combined.

However, in working with their classes on the garden-planting task, the teachers did not contribute as extensively to the interaction. In fact, one of the participating teachers seldom spoke, except when giving directions and when taking a turn to impart information about his flowers. In the 10-minute sample which was analyzed, this teacher contributed only one utterance to the classroom conversation—a confirmation check. Thus, the students did more talking on the required information exchange task, whether working with their teachers or in groups of 4. This is probably because the required interaction task places all participants in equal positions, each with the same amount of information, which must be disseminated to other participants.

This finding stimulated interest in another question: When the amount of total interaction increased, did the increase occur in the number of utterances characterized by features of modification (here, *including* repetitions) or in the number of utterances *not* considered to function to modify interaction? In the teacher-fronted situation, there was an increase of 14% in the area of unmodified interaction, as compared with a decrease of 5% in the utterances

which contained features of modification. In the group situation, however, there was a substantial increase in the amount of modification—122%—and a decrease of 13% in the amount of unmodified interaction (see Table 7).

CONCLUSIONS

Enthusiasm about group work in the classroom must be tempered by the observation that at times, the teacher's absence can limit the amount of modification which takes place when the students interact. This seems most likely to happen in tasks which do not compel the students' full-fledged participation. Thus, decision-making or optional exchange tasks of the kind used in our earlier study do not trigger modifications among students working independently in groups. This participation pattern facilitates the modification of interaction only if the task requires an exchange of information. Unless a required information exchange task is chosen, students will interact less and will modify their interaction less as well. While a required information exchange task will compel students to talk more in either a teacher-fronted or a group situation, this increase in total production will result in an increase of *modified* interaction only when students are working in groups.

Recent research, reviewed in Long and Porter (1985), has investigated the makeup of small groups. Studies by Porter (1983), Varonis and Gass (1983), and Gass and Varonis (1985) have shown that the presence or absence of native speakers and the group members' proficiency levels and L1 backgrounds all influence the amount of modification of interaction in this participation pattern. The most modification was obtained when (a) all members of groups/dyads were nonnative speakers, (b) members of groups had varying proficiency levels, and (c) members of groups had different L1s. These results are encouraging to teachers, as they reflect the makeup of small groups in most second language classrooms.

The findings of this recent research, together with the results of the present study, raise an important question: How much of the time do individual students actually engage in modification during a required information exchange? Although the potential for modification among students is present at all times, certain students may not interact because their more limited linguistic proficiency prevents them from processing certain linguistic input. Other students may understand everything that is said during a required exchange of information and therefore may not need to engage in

modification of the interaction. Such aspects of the interaction must be investigated further.

Another consideration is the effect of the modification of interaction on students who are listening but not participating in a particular exchange. In a typical classroom exchange, these listeners may simply tune out, especially if the interaction is beyond their current processing capacity. However, if all participants need to know each other's information, students not directly participating in a modified exchange of information may nevertheless be indirect participants in the ensuing conversational modifications. This would be especially true if they are at the same processing capacity level as at least one of the direct participants. Thus, the indirect effects of the modification of interaction on listeners are another vital area of research.

The results of this study have shown that when an exchange of information is guaranteed, a great deal of modification can be generated in a nonnative-speaker group situation. Coupled with the finding from another earlier investigation (Pica & Doughty, 1983) that individual students produce more input and have more input directed toward them in group than in teacher-fronted interaction, it may seem that the exclusive use of group work in the second language classroom is in order. However, such a recommendation would be shortsighted.

An important result of the earlier study must be kept in mind: Whether working in a teacher-fronted situation or engaged in group interaction, the students produced a large number of ungrammatical utterances. The teacher, therefore, was the major (if not the only) source of grammatical input in the classrooms. If a primary goal of classroom language instruction is the development of communicative competence, a component of which is linguistic competence (Canale & Swain, 1980), this important finding must not be ignored. (See Doughty, 1985, for a discussion of the effects of exclusive peer work in the classroom and Long & Porter, 1985, for opposing arguments.)

Overall, however, on the basis of our combined research, it appears that group work—and for that matter, pair work as well—is eminently capable of providing students with opportunities to produce the target language and to modify interaction. In keeping with second language acquisition theory, such modified interaction is claimed to make input comprehensible to learners and to lead ultimately to successful classroom second language acquisition (see Long, 1981, 1983a, and Krashen, 1980, 1982, for reviews of this literature).

As demonstrated in the above discussion, however, group activities do not automatically result in the modification of interaction among the participants. To be effective, group interaction must be carefully planned by the classroom teacher to include a requirement for a two-way or multi-way exchange of information. Thus, the teacher's role is critical not only in providing students with access to grammatical input, but also in setting up the conditions for successful second language acquisition in the classroom.
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