Teacher-student interactions in the ESL classroom: an investigation of three-part exchanges, teacher feedback, and the role of gender

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Teacher-student interactions in the ESL classroom:
An investigation of three-part exchanges, teacher feedback,
and the role of gender
by
Marguerite Louise Sibley
A Thesis Submitted to the
Graduate Faculty in Partial Fulfillment of the
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MASTER OF ARTS

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Signatures have been redacted for privacy

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INTRODUCTION

Basic research conducted in the second language learning context of the classroom has flourished in the past few years. Investigators have entered the classroom to collect data on a myriad of aspects of the language learning environment, and a rich body of literature is accumulating on the use of language by teachers and learners.

Interactions between teachers and learners have been the focus of many studies in English as a Second Language (ESL) and related fields, based on the assumption that opportunities for oral production coupled with feedback from teachers will facilitate the learning process.

Such assumptions, however, while gaining some support from studies on factors influencing language acquisition, are still unproven. Moreover, specific data on the primary interactive classroom format known as the teaching cycle (teacher question-student answer-teacher response) is still lacking in the ESL literature.

This project was designed to help fill this gap in the knowledge of ESL classroom interactions. By focusing on the teaching cycle, and especially the critical stage of teacher responses to student answers, it is an attempt to increase understanding of the dynamics of the learning environment.
Research in Education has shown that teacher-student interactions at all levels of schooling in the United States are biased by the gender of the students, but this assertion has not been tested in studies of ESL classrooms. Therefore, testing for gender bias or equity in teacher-student exchanges is a secondary goal of this research.

Researchers have made a repeated call for more studies to test proposed hypotheses on classroom interaction, to add strength to previous studies by increasing sample size or altering other variables, and particularly to compile data on yet unstudied aspects of second language classrooms.

By combining qualitative and quantitative data on interpersonal communication from observations of ESL classrooms, this research adds to the literature by addressing the relationship between teacher-student exchanges, gender, and the learning context of the ESL classroom.
LITERATURE REVIEW

The subject of teacher-student interactions in the language classroom has been the basis of numerous studies in several fields. Investigations of gender equity in the classroom and how these issues relate to L2 acquisition have also been plentiful during the past decade.

To review the literature relevant to this study, I will first discuss sources which provide a theoretical background for a qualitative approach, the use of ethnographic methods, and the foundations of classroom research. This will be followed by a discussion of studies on classroom interaction, and particularly the stages of the teaching cycle, or three-part exchange, with a focus on teacher feedback.

The question of sex roles, gender bias, and ethnic differences in the classroom environment will next be addressed. How classroom participation and the quality of interactions relate to language acquisition will be considered in a summary of the work of several researchers.

Finally, the findings most pertinent to this study will be summarized.

A Qualitative Approach

According to Miles and Huberman (1984: 15), many scientific fields "have recently shifted to a more
This move away from a purely numerical and statistical emphasis shows an interest in broadening bases of knowledge by opening up investigations of more subjective and effective data. Such research involves extensive fieldwork during which investigators regard all activities and interactions as relevant data.

Miles and Huberman state that the two extremes of qualitative research are loose, highly inductive research designs and tight, prestructured designs (1984: 27). Most research lies between, for something is usually known about the phenomena to be investigated (enabling the researcher to give some initial structure to the project), but there is not always enough known to form testable hypotheses. Unless time, personnel, and research funding are limitless, there is a need to limit the scope and number of variables in the study. This may necessitate the use of structured data recording instruments, and a concomitant move away from taking fieldnotes on all observable facets of the case in study. The point is succinctly stated by Miles and Huberman: "Focusing and bounding data collection can be seen usefully as anticipatory data reduction; it is a form of preanalysis, ruling out certain variables and relationships, and attending to others" (1984: 27).

Such preplanning allows researchers to collect some numerical data to add to their qualitative notes. Careful,
scientific analysis and display of results are also highlights of recent qualitative studies. The value of qualitative research, according to Miles and Huberman, lies in the ability to produce rich descriptions and explanations, the greater likelihood of serendipitous findings, and the power of generating novel ideas which help researchers go beyond their initial preconceptions and frameworks (1984: 27).

The Use of Ethnographic Methods

Taking an ethnographic perspective means "...taking a non-judgemental stance, exploring the meanings of communication patterns from the perspective of the informants, and describing the concrete details of a specific setting" (Schneider, 1989: 29). This implies a move away from research in experimental settings, demanding instead that the investigator observe natural human environments in an attempt to explain the "whys" of interaction from an etic (outsider) and an emic (words of insider) point of view. This perspective is crucial to understanding the classroom environment, and was a basic approach used in this research.

According to Watson-Gegeo, who has written on the use of ethnography in ESL (1988: 575), borrowing ethnographic methods from Anthropology allows the investigation of issues such as "sociocultural practices and details of classroom
interaction which are difficult or impossible to address through traditional experimental studies." She stresses that both qualitative and quantitative methods may be used, but all observations must be "systematic, intensive, and detailed" (577).

The use of ethnographic methodology in ESL research is a recent addition to the field, and can be used without undertaking a complete longitudinal and latitudinal ethnographic study of the classroom as would be typical of traditional ethnography. Rather, ESL researchers such as van Lier (1988), Watson-Gegeo (1988), and Schneider (1989) are encouraging the use of these methods to enrich our understanding of language use and L2 learning.

Classroom Research

In 1975, early work in the area of classroom research was published by Sinclair and Coulthard in their discourse analysis of teacher and student talk. Since that time, Grandcolas and Soule-Susbielles explain that the classroom has become accepted as a "legitimate and autonomous candidate for educational and linguistic research" (1986: 293). And Schneider notes that "Ethnographic studies of language use in the classroom have gained popularity in recent years as an outgrowth of traditional ethnography in Anthropology and Sociology" (1989: 29).
Examples of this new emphasis in L2 research can be found in the anthology *Classroom Oriented Research In Second Language Acquisition* (see articles by Gaies, Long, Long and Sato, and Nystrom, 1983) and in the recent works by Allwright (1988) and Chaudron (1988). These sources cover a wide range of studies on issues relevant to classroom research, including teacher talk, turn-taking, types of teacher questions, teacher and learner feedback, and error correction.

A practical reason for this new emphasis was noted by van Lier (1988: xvi-xvii): "Ethnographic classroom research illustrates classroom methodology, and is therefore of immediate relevance to classroom teachers," and it can, "increase their professional awareness through a better understanding of classroom interaction."

The importance of adding to the knowledge of L2 instruction in the classroom is stressed by all of these researchers.

Interaction in the Classroom

According to Gaies, there has been a shift in research focus from the nature of language input in the classroom to the "nature of interaction between native speakers and second language acquirers" (1983b: 208). Gaies (1983a) and van Lier
(1984), among others, provide useful guidelines for analysis based on verbal interactions in the ESL classroom.

Allwright explains that with a goal of having students achieve a high degree of communicative competence, instruction in the classroom has "relied heavily on the value of interaction--of live, person-to-person encounters" (1984: 156). He believes that such interaction should be "inherent in the very notion of classroom pedagogy itself," and "... successful pedagogy, in any subject, necessarily involves the management of classroom interaction" (1984: 158-159).

Allwright explains the five aspects of interaction which he believes to be equally applicable inside and out of the classroom: management of turn, topic, task, tone, and code (1984: 161-163).

Research on interaction, like other types of classroom research, can be looked at in qualitative and quantitative terms. Interaction can be quantified by recording how much there is of it in time and volume, in terms of the class as a whole, or in terms of individuals. Qualitatively, we can look at the different ways in which learners participate, and how intensely, spontaneously, and actively they do so. Once again, we "may use quantitative techniques in the service of interpretive (qualitative) enquiry" (van Lier, 1988: 92).

Others have asked just what type of interaction there should be in classroom to enhance comprehension. Pica,
Young, and Doughty (1987: 754) insist that "teacher-student relationships and patterns of classroom interaction are required that are radically different from the pattern of teacher elicitation, student responses, and teacher feedback that is typical of classroom discourse." The results of their study on L2 learners provide support for the modification of classroom interactions to improve student comprehension of input (1987: 753).

It is important to note that voluntary participation has not been proven to be a key variable in successful classroom second language acquisition (Pica, Young, and Doughty, 1987: 755). Some learners may not be interacting verbally, but thinking, listening, and internal repetition may still be taking place. Regardless, van Lier points out that it is still "useful to describe active participation in the classroom since it is a prerequisite for interaction and hence communication" (1988: 93).

Outside of ESL, college-level education studies have shown that "interaction with faculty is the key factor responsible for student learning and satisfaction with college" (Sadker and Sadker, 1987: 6). An interactive classroom as opposed to, for example, a lecture format, is one that involves all people in the classroom in intellectual dialogue.
As a final note, the importance of language use in the classroom, and how it relates to learning is described by Grandcolas and Soule-Susbielles:

...if the goal of foreign language teaching was the mastery of a linguistic system, efficiency was measured by the quantitative amount of correct sentences produced unfalteringly by the pupils...

Today more weight is given to those searchings, negotiations, misunderstandings, readjustments, and other moves contributing to the exploration and conquest of meaning, which is exactly the purpose of the foreign language classroom. If any learning is to occur, it will be through this painstaking and tortuous communication with the learning object - in other words, with the language itself. (1986: 304-306)

The Teaching Cycle: Three-Part Exchanges

What is the dominant type of interaction that transpires in the classroom? Sinclair and Coulthard (1975) found that nearly half of the teacher-student interactions in the (non-ESL) classroom consist of three-part exchanges which make up the teaching cycle. Also called the pedagogical cycle, this form of interaction consists of three instructional moves:
a solicitation by the teacher (question), a response by the learner (answer), and a reaction, or feedback, from the teacher, which may involve evaluation, remediation, or other reactions. Due to its prevalence, the three-part exchange may be considered the basic unit of instruction, and "Often the difference between effective and ineffective instruction is determined by how well each of the stages... is implemented" (Sadker and Sadker, 1987: 14).

Such exchanges differ in significant ways from interactions in natural settings. van Lier states emphatically that three-part exchanges are not real communication because they produce a situation of rigid turn control in which "learners will not be able to explore the ways in which speaker change is effected through turn taking in the target language" (1988: 106). The content and activity of subsequent turns has been established by the teachers' questions, and the dominant position of teachers in such exchanges, including their right to make evaluative comments about the contributions of other participants, is unique to the instructional setting.

Nevertheless, the three-part exchanges are so prevalent in the second language classroom that they are an essential aspect of pedagogy that must be studied to better understand the dynamics of teacher-student interactions. Moreover, classroom researchers have found that three-part exchanges
typified a common, but very structured, style of teaching which may be "related to improvement in formal, literary decoding skills" (Chaudron, 1985: 230).

The three stages of the teaching cycle have all generated much research in an attempt to understand how they are employed, and how they relate to improving language proficiency.

Research on teacher questions has been extensive, but not in the field of ESL. Long and Sato (1983: 268) summarize the data, and conclude that teacher questions: 1) provide a means by which the teacher (the dominant participant) exercises and maintains control over others, and 2) possess a well-documented ritual nature, which is particularly apparent in the pervasiveness of the display question.

Display questions will be here defined as questions for which the teacher knows the answer, and thus, which can be answered correctly or incorrectly. They accounted for 79% of the content-area questions asked by ESL teachers to their elementary level adult students in Long and Sato's classroom study (1983: 277). Chaudron suggests that display questions are used so often because teachers are supposed to be evaluating the students (1988: 127). This may indeed be the main reason, because such questions are virtually unknown in informal conversations between native speakers and L2 learners.
Sadker and Sadker, in a review of non-ESL classroom studies, found that display questions generally solicit only one or two word answers, and suggest that referential, or open-ended questions, may be used to promote higher-order thought (such as analysis, synthesis, and evaluation) and far more complex answers (1987: 25). It has also been predicted that a higher percentage of referential questions would be used in second language classes for students at a high proficiency level, associating display questions with beginning L2 instruction (Long and Sato, 1983: 277).

Another very common category of teacher solicitation described by van Lier (1988) includes general, or undirected questions which are addressed to the class, with the expectation that several students will respond in a chorus. A very interesting point about how teachers may maintain order by the use of these undirected questions is made by van Lier (1988: 139). He states that, "In L2 classrooms, whenever centralized attention is required: a) one speaker speaks at a time; or b) many can speak at once only if they say (roughly) the same thing, or at least if (a proportion of) the simultaneous talk remains intelligible." He further notes that if this basic rule is violated "repair work will be undertaken."

Student answers are the second stage of the teaching cycle, and, as mentioned above, tend to be very short when
they are responses to the ubiquitous display questions. Answers may be correct, partially correct, or incorrect, or they may be open-ended in nature, supplying new information which is opinion or otherwise unknown to the teacher. Such answers characterize much of the students' role in classroom interaction.

Teacher feedback is the final stage of the pedagogical cycle. Allwright points out that "learners need to know whether the samples they produce are good ones . . .," and "Feedback given to one learner can be attended to, and possibly learned from, by any other learner willing to take the trouble to listen" (1988: 165). Research on categories of teacher responses to student answers and the subject of error correction fall within this domain.

A detailed look at research on feedback is presented below, as this subject is the focus of this investigation.

Teacher Feedback: Methods of Response

Sadker, Sadker, and Bauchner (1984: 10-12) undertook a three-year study of elementary school classroom interaction, and developed the INTERSECT (Interactions for Sex Equity in Classroom Teaching) Observation System to record the distribution and nature of teacher responses to students. Among other items on the coding form, this system contains four evaluative teacher moves (praise, acceptance,
remediation, and criticism), each of which will be examined here as they are reported in Sadker and Sadker (1987: 39). The examples of the wording of the responses are drawn from Sadker, Sadker, and Bauchner (1984: 11-12).

Praise is defined in Sadker and Sadker’s work as explicit positive comments of evaluation and reward for successful production. A strong verbal or non-verbal emphasis can turn neutral comments into praise. Examples include "very good!" and "excellent!" Praise was found to make up about 10% of teacher feedback.

More than half of teacher responses fall under the category of acceptance, according to Sadker and Sadker. This is a non-evaluative form of reaction which recognizes that a student has answered, and implies that the answer was correct or appropriate. "I see," "OK," and "uh-huh" are typical acceptance responses, which are characteristically short, non-specific, and imprecise.

Acceptance is the least helpful response in providing students with specific feedback, and the high percentage of these teacher responses "represent one of the major barriers to more effective teaching," setting the tone "for an unstimulating, rather placid classroom climate" (Sadker and Sadker, 1987: 39-40).

Constructive comments providing cues for further student elaboration are referred to by Sadker and Sadker as
remediation, and make up about a third of responses. Such comments are designed to improve student answers, and when used following incorrect answers, contain implicit criticism coupled with direction.

The final category of response which is considered by Sadker and Sadker is criticism. It is used less than 5% of the time, and is an explicit statement that an answer is wrong.

Expressions such as "No" and "That answer is wrong" are typical, and they need not be punitive or harsh. These differ from responses in the remediation category because they end the exchange with the student, do not give the student a chance to self-correct, and may be followed by a teacher correction.

In a study of bilingual elementary programs, Nystrom determined that "[e]rror correction is a highly variable aspect of student-teacher interaction" for there are many factors at play (1983: 170). Chaudron (1988: 135) summarizes an extensive body of literature on error correction, and points out that much research has been done on whether all mistakes are corrected, and when and how errors are repaired. He notes that most error correction occurs when the instructional emphasis is on form.

Several studies indicate that teachers are inconsistent in whether or not they ignore errors, and what kind of errors
they correct. For example, Nystrom makes the important point that "teachers are often ambiguous in their delivery of error responses. They do not always make clear which form was wrong, or even whether the error was one of form or meaning" (1983: 170). According to van Lier (1988: 211), research has not been sufficient to discover what kinds of error repair are beneficial in L2 development.

In the classroom, there is a heavy emphasis on teacher-repair, as opposed to non-classroom settings, where self-repair is most common. Kasper (1985: 200, 214) notes other patterns of classroom repair, including teacher suggests and student repairs, and student initiates repair and teacher completes it.

In summary, feedback "may constitute the most potent source of improvement in both target language development and other subject matter knowledge," yet this relationship is not understood (Chaudron, 1988: 133).

The Effect of Gender and Ethnicity

Gender, defined here as the learned, cultural behaviors associated with the two biological sexes, has been shown to be a major factor influencing interactions between teachers and students. Stitt (1988: 3) explains that "gender bias is a set of beliefs or attitudes that indicates a primary view
or set of expectations of people's abilities and interests according to their sex."

Differential treatment of male and female students may be reinforced by instructional materials, textbooks, and the curriculum, but Stitt stresses that teacher behavior may be the most important variable (1988: 24). Many teachers claim to have eliminated sexism in their classrooms, but research at all educational levels suggests otherwise.

In elementary schools, Sadker, Sadker, and Bauchner have suggested that "sex differential treatment of students may characterize the interaction process," and that studies of classrooms from preschool through high school have shown that teachers tend to give more attention to boys (1984: 1-2). In her work on building gender fairness in the schools, Stitt (1988: 41) reported that boys are more likely to be praised for academic performance, whereas girls receive less praise for their schoolwork and more praise for non-academic qualities like neatness.

It has also been found that boys receive, in general, more praise, remediation and criticism, which are all considered to be useful and important kinds of feedback. Acceptance was found to be the least gender biased teacher response, yet it is the response which is considered the most diffuse and least helpful in providing students with specific
feedback or helpful guidance (Sadker, Sadker, and Bauchner, 1984: 34, 42).

Several studies of college-level teacher-student interaction have shown that the pattern continues into higher education. In fact, Sadker and Sadker have found colleges to be more inequitable than elementary schools in the distribution of instructor attention, and males are more likely than females to be involved in exchanges with teachers (1987: 32).

Accounts of gender bias at the university involve many aspects of the relationship between teachers and students. Bennett, for example, documented gender bias in formal student teaching evaluations (1982: 178). Basow (1983: 2) analyzed the important variable of teacher sex, and found that university student expectations and perceptions in terms of warmth and expressiveness are stronger for female teachers.

Jenkins (1983: 3-10) summarized much research on the question of gender bias, and drew several pertinent conclusions about student-faculty communication. She states that the differences in treatment, "can occur through verbal and written language patterns, nonverbal communication, responses to student comments, and personal aspects of interactions with students." More specifically, she reports that teacher behavior had a greater impact on female
students, that male students had more and longer interactions with their professors, and that significantly more interactions occurred in classes taught by women.

The question of gender bias in teaching has prompted much research, but very little has been published on this subject in the area of ESL. In a recent article by Markham (1988: 404) it is reported that "[g]ender bias in listening recall also exists in the ESL context." He found that students pay more attention when listening to males than to females, increase their attention to detail when the female speaker is identified as an expert, but pay closer attention to a male lecturer whether or not they have been told he is an expert. I have found no ESL studies that specifically address the issue of classroom gender bias in interactions or teacher feedback.

It can be seen that gender bias exists at all levels of education, and it is likely to have a profound influence on the learners' participation in classroom activities, amount and quality of teacher feedback, attitudes, and possibly, on their language acquisition.

Discrimination on the basis of sex, even in these subtle guises, is closely related to discrimination of other groups, and a mention must be made of the variable of student ethnicity in the classroom. Many studies have focused on differential treatment of minorities (see Sadker, Sadker, and
Bauchner, 1984, for example). Long and Sato (1983: 269) state that "[c]ultural differences in conversational style among students and between teachers and students are likely to be important factors in ESL classes.... Ethnic differences have recently been found to relate to such issues as classroom speaking opportunities, and patterns of speaking behavior." Politzer and McGroarty's study of Asian and Hispanic students gave solid evidence that "the cultural background (and possibly professional specialization) has a great deal to do with the type of language learning behavior likely to be used by the students" (1985: 119).

Language Acquisition and Interaction

In all investigations of L2 classrooms, the ultimate question must be how the variables of the classroom environment are related to language acquisition. The relationship appears evident, yet, as van Lier explains, "As teachers, learners, teacher trainers, and researchers, we assume that language development can and does occur in the classroom. At present, however, this is little more than an assumption, and it is necessary to gather hard evidence to substantiate it" (1988: 16).

Although Day (1984: 95) stated that he found no evidence that the English proficiencies of his subjects were improved by classroom participation, he reported on numerous studies
which concluded that the amount of oral practice students have using the target language in the L2 classroom correlated significantly with L2 proficiency (1984: 70-71).

There seems to be general agreement on the assumption that oral L2 practice, and especially verbal interaction with native speakers, will benefit learning outcomes (see Gaies, 1983b; Long and Sato, 1983; Chaudron, 1985; Spada, 1986; and van Lier, 1988). But none of these authors were specifically investigating three-part exchanges, nor how teacher questioning strategies and teacher responses to student answers may enhance interactions and lead to L2 acquisition.

Summary

Research continues on the assumption that classroom instruction, and probably use of the target language in interactions in the classroom setting, aids in language learning. Long and Sato summarize this view with the statement:

While there is as yet no direct evidence that communicative use of the target language in the second language classroom is more beneficial to second language acquisition than engagement of learners in discourse whose focus is the language itself, there is an increasing amount of evidence that this is indeed the case. (1983: 283)
This review of the literature suggests that detailed ESL classroom research on the teaching cycle, focusing on teacher feedback and the role of student gender in such interactions, could lead to useful insight into the processes of language teaching and learning.
PURPOSE OF THE STUDY

The purpose of this study is to achieve a greater understanding of interpersonal dynamics in the ESL classroom, and especially to learn more about the nuances of teacher-student interactions. The study focuses on an analysis of the first and third (teacher questions and teacher responses) stages of the three-part exchanges which took place in Intensive English and Orientation (IEOP) classrooms.

Observations of ten teacher-student groups provided quantitative data on the exchanges. Qualitative observations of teaching techniques and other classroom activities were compiled, along with informant questionnaires completed by the teachers at the end of the field work period.

The data were analyzed in an attempt to provide answers to the following research questions:

1) What was the frequency of both display and open-ended referential questions asked by the teachers?

2) What percentage of the questions asked by teachers were answered by student volunteers vs. students selected by the teacher?

3) Were all members of the class called on, and did they volunteer, equally often?

4) What categories of responses were used by each teacher, and what were the frequencies of each response type?
The answers to these questions were calculated for each of the ten groups observed, and the data were also grouped to show the overall patterns of teacher-student interaction in IEOP.

The secondary purpose of this study was to investigate the question of gender bias or equity in teacher-student interactions. Therefore, interactions of the teachers with male and with female students were recorded to answer the following questions:

5) Was there any bias apparent in the rate at which teachers called on male and female students?

6) Was the total number of questions answered by male and female students equivalent to the proportion of each sex in the class?

7) Were the four teacher response types used equally with male and female students in proportion to their numbers in the class?
METHOD

To collect data for this study, I chose to observe classes in Iowa State University's Intensive English and Orientation Program. The nature of the program, the teachers who participated in the study, and the student population of the classes observed will be described to define the characteristics of the sample. The standardized research instrument designed to record classroom interactions will then be explained, followed by a complete description of the research procedures.

Subjects

The Intensive English and Orientation program is a year-round intensive program offering ESL classes to international students who have completed the equivalent of high school. Approximately 80-100 students, the majority of whom will enter U.S. universities, study in the program each semester. Students may remain in the program for one semester to one year or more, and usually continue until they pass the Test of English as a Foreign Language (TOEFL, 1987) with the score required by their various universities.

Students are placed in classes based on their scores on the English Proficiency Test (EPT, 1972), which is administered at the beginning and the middle of each semester.
(TOEFL scores, writing samples, and performance in previous semesters may also be considered, when such information is available). The number of instructional levels varies each semester based on the number of students and their proficiency levels. In the fall semester of 1989, when this research was conducted, there were eight classes: two beginning, three intermediate, and three advanced levels. I chose to limit the study to the intermediate and advanced levels, and chose ten classes from among them.

Each level of IEOP contains a basic core of four one-hour classes per weekday: Writing, Reading, Grammar, and Listening/Speaking. A fifth hour is spent in the Language Laboratory for the lower levels, and in a TOEFL preparation class or a Crosscultural Studies class for the upper levels.

I decided not to observe writing classes, since my previous experience in the program indicated that these tended to consist of group work, pair work, or individual writing activities, with little time devoted to the teacher-fronted interactional lessons I wanted to observe.

Therefore, I selected four grammar classes, four reading classes, and two listening/speaking classes to use in my research, and each class was observed two times. Jenkins (1983: 7) reported that in previous research on teacher-student interaction in non-ESL university classes "the type of subject matter in the observed classes did not affect
results," but the variable of class subject matter was included in this study to see if it might make a difference in interactions. The particular sections chosen resulted from ease of scheduling, and the need to observe each of the ten female teachers who taught in these levels.

To limit the number of variables in my sample, I asked only female teachers to help with this project. It is not clear from the literature whether teacher sex is a significant factor in the nature of classroom interactions, but there is some indication that this may be so (see Basow, 1983; Jenkins, 1983; and Markham, 1988). The decision to observe female teachers was also made necessary by the fact that there was only one male teaching the content area classes I was going to observe.

The ten teachers were all experienced in ESL instruction, averaging 9.7 years of teaching experience with a range of 2-18 years. All were well-acquainted with the IEOP, for their work within the program ranged from 2-15 years, with an average of 6.5 years.

I should note that I was personally acquainted with all the teachers who participated, though I do not believe this influenced my findings in any way (non-judgemental, descriptive fieldwork is not necessarily swayed by friendships!). This connection may have facilitated securing permission to observe so many classes, and may have
eliminated some of the natural uneasiness that comes with having an unknown observer in a class.

The 62 students who participated in this project included all of those enrolled in the intermediate and advanced levels of IEOP who attended at least one of the classes I observed. The 32 students in the three intermediate classes had scored between 48 and 79 (on a scale of 100) on the EPT, and for those who had taken the test, between 357 and 480 on the TOEFL. The 30 advanced students had scored between 62 and 89 on the EPT, and between 430 and 533 on the TOEFL.

An estimate of the age range for the students is about 18-40 years. There were 36 undergraduate students and 26 graduate students in all, with the majority of the graduate students in the advanced classes. These variables were not considered in this study, although they may account for significant differences in classroom participation.

Twenty countries were represented by the student population. East Asian students predominated, with 25 Japanese, 7 Korean, and 6 Taiwanese students. The six other Asian students were from the People's Republic of China, Hong Kong, Indonesia, and Malaysia. The eleven Latin American students hailed from Mexico, Guatemala, Honduras, Panama, Colombia, Peru, and Brazil. The remaining seven students
came from Greece, Mali, Poland, Saudi Arabia, Tanzania, and Turkey (2).

The advanced classes included more geographic diversity among the students than did the intermediate ones, for 27 of the 32 intermediate students were from East Asia. The possible ramifications of ethnicity on classroom interaction patterns will not be explored in this study due to limitations of time and the number of variables under investigation.

IEOP has a majority of males enrolled each semester, and my sample reflected this situation (see Table 1). Out of the 62 students in this sample, there were 36 males and 26 females. The number of males per class who attended the twenty classes I observed ranged from 2-11, while the number of females in each group ranged from 0-7.

I will refer to one teacher and the class of students she taught for one subject each day as a group. The ten groups I observed each had a different teacher, but many of the students were in two or even three of the groups. This is because I observed two classes of some levels, and the students were placed in different levels for different subjects based on their abilities.
Table 1. Total enrollment of each class, number of students attending each observation period, and breakdown of male and female students

<table>
<thead>
<tr>
<th>Group</th>
<th>Total Enrolled&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Observation A&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Observation B&lt;sup&gt;b&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group 1</td>
<td>18 (M=15, F=3)</td>
<td>10 (M=7, F=3)</td>
<td>11 (M=8, F=3)</td>
</tr>
<tr>
<td>Group 2</td>
<td>14 (M=7, F=7)</td>
<td>12 (M=5, F=7)</td>
<td>12 (M=5, F=7)</td>
</tr>
<tr>
<td>Group 3</td>
<td>11 (M=7, F=4)</td>
<td>7 (M=4, F=3)</td>
<td>6 (M=3, F=3)</td>
</tr>
<tr>
<td>Group 4</td>
<td>12 (M=5, F=7)</td>
<td>9 (M=3, F=6)</td>
<td>6 (M=2, F=4)</td>
</tr>
<tr>
<td>Group 5</td>
<td>8 (M=5, F=3)</td>
<td>6 (M=5, F=1)</td>
<td>5 (M=5, F=0)</td>
</tr>
<tr>
<td>Group 6</td>
<td>14 (M=8, F=6)</td>
<td>14 (M=8, F=6)</td>
<td>14 (M=8, F=6)</td>
</tr>
<tr>
<td>Group 7</td>
<td>12 (M=7, F=5)</td>
<td>7 (M=3, F=4)</td>
<td>7 (M=3, F=4)</td>
</tr>
<tr>
<td>Group 8</td>
<td>12 (M=6, F=6)</td>
<td>9 (M=4, F=5)</td>
<td>7 (M=3, F=4)</td>
</tr>
<tr>
<td>Group 9</td>
<td>12 (M=10, F=2)</td>
<td>8 (M=7, F=1)</td>
<td>9 (M=7, F=2)</td>
</tr>
<tr>
<td>Group 10</td>
<td>16 (M=11, F=5)</td>
<td>15 (M=11, F=4)</td>
<td>14 (M=11, F=3)</td>
</tr>
</tbody>
</table>

<sup>a</sup>Average class enrollment = 12.9 students.
Range = 8-18 students per class.
Number of males enrolled ranged from 5-15.
Number of females enrolled ranged from 1-7.

<sup>b</sup>Average number of students attending classes = 9.4.
Number of males attending ranged from 2-11.
Number of females attending ranged from 0-7.
Average percentage attending = 72% of students enrolled.
A quantitative data collection instrument was needed to record all the variables in the three-part exchanges I observed in each class. The INTERSECT Observation System mentioned above, which was developed by Sadker, Sadker and Bauchner (1984), was selected as a pre-tested model.

Using this form, I assigned each three-part exchange to one line, recording the manner used to solicit each student response, the sex of each student respondent, and the type of teacher feedback: praise, acceptance, expansion/remediation, and criticism (I retitled Sadker, Sadker, and Bauchner’s remediation category as "expansion/remediation" to better reflect the ways in which teachers used it).

The form designed for this project is included in Appendix A. It includes spaces to identify the group being observed, along with the level, subject, place, and time. For each exchange, there are columns to record whether the teacher called on the student or the student volunteered an answer to the question (in which case I could mark whether the student raised a hand or simply called out an answer). Under "Student ID", I divided the respondents by sex, and also could mark a code number to show which individual was participating.

One teacher response type could be marked for each exchange, and the spaces allowed room to write the exact
wording of most teacher responses. In the "Comments" column I could write if a question was open-ended (the default was a display question), if the student gave no answer, or if the teacher appeared to give no response. The other information which was to be coded on the form included all wrong answers, and if the teacher repeated the same question to begin another exchange.

Procedure

Permission forms

The first step of this project was to secure permission from the Iowa State University Committee on the Use of Human Subjects in Research. A description of the proposed research, including copies of consent forms for teachers and students, was submitted to the committee. The proposal and the protection offered to the subjects were found adequate, and the research was approved.

After discussing my proposal with the director of IEOP and securing her permission to proceed with the study, I attended a meeting of the IEOP staff to present a very general idea of my research plan. Details on the topic of the study were never revealed to the teachers until the observation period was over, in order not to influence their classroom behavior. Informed consent forms were distributed to the teachers (see letter in Appendix A), and they were
given an opportunity to ask questions. All the teachers consented to take part in the study.

I also visited classes to obtain signed consent from every student, and had to attend six classes to talk with all the students who would be in my ten sample groups. I spoke briefly to the students about my project, passed out the consent forms, and gave the students a chance to ask questions (see student letter in Appendix A).

This took about five to ten minutes at the beginning of the period, and I individually answered queries from a few students who did not understand what they were being asked to do. Once it was made clear, every student signed willingly. A few students were absent for all of these visits, and I obtained their permission if they later appeared during one of the classes I observed.

I used the rest of these periods to practice coding teacher-student interactions on the observation form. This gave me a chance to view a variety of lessons, and I was surprised that three of the classes I visited included no three-part exchanges (luckily, only one of the twenty observations in my sample yielded this result).

**Establishment of reliability**

The reliability of the data collection instrument used in this study was estimated by employing a second coder to
simultaneously record data during four class periods. The woman chosen for this task is a graduate student in the Iowa State University TESL program who has experience as a teaching assistant in the IEOP program.

The form and method of coding were explained to her before the first joint coding session, and the variances in our coding were discussed before our second observation. I did not modify my coding procedure as a result of these discussions, but clearer descriptions of the categories and how to apportion observed interactions among them emerged.

The importance of this step has been stressed by Miles and Huberman:

Definitions get sharper when two researchers code the same data set and discuss their initial difficulties. Time spent on this task...reaps real rewards by bringing researchers to an unequivocal and common vision of what the codes signify and which blocks of data best fit which code. (1984: 61-63)

After two reading classes had been observed as training sessions, and the results of the coding compared, enough consistency was found to check for inter-rater reliability during observations which were part of the study. A grammar and a reading class were selected (Observations 1A and 9B) for joint viewing. After quickly drawing up a seating chart as the students came in to identify each individual (they
were identified on the coding forms as Male 1, Female 2, etc.), we coded independently during the hour-long classes.

A two-step reliability was established for each of these observations based on the method used by Mitchell, Parkinson, and Johnstone (1981), and explained in Chaudron (1988). First, agreement on segmentation of the data into separate three-part interactions was ascertained by dividing the number of interactions segmented in the same way by both coders by the total number of three-part exchanges counted in both codings. This first step determined how many interactions were counted in common by the two coders, and thus determined the number of interactions to be analyzed in step two.

In the second step of the analysis, inter-rater reliability was calculated by determining agreement within each category (that is, which student was involved in each interaction, and which of the four categories of teacher response was coded). Event-by-event agreement was determined by comparing how the coders coded each interaction, and identical coding for all categories within an interaction was considered correspondence. Disagreement in even one category was considered non-correspondence. The percentage of interactions within which correspondence was found was then calculated.
Table 2 presents the estimates of reliability obtained in the final two joint observations.

In the first step, there were 13 interactions identified in common by both coders out of a total of 14 identified in the first observation, and 40 out of a total of 41 were identified in common in the second. The two interactions not identified in common were very short answers provided by students and quickly accepted by the teachers with a nod in one case and a "yes" in the other.

Table 2. Estimate of inter-rater reliability

<table>
<thead>
<tr>
<th></th>
<th>Step 1</th>
<th>Step 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observation 1A</td>
<td>92.9%</td>
<td>92.3%</td>
</tr>
<tr>
<td>Observation 9B</td>
<td>97.6%</td>
<td>92.5%</td>
</tr>
<tr>
<td>Averages:</td>
<td>93.4%</td>
<td>92.4%</td>
</tr>
</tbody>
</table>

In the second step of the process, correspondence in coding was found in 12 of the 13 interactions segmented in the same way in the first joint observation, and correspondence was found in 37 of the 40 interactions in the second.
Two of the four instances of non-correspondence were cases where one coder observed that the teacher accepted a student answer when the other coder saw no teacher response. In the other two instances, one coder believed that the teacher tried to get the student to expand on an answer, while the other coder believed that the teacher was opening up the question to the class rather than continuing with one student.

The average estimates of inter-rater reliability for these two steps are 93.4% and 92.4%. Miles and Huberman suggest that researchers should aim for 90% inter-coder reliability (1984: 63), so our estimates can be considered quite good. Also, we had 100% agreement between coders on which individual student was answering each question in the three-part exchanges, and this gives much strength to the data on each student's (and total male and female) participation.

These tests to determine reliability pointed out several subjective aspects of the coding form. First, the segmentation of the classroom discourse into discrete three-part exchanges caused minor difficulties. The categorizing of the teacher responses was also debated. The second coder followed the instructions given to her during the training sessions, but did not feel, for example, that "good" should be counted as acceptance just like "yeah" and "OK." I had
decided that the teacher's tone of voice and the emphasis used in the feedback were as important as her words. Therefore, a very emphatic "Good!" response was coded as praise in a subsequent observation.

Observations

All classroom interaction data were collected during a three-week period of 20 IEOP classroom observations. Teachers were contacted individually as to when I could observe, and the only boundaries I set were that the classes 1) not be a testing period, and 2) that there would be some teacher-fronted activity (I told them that I preferred not to come to classes consisting solely of group work or individual activities).

I arrived at each classroom early, drew up a seating chart to identify the students, greeted and chatted with teachers and students as they arrived if time permitted, and noted the time when the lesson began. Informal talk between teachers and learners at the beginning and ending of lessons was not coded, and it was quite easy to ascertain when the actual lesson was beginning by the teachers' introductory remarks.

During the lessons, I filled in as many coding forms as were necessary, which sometimes took every moment of my time
(Observation 8B had 116 three-part exchanges in about 35 minutes). Usually, there was time between exchanges to note other aspects of the lesson, such as the nature of the activity, the apparent involvement of the learners in the lesson, subjective factors such as ambience and laughter, and the use of undirected, general questions, which were not coded on the form.

On a list of students attending during each observation, I also tallied the number of times each student initiated a contact with the teacher by making a comment or asking a question. These were totalled at the end of each observation and recorded as "student comments."

At the end of each class, I wrote additional fieldnotes while the ideas were fresh. The interaction data from the coding forms were analyzed at the end of each day.

Teacher questionnaire

After the observation period, a letter explaining my project and a two-page questionnaire were given to the ten teachers (see IEOP Teacher Questionnaire in Appendix A). The reason for this step is related to the use of the ethnographic approach (according to Schneider, 1989: 29), for it is important that the participants have a chance to speak for themselves on the issues under investigation, and that the researcher not simply deduce meaning from their actions.
The twelve questions were formulated to address the research questions and to provide information about other issues raised during the observation period (concerning techniques for soliciting student participation, and preferences for responding to various types of student answers).

The teachers were asked not to discuss the questionnaire with their colleagues until after returning it, and were also assured that their answers would be confidential and would not be compared with what each one of them actually did in class. Due to the end-of-semester rush, only seven of the teachers were able to complete the questionnaire.
ANALYSIS AND RESULTS

The results of this research will be presented in four parts. First, the quantitative analysis of the three-part exchanges will be displayed, and analysis of the data on gender differences in the interactions will follow. Next I will report the findings from the teacher questionnaires, and finally will give a summary of the teaching techniques observed which related to classroom interactions.

Analysis of the Three-Part Exchanges

The number of three-part exchanges recorded during the first (A) and second (B) observations of each group are shown in Table 3. The "Total" column represents the grouped results of the two one-hour lessons, and it will be these figures that appear in subsequent displays of data. This allows greater numbers of interactions to be analyzed together, but it must be remembered that these represent the totals for two class periods.

The overall average number of interactions per one-hour lesson was 27.4, with a range of 0-116 three-part exchanges. When the groups are arranged by subject of the classes, a large difference in averages is evident.

The four groups each of Grammar and Reading classes yielded averages of 33 and 32 interactions, respectively.
Table 3. Total number of three-part exchanges for each lesson and totals for the ten groups, arranged by subject of lesson

<table>
<thead>
<tr>
<th>Subject</th>
<th>Group Number</th>
<th>Observation A&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Observation B&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Total&lt;sup&gt;b&lt;/sup&gt; (2 lessons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammar&lt;sup&gt;c&lt;/sup&gt;</td>
<td>Group 1</td>
<td>14</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>Group 5</td>
<td>9</td>
<td>5</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>Group 6</td>
<td>11</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>Group 8</td>
<td>66</td>
<td>116</td>
<td>182</td>
</tr>
<tr>
<td>Reading&lt;sup&gt;d&lt;/sup&gt;</td>
<td>Group 3</td>
<td>36</td>
<td>54</td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Group 4</td>
<td>14</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Group 7</td>
<td>26</td>
<td>30</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td>Group 9</td>
<td>45</td>
<td>41</td>
<td>86</td>
</tr>
<tr>
<td>Listening/ Speaking&lt;sup&gt;e&lt;/sup&gt;</td>
<td>Group 2</td>
<td>0</td>
<td>5</td>
<td>05</td>
</tr>
<tr>
<td></td>
<td>Group 10</td>
<td>3</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>548</td>
</tr>
</tbody>
</table>

<sup>a</sup>Range: 0-116 interactions per lesson.

<sup>b</sup>Overall average: 27.4 interactions per lesson.

<sup>c</sup>Grammar lesson average: 33 interactions per lesson.

<sup>d</sup>Reading lesson average: 32 interactions per lesson.

<sup>e</sup>Listening/Speaking lesson average: 6.8 interactions per lesson.
The two groups of Listening/Speaking classes averaged just 6.8 three-part exchanges per lesson, and one of the four lessons included none. This should not be taken to mean that the classes were not interactional, however, for they included some group work, numerous undirected questions, and oral presentations.

These differences in the number of interactions per group were one of the few areas in which the subject matter of the classes appeared to be significant. Grammar and reading classes averaged 33 and 32 interactions per lesson, while the four listening/speaking classes in the sample averaged only 6.8 interactions per lesson.

The types of questions asked by teachers as the first stage of the teaching cycle were categorized as display or open-ended questions. Most of these designations were quite straightforward, and teachers often changed their tone and expression when changing to an open-ended question, indicating a break from the display exercises.

If the teacher asked one or more follow-up questions of the same student, I only coded the original question as the beginning of a three-part exchange, and grouped the others as part of the expansion/remediation response.

As reported above, Long and Sato found that 79% of elementary ESL teachers’ content area questions were display (1983: 277), and I found a similar majority, with 88.1% of
the questions to be display, and just 11.9% to be open-ended. Eight of the twenty classes I observed consisted primarily of three-part exchanges with display questions. My data do not suggest, as Long and Sato predicted (1983: 280), that there is a higher percentage of referential questions with more advanced levels.

I did not code the number of undirected questions asked by the teachers, but this style of questioning was used in all but one of the classes, and was the predominant style in six of the classes. Such general questions usually resulted in a small chorus of replies, but not once did I see the majority of the students verbally responding. In several classes, it was clearly the front row from which all the answers were coming.

Not including these uncounted general questions, there were two primary ways of soliciting students' answers. Out of the total of 548 exchanges, the teachers called on specific students (this includes going around the room in order so that an answer was required of the next student in line) 362 times, or 66.1% of the total. 186 times, or in 33.9% of the exchanges, the teacher allowed students to volunteer answers. In only two instances did a student raise a hand to volunteer an answer, and in every other case students simply spoke out when they wanted to answer.
Occasionally more than one student would begin to answer, and I recorded it as a three-part exchange only if the teacher indicated which student was to continue, or if one student clearly dominated, and the teacher responded to that individual. Obviously, a willingness to speak out, an ability to form a quick answer, and a loud voice were all assets to students wanting to participate.

When the teachers asked open-ended questions, they were more likely to call on students for answers (70.8%), and less likely to ask for volunteers (29.2%). In some cases, this was certainly because the open-ended questions were formed with a specific student in mind (for example, "Is that true in all Middle Eastern countries?"). In a few other cases the selection of a particular individual appeared to be an attempt to direct higher-level or more difficult questions at more capable or more prepared students.

It was usually impossible for me to know why the teacher was choosing certain students, but as I will show below, it may be because some students were not volunteering.

The data on teacher responses to student answers are displayed in Table 4. The results of the two observations for each group are added together, so the numbers represent two hours of lessons for each group. The actual number of occurrences for each category of response is listed first,
Table 4. Teacher responses to student answers with results of the two observations of each group added together

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Teacher Responses</th>
<th>Praise</th>
<th>Accept.</th>
<th>Expan./ Crit.</th>
<th>No</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>1</td>
<td>35</td>
<td>5</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3%</td>
<td>79.5%</td>
<td>11.4%</td>
<td>0%</td>
<td>6.8%</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0%</td>
<td>100%</td>
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<tr>
<td>3</td>
<td></td>
<td>11</td>
<td>60</td>
<td>10</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12.2%</td>
<td>66.7%</td>
<td>11.1%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>2</td>
<td>11</td>
<td>12</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8%</td>
<td>44%</td>
<td>48%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>0</td>
<td>10</td>
<td>4</td>
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<td>0</td>
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<tr>
<td></td>
<td></td>
<td>0%</td>
<td>71.4%</td>
<td>28.6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>6</td>
<td></td>
<td>7</td>
<td>11</td>
<td>3</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>29.2%</td>
<td>45.8%</td>
<td>28.6%</td>
<td>12.5%</td>
<td>0%</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>8</td>
<td>31</td>
<td>11</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.3%</td>
<td>55.4%</td>
<td>19.6%</td>
<td>8.9%</td>
<td>1.8%</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td>14</td>
<td>144</td>
<td>14</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7.7%</td>
<td>79.1%</td>
<td>7.7%</td>
<td>5.5%</td>
<td>0%</td>
</tr>
<tr>
<td>9</td>
<td></td>
<td>8</td>
<td>54</td>
<td>17</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9.3%</td>
<td>62.8%</td>
<td>19.8%</td>
<td>0%</td>
<td>8.1%</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>1</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.5%</td>
<td>81.8%</td>
<td>13.6%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>52</td>
<td>379</td>
<td>79</td>
<td>27</td>
<td>11</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td>9.5%</td>
<td>69.2%</td>
<td>14.4%</td>
<td>4.9%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td>0-29%</td>
<td>44-100%</td>
<td>0-48%</td>
<td>0-12.5%</td>
<td>0-8.1%</td>
</tr>
</tbody>
</table>
and directly below it is the percentage of the total responses for that group that the number represents. So, for example, there was one occurrence of praise for Group 1, which was 2.3% of the teacher responses for the group.

The average percentages for the whole sample can be compared with those of Sadker and Sadker (1988: 39), who found elementary through post-secondary teacher responses to average about 10% praise, more than 50% acceptance, about 33% remediation, and less than 5% criticism. This study had similar results, with 9.5% praise, 69.2% acceptance, 14.4% expansion/remediation, 4.9% criticism, and 2% no response (this final category is for the eleven exchanges for which no teacher response could be determined, and which usually took place after a student had failed to answer).

How these response types were used with display and open-ended questions can be seen in Table 5.

The teacher responses following open-ended questions are much more likely to be of the expansion/remediation type, and much less likely to be simple acceptance. This finding is consistent with a suggestion made by Sadker and Sadker (1987: 25) that a high proportion of display questions will probably be followed by acceptance responses like "OK," and that more challenging questions lead to more remediation responses.
Table 5. Total number of display and open-ended questions, and a comparison of teacher responses to the two question types

<table>
<thead>
<tr>
<th>Question Type</th>
<th>Total Number</th>
<th>Teacher Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display</td>
<td>483</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>88.1%</td>
<td>9.5%</td>
</tr>
<tr>
<td>Open-Ended</td>
<td>65</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>11.9%</td>
<td>9.2%</td>
</tr>
<tr>
<td>Total:</td>
<td>548</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

Praise was given to the students in 52, or 9.5%, of the exchanges. I recorded no examples of praise used with two of the groups, while it was most frequently used with Group 8, where there were fourteen of such responses in two hours of lessons.

Examples of praise included: "Lovely, that was very good!"; "Good, that’s a hard one!"; "Great!"; and "Right, what a good example!". A simple word like "good" said with emphasis or a big smile was also considered praise.

It was surprising that such a small percentage of praise was found, because it appeared much more common in the classrooms. And it was, because much of the praise occurred not in three-part exchanges, but in casual conversations.
before and after class, following unsolicited student comments, and following chorus answers ("You guys are really good!"). Praise also was used at the end of an expansion/remediation response which was followed by an student answer, as will be discussed below.

The majority of the teacher responses in the sample were acceptance (379 out of 548, or 69.2%). This kind of feedback usually consisted of one word like "OK," and sometimes was even less specific such as a little nod or "Probably." "Yeah," or "Right" were considered to be in this category if they sounded like simple statements of acceptance and were not emphasized like praise. Very often (100% of the time with some teachers) such brief responses were followed by a repetition of the answer, which made the message much more clear.

The 79 expansion/remediation teacher responses can be divided into three kinds (see Table 6), based on how well the student answered the question and what the teacher said.

Half of these responses are of the kind labeled expansion, for the teacher was asking the student to expand on an answer. Examples of such responses are "OK, now what does that depend on?" and "So what do you think?"

Remediation was another kind of response, and most often followed an incorrect student answer. The teacher might ask the student to make another attempt ("Come on, try again!").
Table 6. Number and kinds of expansion/remediation teacher responses to student answers

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Total Three-part Exchanges</th>
<th>Expans./Remed. Responses</th>
<th>Kind of Exp./Rem Response&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Expans.</td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>90</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>24</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>56</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>182</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>86</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>10</td>
<td>22</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>548</td>
<td>79</td>
<td>40</td>
</tr>
</tbody>
</table>

Percentages of Expansion/Remediation Responses: 50.6%  44.3%  5.1%

<sup>a</sup>The three kinds of expansion/remediation responses were determined after the observations, based on the wording of the teacher responses and qualitative fieldnotes as to the correctness and completeness of the student answers: expansion responses consisted of asking for more information, remediation responses followed incorrect answers, and clarification responses were obvious attempts to understand the student's answer.
or give a clue and ask the student to complete the correction ("OK, let's look at it. What's left over?").

Four of the 79 expansion/remediation responses involved clarification. These all seemed to be prompted by poor pronunciation, and included "How do you spell that?"

All expansion/remediation questions included at least one more question directed at the student who had answered initially. Sometimes a series of questions followed, but a final teacher response was almost always included. Therefore, another important aspect of expansion/remediation responses is how they began and ended.

The teachers' first word was usually an acceptance remark (even when the answer was incorrect) or sometimes a hesitation like "Wel-l-l-...." This would be followed by some clues or direction, or simply a restatement of the same question. The complete interaction would consist of two to six questions or prompts each of which might or might not be answered by the student. Ultimately, the teacher would end the interaction when a correct answer was given or when it was obvious that an answer was not forthcoming.

The manner in which the teachers ended these interactions differed significantly from the overall pattern of teacher responses. The distribution of the final responses in expansion/remediation exchanges is interesting, because 20.3% (compared with 9.5% in the whole sample) of
these longer interactions ended with praise, which can be interpreted as a reward for working hard to correct oneself or for making a longer contribution to the discussion. 68.4% of the final responses were acceptance. There was no final response in 11.4% of these interactions, which appears to be due to the higher number of incorrect student answers which had led to the remediation responses. Even after further questioning, nine students could not give a correct answer, and the teachers simply ended the exchange and moved on to another student.

The final category of teacher response is criticism. Teachers seemed almost unwilling to end an interaction with a negative evaluation, and most of the 27 criticism responses were softened by using phrases like "Not quite, no;" "No, not really;" and "It’s not quite right, others make this error too." Such responses are not derogatory, and do give a clear message as to the correctness of the students' answers. They were followed by the teacher giving the correct answer, asking another student to try, or occasionally dropping the question.

Table 7 presents the actual number of incorrect student answers and how the teachers responded to them in each of the ten groups. Out of the 548 exchanges, 68, or 12.4% of the total, included an incorrect student answer.
### Table 7. Number of incorrect student answers in each of the ten groups, and teacher responses to these incorrect answers

<table>
<thead>
<tr>
<th>Group Number</th>
<th>Total Three-part Exchanges</th>
<th>Incorrect Answers</th>
<th>Responses to Incorrect Answers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Acceptance</td>
</tr>
<tr>
<td>1</td>
<td>44</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>90</td>
<td>17</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>25</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>6</td>
<td>24</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>56</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>182</td>
<td>24</td>
<td>0</td>
</tr>
<tr>
<td>9</td>
<td>86</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>10</td>
<td>22</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>548</strong></td>
<td><strong>68(^a)</strong></td>
<td><strong>5</strong></td>
</tr>
</tbody>
</table>

Percentages of Responses to incorrect student answers: 7.4% 52.9% 39.7%

\(^a\)68 incorrect student answers represents 12.4% of the total in all three-part exchanges.
The majority of the incorrect answers (52.9%) were followed by expansion/remediation responses. Almost 40% of the teacher responses were criticism. Interestingly, five clearly wrong answers were accepted by teachers.

The small number of incorrect answers can be viewed as an expected result of the preponderance of low-level display questions. But other reasons also became apparent during the observations.

Teachers sometimes looked over shoulders as students were completing exercises, and then called on students who they knew had the right answer. Also, in some classes, it was obvious who was prepared, and the teacher was not calling on the others (for example, the students who had been absent the previous lesson). Thus, the teachers were using methods which assured a good measure of student success in attempting answers.

Another aspect of interactions which was recorded during the observations was student involvement in terms of unsolicited comments and questions (which I will refer to together as comments). I counted the number of these voluntary contributions each student made, and then calculated the average number of times each student commented per group.

Table 8 displays what can be called the total student participation, and includes both comments and involvement in
Table 8. Number of student comments, number of three-part exchanges and total student participation for each group

<table>
<thead>
<tr>
<th>Subject Group</th>
<th>Number of Students</th>
<th>Comments per student&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Three-part Exchanges per student&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Total Participation per student&lt;sup&gt;c&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammar</td>
<td>1 21</td>
<td>2.14</td>
<td>2.1</td>
<td>4.24</td>
</tr>
<tr>
<td></td>
<td>5 11</td>
<td>3.36</td>
<td>1.27</td>
<td>4.64</td>
</tr>
<tr>
<td></td>
<td>6 28</td>
<td>.71</td>
<td>.86</td>
<td>1.57</td>
</tr>
<tr>
<td></td>
<td>8 16</td>
<td>.56</td>
<td>11.38</td>
<td>11.94</td>
</tr>
<tr>
<td>Reading</td>
<td>3 13</td>
<td>1.69</td>
<td>6.93</td>
<td>8.61</td>
</tr>
<tr>
<td></td>
<td>4 15</td>
<td>.53</td>
<td>1.67</td>
<td>2.20</td>
</tr>
<tr>
<td></td>
<td>7 14</td>
<td>.50</td>
<td>4.0</td>
<td>4.50</td>
</tr>
<tr>
<td></td>
<td>9 17</td>
<td>.77</td>
<td>5.06</td>
<td>5.82</td>
</tr>
<tr>
<td>Listen/</td>
<td>2 24</td>
<td>.33</td>
<td>.21</td>
<td>.54</td>
</tr>
<tr>
<td>Speak</td>
<td>10 29</td>
<td>.59</td>
<td>.76</td>
<td>1.35</td>
</tr>
</tbody>
</table>

<sup>a</sup>Numbers represent the average number of times each student commented per hour of observation per group (comments per student).

<sup>b</sup>Numbers represent the average number of times each student participated in a three-part exchange per hour of observation per group (exchanges per student).

<sup>c</sup>Numbers represent the sum of comments and exchanges, or the average number of times each student participated in each hour-long lesson observed per group.
three-part exchanges. "Number of Students" refers to the total number of students who attended the two lessons of each group (for example, there were 10 students in class for observation A of group 1, and 11 students for observation B, making a total of 21 students, most of whom attended both classes). For each group then, the average number of times each student commented, and the average number of exchanges each student took part in were calculated. These two figures were added together to obtain the participation figure.

For example, in Group 1 the average number of times each student participated in an interaction with the teacher during each of the lessons was 4.24.

This table gives a better picture of the students' total number of verbal interactions in the classroom, although it still does not reflect their participation in chorus responses nor their contributions in the pair and group activities I observed.

Another point about participation is that some students did not take part in any interactions with their teachers during the classes I observed. Of the ten groups, five had students attending who met neither of the criteria for participation displayed in Table 8. Some of the non-participants came in late, and simply never joined the lessons. For other students there was no apparent reason for their silence, but gender differences, cultural background,
and idiosyncratic factors like moodiness may have been factors.

Analysis of Gender Bias

In an attempt to evaluate the existence or prevalence of gender bias in each group and the IEOP sample as a whole, I used a descriptive statistical method suggested by Sadker, Sadker and Bauchner (1984: 13-16) called the coefficient of distribution. This coefficient characterizes the degree to which males and females participated in the interactions proportional to their numbers attending each class. A description of how it is calculated is in Appendix B.

The results of the calculations on data concerning numbers of males and females, how often each sex was involved in three-part exchanges, numbers of males and females who were called on and volunteered, and numbers and kinds of teacher responses made to each sex are displayed in Table 9.

The coefficient of distribution measure compares the actual number of events that occurred with the expected percentage proportional to the numbers of males and females in the class. Therefore, the table shows in what number of groups female and male students participated or received feedback a greater or equal than expected number of times, or fewer times than expected.
The top line of the table shows that females were involved in three-part exchanges slightly less often on the average than expected. The difference here is small, however.

Table 9. Amount of gender bias as calculated by the coefficient of distribution

<table>
<thead>
<tr>
<th>Event</th>
<th>No. of groups</th>
<th>Females</th>
<th>Males</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>in which it occurred</td>
<td>&gt; or =</td>
<td>&lt;</td>
</tr>
<tr>
<td>3-Part Exchanges</td>
<td>10</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Students Called On</td>
<td>10</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>Volunteers</td>
<td>10</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Praise</td>
<td>8</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Acceptance</td>
<td>10</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Exp./Rem.</td>
<td>9</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Criticism</td>
<td>4</td>
<td>1</td>
<td>3</td>
</tr>
</tbody>
</table>

There is an obvious discrepancy between the number of times men and women were called on and volunteered. In ten out of ten groups, women were called on more than or equal to the number of times expected. This does not appear to be a result of teacher bias, because the male students were volunteering so much more often than expected, that it appears to be an attempt on the part of the teacher to
achieve equity in numbers of questions answered by each sex. In other words, the net effect of calling on females more often was to give them speaking opportunities similar to what the men had by volunteering.

This point can also be made by stating that each male was called on an average of 1.63 times, while each female was called on an average of 2.34 times. On the other hand, each male volunteered an average of 1.17 times, and each female averaged only 0.7 answers volunteered.

The difference in these figures confirms Gaies’ assertion that "Even where attempts are continually made to equalize students’ opportunity for participation, not all learners end up participating to the same degree--or in the same way" (1983a: 191).

In looking at the figures on teacher responses and student sex, it is clear that women received more acceptance responses on the average than were expected, and men received a little more remediation, and appreciably more criticism than expected by their proportional numbers in the classes. The amount of praise received by each sex was about as expected.

The bland and least useful acceptance responses were received by women, on the average 2.12 times in each group, whereas males received acceptance 1.95 times.
These figures, along with the small amount of criticism that women received, show some difference in how teachers responded to students based on gender. The differences are small, however, and the fact that teachers chose to criticize female students less often may well be a way that they avoid discouraging the members of the class who are less willing to talk.

There was no observable bias towards either sex in the twenty classes I visited, and the differences shown in Table 9 are not only minor, but may show a conscious effort on the part of the teachers to equalize participation. Therefore, I can see no gender bias reflected in these data.

There was a considerable difference in the number of unsolicited comments made by male and female students. Each man made an average of 1.3 comments per lesson, and the women only averaged 0.5 comments apiece. This, of course, does not reflect teacher bias, but does show a gender difference in voluntary classroom speaking behavior. Again, cultural and educational backgrounds of the students, or simply personality differences may account for the difference.

Results of the Questionnaires

The seven returned questionnaires gave evidence of carefully chosen teaching techniques, well-developed
philosophies on providing students with feedback, and strong empathy with the role of ESL students in the classroom.

The results of this teachers' look at classroom interaction will be presented following the questions from the form.

1) Do you prefer to call on individual students or have students volunteer answers to your questions?

All seven teachers use both methods for soliciting student answers. Five said that they preferred volunteers, and three of these said they always ask for volunteers first. Two teachers said that their preference depended on the subject matter, and two mentioned that they will call on individuals for comprehension checks.

One teacher said she prefers to have students call on each other, and that "somehow, everyone wakes up for this form." Another mentioned that she likes to call on shy students: "I call on them to make sure that they get a chance to speak." This comment is a good example of the compassionate thread that ran through several of the questionnaires.

2) How do you choose which method you use for soliciting student answers?

The teachers agreed that this depended on several factors. Most often mentioned was the type of activity, and two mentioned that it depended on whether the work was
assigned ahead or not. The difficulty of the question and the personality of the class were each given as factors by two teachers. And one teacher said that she aimed for variety.

One teacher explained how she looked at her students' papers ahead to see if they had some answer to the question, and stated "Sometimes you just have to force them to respond."

In general, the answers showed that most of the teachers feel that they have more right to call on students if the students have had time (in class or beforehand) to prepare their answers.

3) How do you decide which students to call on, and how often do you call on each student during a class period?

In answer to the first part of this question, all teachers said that they sometimes call on students at random (two mentioned keeping track so that all students got turns), but one modified this by choosing to call on "the best students first, and give the slower ones time to figure out what is going on."

Five teachers said they often call on students in order. One mentioned that this gave everyone equal time to talk, and two stated that this gave the students more time to prepare. One teacher gave a nice explanation of why she prefers choosing who the next speaker will be rather than calling on
students in order. In this way she could "leave someone in peace and call on someone who wants to talk." She said that when she called on them in order, students just worked on "their" question and did not listen to others.

The second part of this question was addressed by three teachers. One said she tries to make sure everyone speaks at least once, one teacher said she wants them each to have two turns, and a third said she wants to hear "each as often as possible." The data on student participation collected during the observations show that the first of these goals is being met in most classes, for students were being called on about one time per hour on the average.

4) What do you do about students who are not participating?

There was great kindness in the answers of the teachers when they referred to the shy students, and three said that they tried to give them easy questions: "I try to set them up to succeed." In two cases, the teachers call on them but ask someone else if they do not answer, and one teacher said she does not want to "torture those who don’t want to speak."

Less compassion was shown for students who were not prepared. One teacher cited this as a reason for calling on individuals (so they would have to be prepared), while another said that she doesn’t waste time calling on those who have not done their homework.
5) Do you think you call on male and female students with the same relative frequency? Why or why not?

As reported above, my data showed that there was little evidence of gender bias in the IEOP classes I observed. This fits in with the strong opinions voiced by the teachers in this sample as to the importance of gender equity. Four of the seven teachers answered with a definite yes, and one of these stated her position: "As a feminist I'm aware of this problem.... It takes constant attention on the part of the teacher." One teacher said that she had not considered the question before, but hoped that she treated all equally.

Two of the teachers mentioned the problem of one student dominating the discussion (the male pronoun was used to designate the active talker in both cases). One suggested that one domineering personality in a class made it hard for the teacher to maintain equity. The other teacher noted that she felt it was positive when a student got very involved in a discussion, but that this would result in him taking up a disproportionate amount of time.

I do not know if the opinions of this group of teachers can be taken as typical of ESL instructors in general, but if so, their words and actions in class make them models for non-biased classroom teaching.

6) How do you usually respond when a student gives a correct answer?
Six of the teachers listed responses which I would categorize as praise and acceptance, but interestingly, there was a far greater variety of expressions of praise than I heard in 28 hours of observation. One teacher said that she uses praise several times in each class hour, and one stressed that she tried to vary the positive feedback she provides.

Two of the teachers mentioned that they repeat the correct answer as well (I actually heard all of the teachers doing this at times, and I assume that it is almost an unconscious practice). I was surprised at the response of the teacher who wrote that she repeats the answer "unless the pronunciation and volume are perfect." Her repetitions therefore, must be aimed at correcting pronunciation and/or making certain that all the students can hear the correct answer.

7) How do you usually respond when a student gives a partially correct answer?

In answer to this question, six teachers gave examples of expansion/remediation responses, and several wrote excellent, precise evaluations of a hypothetical student answer ("Yes, this part is correct, but this part isn’t," for example). I heard few such descriptive responses in the classroom, and I imagine that it is harder in the middle of teaching a class to pinpoint exactly what one wants the
student to remediate immediately after hearing a partially correct (and possibly confusing) answer.

Besides giving examples of how they provide clues for the student to self-correct, two teachers mentioned asking other students to help remediate, and two others mentioned that they might give the correct answer themselves.

8) How do you usually respond when a student gives an incorrect answer?

Four teachers specifically stated that they give a response that I would categorize as criticism, and two of them plus two others suggested that they would use phrases I would consider expansion/remediation, beginning with a negative evaluation. This differs very much from what I observed, which was usually expansion/remediation starting with a phrase of acceptance. The responses given in the questionnaire were, I believe, more precise and helpful.

Three teachers said that they avoid saying no, and two mentioned that they make jokes of negative evaluations "to soften the blow" (an example: "Close, but no banana!"). Two teachers mentioned asking other students to help, and three said they would correct the error themselves.

9) Do you usually ask objective (display) questions or open-ended questions in class? Why?

One teacher did not find this question clear, but the other six said that it depended on the subject of the class
(display questions for grammar and TOEFL preparation, and open-ended for reading and listening/speaking), the level (more open-ended questions for higher level students), the type of exercise, and one even mentioned the preferences of individual students.

Two of the teachers said that they liked to use a mixture, and one said she chose open-ended questions to get students to express themselves.

10) How do you feel about using praise and criticism when you respond to student answers?

Praise was considered a very important form of response to four of the teachers. One wrote, "I believe in the 'you can never get enough praise' school of thought.... A language teacher's job is to encourage, not demoralize with criticism." Another teacher said that she always tries to emphasize the good.

Two teachers mentioned that they avoided gushy praise (one of these said that she expected good performance), and another cautioned that praise must be sincere.

All criticism is to be avoided, according to two teachers, and two others said they criticized only for bad behavior or for not doing homework.

Very strong feelings were expressed on the question of using praise and criticism in the classroom. Teachers have differing opinions, but generally they prefer to emphasize
good points and reject the use of criticism on all but non-academic matters.

11) What percentage of your class time would you estimate is spent using a teacher question/student answer format? Does it depend on the subject? Do you prefer this format?

The four teachers who estimated a percentage said they used this format 50%, 60%, 75%, and 80% of the time. All said that it depends on the subject (this format was considered useful for grammar classes by two teachers), and one mentioned that this format was efficient if she was in a hurry.

Two teachers said they prefer other formats (student questions teacher and student questions student were mentioned), and one teacher expressed a desire that I am certain many of us in the field of teaching share--she wants more ideas on ways to get students involved.

12) What methods do you use to solicit student participation, and how do you ascertain whether or not students are understanding the lesson?

A plethora of methods to solicit participation was offered by these seven experienced teachers. Several mentioned things that a teacher could do, such as bring in interesting music and art, use creative ways to call on students, and build a comfortable, informal atmosphere.
Some of the other ideas not mentioned in previous questions include: assign tasks ahead and let the students sign up to do what interests them, let the students teach a lesson, have students call on each other, and assign group or pair work projects in which all must participate to get the job done.

All of these suggestions in this last group share the idea that the students, not just the teachers, have a role in increasing participation, and that students need to work on activities that interest and motivate them.

The teachers stated several ways that they determine understanding on the part of the students. Three said that they listen to the students and watch for non-verbal clues signaling confusion. Three teachers let the students have a hand in the process by asking them to ask questions or letting them decide if they need to do more exercises.

Several teachers mentioned giving tests or quizzes (most decidedly an after-the-fact method), and one suggested a novel idea of giving the students review questions to complete in pairs at the end of a unit. The teacher’s role is to circulate and help out, and to ultimately give them an answer key.

One teacher expressed an uncertainty which is probably common to many teachers. She said that she really was not
sure whether students were following or not, and that this was especially true with the quieter students.

It is difficult to summarize this disparate set of answers, but trends in thinking were possible to find. The seven respondents to this questionnaire prefer a communicative classroom, and appear to keep the students’ needs and desires in mind when choosing classroom activities and teaching methods. A relaxed, informal feeling prevailed in all the classes I observed, and the teacher’s answers showed that they worked hard to maintain good rapport and an atmosphere of encouragement.

Qualitative Observations of Teaching

The twenty hours of classroom observation upon which this study is based provided a wealth of information about teaching techniques used in ESL classes, most of which were not quantified. I will report on some of these ethnographic data that relate to the teacher-student interactions which are the focus of the study.

The ten teachers used a number of different methods to solicit student participation. The numbers of exchanges initiated by calling on students or allowing individuals to volunteer have already been discussed, and alternate methods which appeared very effective included having students select the next speaker, letting a group of students select which
one of their number would report to the class, and
especially, calling on each student individually for a quick
comprehension check after a series of undirected, general
response questions. The latter method worked very well to
ascertain whether or not each student was following the
lesson, and allowed the teacher to decide if the class was
ready to move on to a new topic.

It was mentioned above that teachers said they wanted to
call on students who had correct answers, and one way this
was accomplished in three of the classes I observed was to
give the students a few minutes to work on exercises or solve
a problem during class time. In all three classes, the
teachers circulated, helping out, correcting, and offering
precise feedback to individual students. I heard many
examples of praise and gentle criticism during these brief
conferences--many more than occurred during teacher-fronted
activities. In going over the correct answers with the group
afterwards, the teachers would call on students whom they
knew to have the correct answer, setting the students up to
succeed, as one teacher explained on the questionnaire.

Several classes contained many undirected questions, and
in two grammar classes, this format occupied most of the
hour. Many exercises were covered quickly in this way, but
it was obvious from the back of the room that even though
there was a chorus of answers to each question, many students were not participating at all.

It also seemed clear that some of the students who called out incorrect answers simply did not get enough feedback to know which answer was correct, for often the teacher just nodded or gave a brief acceptance response, and went on to the next question. This problem was lessened a great deal when the teacher consistently repeated the correct answer before going on.

The use of undirected questions was much more successful in terms of number of students answering each time when the class had several lively participants. With the groups which appeared quieter on the whole, teachers tended to call on individuals, for undirected questions or requests for a volunteer proved fruitless. The relationship between these factors is not clear, however, because it is possible that a teacher who consistently chooses the next speaker creates a climate where the students passively wait to be called on. Thus, the perceived liveliness of the groups may be a result of the teachers' method of soliciting participation.

Display questions characterized the majority of the three-part exchanges and the majority of class time during many of the observations. Two teachers employed interesting strategies when these questions were textbook exercises and the students were answering in order around the room.
One teacher kept things moving at a very brisk pace by providing immediate, emphatic acceptance responses, usually "Right!" or "Correct!" She always repeated the answer before firing off the next question, and the feedback, though brief, was perfectly clear. The speed, loud delivery, and clarity of responses alleviated the bland atmosphere which often prevails during a long series of display questions.

A second method which made going over a lot of material with display questions more interesting was sprinkling open-ended questions throughout the lessons. These questions were tailored to the students the teacher called on, and added a personal note to an otherwise mundane lesson. Another aspect of this class which was very impressive was the teacher's extremely polite approach to the students. She was friendly and informal, and at the same time constantly used phrases such as "Thank you very much," and "Would you please tell us about it?" This manner of treating the students not only set a very good model for polite interactions out of the classroom, but also made the teacher appear less like an authority figure.

In a different classroom I observed a problem with using open-ended questions in an inappropriate manner. The difficulty was that the teacher asked for students' opinions but had an exact answer in mind. It is not easy to formulate good open-ended questions in the midst of a lesson, and such
questions do not appear to be the best way for a teacher to elicit the exact answer she wants. After failing to accept two voluntary student answers, she was unable to get more volunteers. At this point, calling on students was unsuccessful, for they were aware that they could not guess what the "correct" answer would be.

This was an example of how important it is for teachers to listen to the students' opinions and ideas, and acknowledge their contributions, even if they do not come up with the exact words the teachers want to hear. High level students who are involved with the lesson need to know that their verbal contributions are welcome, whether or not they correspond to the teachers' ideas.

In all but five of the twenty classes, the primary goal of the lesson appeared to be to cover as much material (usually from a textbook, but sometimes on handouts or a taped lesson) as possible in an hour. In other words, completing the unit, finishing the exercises, or covering every rule and exception seemed to be the primary focus. This was partly due to the fact that the period of observation fell just before a TOEFL, which many of the students were anxious about, but it is also tied to a focus on subject matter content (determined by the text in most cases).
Clearly, this orientation towards covering material does not promote the use of open-ended questions, expansion/remediation responses by the teacher, nor voluntary comments or questions from the students. Although the classes were interactive in nature, most were not truly communicative in the sense that students and teachers are free to discuss matters at length and be active participants in turn-taking, negotiating topic, and setting the tone, to name but a few examples of the skills used in communication.

A comment must also be made about relations between male and female students and the teachers in the ten groups. Just as the quantitative analysis above gave no evidence of bias on the part of the teachers, neither did the observations. Teachers chatted amiably with male and female students before and after class, and appeared equally encouraging and attentive to students of both sexes during the lessons. I observed several conversations between teachers and students of each sex taking place after class demonstrating a supportive, close relationship which is rare between most college teachers and their students.

From the teachers' comments on the questionnaires and the observations, it is clear that the teachers work hard to treat their students equally, and enjoy the friendly relationships that can grow from equitable and respectful treatment.
DISCUSSION

Conclusions

The conclusions that may be drawn from this research are offered as answers to the research questions.

1) What was the frequency of both display and open-ended referential questions asked by the teachers?
   As shown in Table 5, 88.1% of the questions in three-part exchanges were display, and 11.9% were open-ended. These results were similar to the percentages found by Sadker and Sadker (1988: 39) in studies of non-ESL classrooms. Exchanges which began with open-ended questions were less likely to include teacher responses of simple acceptance, and much more likely to include expansion/remediation responses, thus soliciting further student involvement.

2) What percentage of the questions asked by teachers were answered by student volunteers vs. students selected by the teacher?
   Student volunteers answered the teachers' questions in 33.9% of the three-part exchanges, and teachers called on individual students 66.1% of the time. Teachers were even more likely to call on students (70.8% of the time) than ask for volunteers (29.2%) when the questions were open-ended rather than display.
These conclusions do not include undirected questions, which were used to some degree by all the teachers. Therefore, many students were frequently volunteering answers along with others in the class, but such contributions were not quantified.

3) Were all members of the class called on, or did they volunteer, equally often?

No, the figures for these two methods of soliciting student answers were not equal for all students. Strong evidence shows that teachers were more often calling on students who did not volunteer than on those who volunteered more frequently. The ranges of the numbers of times teachers called on students in their classes clearly show such differences. In Group 9, for example, there was a range of 1–9 times that individual students were called on by their teacher. But Group 8 had a much more equitable distribution, for all but 1 of the 182 questions were answered by the next student in line (giving all the students 23 or 24 opportunities to answer questions).

4) What are the categories of responses used by each teacher, and what were the frequencies of each response type?
All 548 teacher responses could be placed into four categories: praise, acceptance, expansion/remediation, and criticism. Eight teachers used praise, all ten of the teachers used acceptance, nine teachers used expansion/remediation, and only four teachers used criticism in responding to student answers. The frequencies of each type are displayed in Table 4, where it is shown that for the sample as a whole, acceptance was used 69.2% of the time, acceptance/remediation accounted for 14.4% of the responses, and praise and criticism were used in only 9.5% and 4.9% of the exchanges, respectively.

These figures are generally consistent with those of Sadker and Sadker (1987: 39), except that their acceptance figure was lower (more than 50%), and the remediation percentage was higher (about 33%). It can be concluded that, at least in this sample, ESL classes include frequencies of teacher responses similar to those in non-ESL classrooms.

5) Was there any bias apparent in the rate at which teachers called on male and female students?

As was shown by the results of the coefficient of distribution calculations in Table 9, female students were called on much more often than male students. However, since male students volunteered more than twice as often as women, and teachers reported in the questionnaires that they try to
call on students selectively to give everyone an equal chance to participate, this difference can not be viewed as bias.

6) Was the total number of questions answered by male and female students equivalent to the proportion of each sex in the class?

Again using the coefficient of distribution to show the degree to which students of each sex participated in three-part exchanges proportional to their numbers in the classes, it is shown on Table 9 that women participated a little less often than was expected by their numbers in the classes, and men participated a little more than expected.

The actual differences between how often they were involved in these exchanges is small. In fact, if a female student had been involved in just one more interaction in five of the groups, females would have been found to be participating more than or equal to the expected amount in eight out of the ten groups.

Therefore this study showed that male and female students were answering questions in three-part exchanges at about the same rate. However, if this question included student questions, comments, or answers to undirected questions, women would have been found to be participating significantly less often than men.
7) Were the four response types used equally with male and female students in proportion to their numbers in the class?

Table 9 again provides the figures to answer this question. There was no real difference found in the actual and expected amounts of praise and expansion/remediation comments received by men and women. However, women received more acceptance and less criticism than expected proportional to their numbers in the classes.

Several teachers expressed a desire to avoid discouraging students who did not participate often, and this reason may account for the lower frequency of criticism comments to women. The data do not provide a reason for the higher than expected amount of acceptance responses women received in four of the groups (they received exactly the expected amount in two groups). The real difference in numbers of acceptance responses received is not great, and this single variable is not significant enough to conclude that there is gender bias apparent in four of the groups.

Implications for Teaching

There is little hard evidence in the literature to support the idea that increased opportunities for verbal practice, interactions with the teacher, and useful teacher feedback correlate positively with language acquisition, but
investigators are beginning to find evidence that supports these claims. In discussing the implications for teaching which result from this study, I will assume that beneficial learning outcomes can result from students' participation in the ESL classroom, and particularly from positive interactions with teachers.

Chaudron cites classroom research studies which give some support "for the notion that teachers' elicitation of student production can benefit oral production," but states that we lack a "specific idea of the nature of these elicitations" (1985: 230). This study has shown that calling on students results in a more equitable distribution of turns, and thus more opportunities for each student to talk.

Most teachers in the sample said that they preferred asking for student volunteers, but most said they use a combination of these methods. The technique of calling on students who are not volunteering frequently can indeed provide equal time for individuals, if teachers can keep track of who has spoken. The student selects student method may also assure that the questions are distributed fairly among the students when the students are directed to select others who have not yet spoken.

A dependence on volunteers is very unlikely to result in all learners having a chance to participate. Pica, Young and Doughty's study of the relationship between interaction and
comprehension relates to this issue, for they found that volunteering often does not always correlate with factors of second language proficiency (1987: 755). Teachers like to let students volunteer, but this is not necessarily beneficial to the students.

Undirected questions with a simultaneous answer provided by students who choose to participate are frequently used to quickly cover exercises, or to check for general comprehension (several teachers used this method as a quick review/refresher at the beginning of the class). This study suggests that this questioning technique be used with care, for observations showed that the majority of the students were not answering. Whether or not they were mentally involved is impossible to say, but there were students who appeared to be dozing or distracted (such failure to attend to the lesson is hardly confined to students in ESL classes, however!).

As was discussed earlier, van Lier suggested that communication must be repaired if the chorus responses became unintelligible (1988: 139), but I observed it was often hard to discern the correct answer or the proportion of students saying the correct answer in the chorus. When this was the case, a brief acceptance response on the part of the teacher certainly did not make the correct answer clear. I had the feeling that there were often several students who did not
know what was happening, but few students were willing to stop the action with a question.

One final problem with this kind of questioning is that it may be difficult for the teacher to know how many students have mastered the material. A number of hearty, correct answers could indicate a successful activity, or that the majority of the students already understood the lesson. This problem could be resolved by periodically calling on each individual to see how many students needed to spend more time on the point in question.

Teachers used display questions extensively in the classes I observed, and while their place is long established in ESL instruction (especially, as the teachers suggested, in grammar and TOEFL preparation classes), striving to use more referential questions requiring higher-order thinking should be a goal.

Long and Sato point out that display questions differ greatly from any uses of language outside of the classroom (1983: 284). This is not necessarily bad, for learning a language must involve some activities which are different from first language usage, such as memorizing vocabulary and reviewing grammar rules. However, as Chaudron (1985: 227) explains, display questions elicit short answers and less communicative involvement on the part of the students, resulting in less motivation for using the target language.
Chaudron warns of "the pitfalls of too closed, too fast, or too vague questions, or worse, too many repetitions of the same non-understood question" (1988: 131). Teachers need to keep these warnings in mind, but my observational data did suggest that a rapid succession of short display questions could liven up a lesson based on reviewing or correcting many discrete point exercises.

In general, increased wait time after a teacher question is very important in ESL classrooms, for it allows for improved student answers (Chaudron 1988: 128). Sadker and Sadker stress that both the quality and quantity of student answers improve if the teacher waits three to five seconds (instead of the usual one second) before jumping back in to restate, offer clues, provide the answer, or call on another student. Extending the wait time certainly helps the students who need time to formulate an answer, who are shy, or who are not sure of the answer.

Sadker and Sadker make another interesting point that wait time should also be extended after the student answer, in order for the teacher to form a proper response (1987: 35). The overwhelming use of acceptance responses in my study shows that the teachers may need another second or two to provide helpful and precise feedback.

The varieties and frequencies of teacher responses have been explored at length in this study, and only a few
implications need to be stressed from the findings. The main idea that appears in the literature on this point is that the clarity of the feedback is most essential to the students. Therefore, it is not in the students' best interests to avoid criticism if the negative evaluation lets the student know where the error lies, or better yet, if the student is then given a chance at self-repair.

The majority of the teachers who responded to the questionnaire prefer to encourage with praise, and this is an excellent way to point out what is good about an answer. Even when an answer was incorrect, a teacher can begin and end an expansion/remediation response with praise, for example, "That was a very good try, and your pronunciation was much better. Can you try it again? Great! You have it now!"

The subject of error correction is a broad one, and repair patterns, it has been suggested by Kasper (1985: 214), depend on the organizational structure of the lesson (teacher-fronted vs. group, pair or individual work) and the teachers' personal styles. It is important for teachers to remember that ESL learners may not be able to perceive the correction that the teacher is supplying in a repetition or rephrased question (Chaudron 1988: 145).

Whether the teacher corrects the error, encourages self-correction, or asks another student to help, it is critical
that the learner who made the mistake be made aware of what was wrong and what would make an acceptable answer. Teachers who are aware of these issues should be able to tell that there is a problem with the question or a need for remediation if a repeated question fails to produce an answer.

Most of the classes I observed consisted solely of teacher-fronted activities. This was partly due to the fact that I asked the teachers to select "normal" classes which included whole-group activities for me to observe. But the teacher-fronted style of teaching must be the most common in IEOP, for the teachers estimated that they spend 50%-80% of their class time leading three-part exchanges.

Kramsch (1985: 181) reported that her work on L2 classroom interactions showed that teachers have good intentions of increasing the amount of communication in the classroom, but the style of interaction has remained at the instructional end of the communication continuum. She stresses the limitations of this traditional style of teaching:

Restricting classroom interactions to the public, teacher-monitored and position-centered discourse of 20-25 students answering display questions from the teacher is not only an unnecessary reduction of the interaction potential of the classroom, but it
ignores the social dimensions of language learning. (Kramsch 1985: 179)

Group work is often seen as the main alternative to teacher-fronted activities, but little research has been done on its effectiveness (Pica and Doughty 1985: 233). Most of the IEOP teachers in my sample incorporate group work into their lessons, and I saw several examples of students working together very productively on short projects. One teacher mentioned to me that a group of very quiet students opened up and participated when working in small groups, and it did appear that every student was participating in the task.

Pica and Doughty’s study of group work and L2 acquisition (1985: 247) was the first to document the fact that working in groups gave more opportunities for students to talk and engage in direct interaction. Teachers assume that this is the case, and are using the method when they can fit it in. The findings of this research project support this trend, and suggest that the creative work involved in planning group exercises that motivate participation and language production is well worth the effort.

A final implication of this study which is of importance to ESL teachers is that students have a very small role in classroom discourse. Every attempt should be made to engage learners in a variety of uses of English in the classroom so they have expanded opportunities for communication.
Teacher talk dominates the ESL classroom, and at the very least, students should be playing an active part in providing feedback to teachers on the usefulness and comprehensibility of what their teachers say (Gaies, 1983a and Pica, Young and Doughty, 1987).

Limitations of the Study

There are several problems inherent in observations of interactions in the classroom. First it is possible that the presence of an observer may be intrusive and may, in fact, alter the usual flow of communication. I do not feel that this was an important factor in my study, for I knew all the teachers, and IEOP students are accustomed to visitors in the classroom. Nevertheless, it is possible that having an observer in the classroom could have had some influence on the teachers' and students' behavior.

Recording the classes on audio- or videotape are alternative methods of collecting data on classroom interactions, but I believe the presence of electronic recording devices and technicians to run them would have been at least as disruptive as my presence. Moreover, the collection of ethnographic data demands that the researcher be present to catch the subtleties of human interactions.

The small number of students in some of the classes observed was another problem, which particularly effects the
quantitative analysis regarding male and female students. One of the twenty classes observed included no women, and four more of the classes had only one or two students of one sex. A related problem was the poor attendance rates of some students, which resulted in a slightly different class of students attending during Observations A and B of each group. The effect of having few same-sex peers in class some days is not known, but it could influence participation.

Although attempts were made to establish inter-rater reliability, and reliability estimates were very good, these figures might not have been as high if we had done joint observations in all of the classes I observed. The nature of the lessons varied considerably, and there might have been more disagreements over segmenting the discourse into exchanges and separating undirected questions from three-part exchanges in some of the observation periods. Also, there was no way to establish intra-rater reliability since I did not have tapes to work with, and I could not recheck to see if I had coded all interactions correctly.

Videotaping one class before the study began might have helped me to practice consistent coding. But the volume of data in twenty hours of recorded lessons would have been too much to process. The four joint observations, however, did give me confidence that I was consistently coding real
phenomena which could easily be discerned by another observer.

The very use of an observation form of the sort I employed creates another problem. Long (1983: 11) explains that such a recording instrument restricts the observer to a limited amount of the total verbal behavior in the classroom. The form was designed to record as much information as possible about one type of teacher-student interactions, yet this was the most severe limitation of the study. It would be very interesting to explore the effects of factors such as ethnicity, age, educational level (graduate and undergraduate), personality, purposes for learning English, and length of time in the U.S.A..

Individual interactions with the teacher which were not part of whole-group activities, undirected questions and the student answers that followed, the nature of student comments and questions and how the teachers responded to them, and all the non-verbal communication in the classroom were not coded or methodically analyzed in this study. Only interactions that could be identified as three-part exchanges were carefully coded, and this took up the majority of the time I spent in the classroom.

Still, I feel that this method of focusing on one aspect of classroom discourse has validity, for only by accumulating comparative data on the various types of verbal interactions
can we hope to understand the dynamics of classroom interactions.

The study was also limited by not considering how much each individual student was contributing to the total number of teacher-student interaction in the classroom. Just as Sadker and Sadker found that the majority of students are silent in typical university classrooms while two or three students dominated interactions (1987: 31), so my data suggested was the case in IEOP classrooms.

Finally, my study could have been strengthened by increasing the number of observations. Three observations of each group would have provided a better look at average lessons and patterns of interaction and teacher responses.

Suggestions for Further Research

As the literature has indicated, classroom-oriented research on language teaching and learning is a wide open field. Much is still to be learned from observations of the ESL classroom environment, and the critical question of the relationship between what happens in the classroom and L2 acquisition needs to be investigated with vigor.

Small studies such as this project can add to the body of knowledge, and increasing the sample size and number of variables under consideration would strengthen the findings. A larger sample of classes and more observations of each
group would improve validity. Adding beginning level
intensive English classes to the sample, further
investigating the effect of the subject matter of the classes
on interactions, and conducting a comparative study including
male ESL teachers would all yield interesting results.

Broadening the data collected from informants by
formulating a questionnaire for students would be another
useful step. Student attitudes and preferences about teacher
questions, methods of soliciting answers, teacher feedback,
and other aspects of interaction and participation might have
practical implications for classroom teachers, as well as
serving to disprove or confirm the conclusions researchers
draw about the students' role in the classroom. There is a
need to know more about what the students want, and what they
feel is most helpful.

More research into teacher questions is also needed.
The efficacy of questioning strategies in eliciting
participation that is valuable to the learners and the
quantification of all question types so that undirected
questions could be considered would both be useful paths of
investigation.

Research into the total amount of teacher talk and
student talk is called for. Simply counting interactions,
questions, answers, or responses gives no information about
the length or complexity of the utterances. There is really
little in common between a one-word answer to a simple
display question and a long, detailed explanation or
expression of opinion by an enthusiastic student volunteer.
Videotaping ESL classes in order to time all interactions and
utterances as well as to transcribe all the classroom
discourse would be a valuable contribution to the knowledge
of teacher-student interaction.

And finally, hypotheses must be formulated and tested
regarding the relationship between the interactive aspects of
the classroom language learning environment and L2
acquisition. Such research must look beyond the
traditionally accepted measures of proficiency or improvement
as determined by standardized test scores on exams such as
TOEFL. In addition to these tests scores, investigators must
assess improvements in oral fluency, discourse management,
and other communicative language skills.

Only when there is hard evidence that certain teaching
techniques, types of activities, or interaction patterns
promote language learning can the results of language
classroom research be applied to improving ESL classroom
instruction.
WORKS CITED


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APPENDIX A. MATERIALS

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# Classroom Interaction Project

**Observation:**

**Class:**

**Level:**

**Number of Students:** M ___ F ___

**Place and Time:**

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<th>Remediation</th>
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**Date:**

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**Teacher Response Type:**
To: IEOP Teachers
From: Marguerite Sibley
RE: Classroom Observation Project

Fall Semester, 1989

I am embarking on a research project for my Master’s thesis in TESL, the purpose of which is to gain a greater understanding of the dynamics of teaching and learning in the ESL classroom. The research initially involves observing a number of ESL classes and coding information during each class period. This phase of the research will be completed by mid-November.

I would like your permission to observe several of the IEOP classes you teach this semester. There would be a maximum of four visits to any class, and I would not interfere in any way beyond silent note-taking. I will be securing permission from all the IEOP students in each level I observe. All names will be coded as initials on my forms, but will not be included in the written report, nor will anyone else be allowed access to the identification of participants.

If you agree to participate, I will contact you before I attend each class, and you may state your preference as to whether I observe or not on any given day. You are also free to discontinue participation in this project during the period of observation.

When this study is completed I will make the results available to you through my Master’s thesis, and I will be happy to discuss the findings with the IEOP staff or with individual teachers.

Thank you very much for considering this request,

Marguerite Sibley

**********************************************************************

Name _____________________________ 

Total number of years teaching ESL__________________________ 

Number of years teaching in IEOP ____________________________

Please check one choice: 
___ I am willing to participate in this project, and give Marguerite Sibley permission to include observations of the IEOP classes I teach in her study.
___ I do not want to participate in this project.

Signature ___________________________ Date ____________
To: IEOP Students
From: Margerite Sibley

Classroom Observation Project

Hello! I am a graduate student in Teaching English as a Second Language. I am doing a research project for my Master’s degree for the purpose of understanding and improving teaching and learning in English classes.

I want to observe classes in your level to gather data for this project. Your participation in class will be a part of my study, but your name will never be used in my written report.

The results of this research will be available from me at the end of this semester. Please feel free to ask me any questions.

Thank you very much!

Marguerite Sibley

***************************************************************

Name (please print) ________________________________

IEOP Level ________________________________

Home Country ________________________________

___ Male ___ Female

___ Undergraduate ___ Graduate

Mark one choice:

___ Yes, I give Marguerite Sibley permission to use her observations of my class in her research project.

___ No, I do not give Marguerite Sibley permission to use her observations of my class in her research project.

Signature ________________________________ Date _________
IEOP Teacher Questionnaire

(in conjunction with Marguerite Sibley’s research)

1. Do you prefer to call on individual students or have students volunteer answers to your questions?

2. How do you choose which method to use for soliciting student answers?

3. How do you decide which students to call on, and how often do you call on each student during a class period? (at random? in order?)

4. What do you do about students who are silent or not participating?

5. Do you think you call on male and female students with the same relative frequency? Why or why not?

6. How do you usually respond when a student gives a correct answer?

7. How do you usually respond when a student gives a partially correct answer?
8. How do you usually respond when a student gives an incorrect answer?

9. Do you usually ask objective (display) questions or open-ended questions in class? Why?

10. How do you feel about using praise and criticism when you respond to student answers?

11. What percentage of your class time would you estimate is spent using a teacher question/student answer format? Does it depend on the subject? Do you prefer this format?

12. What methods do you use to solicit student participation, and how do you ascertain whether or not students are understanding the lesson?

Thanks so much. I really appreciate your help!
APPENDIX B. CALCULATION OF COEFFICIENT OF DISTRIBUTION

The following description of the descriptive statistical measure called the coefficient of distribution is taken from Sadker, Sadker and Bauchner (1984: 13-16) who suggested using it to characterize the degree of gender bias in classroom settings. An example of how the distribution of praise between male and female students in my sample group 7 was calculated is shown below (see Table 9 for complete results of these calculations).

1. Count the total number of students in the class
   (N=14, counting students from both observations).
2. Count the total number of males (6) and females (8).
3. Divide the number of males by the number of students, and do the same for the females. This will yield the expected percentage of interactions for each sex.

   e.g. 6/14 = 43%  (expected praise for males)
       8/14 = 57%  (expected praise for females)

4. Count the total number of praise responses for the group
   (8 instances of praise in the two observations).
5. Count the number of times praise was directed at males (1) and the number of times praise was directed at females (7).
6. Divide the number of praises for males by the total number of praises, and do the same for the number of praises for females. This will yield the *actual percentage of praise for each sex*.

   e.g.  $\frac{1}{8} = 12.5\%$  (actual praise for males)
        $\frac{7}{8} = 87.5\%$  (actual praise for females)

7. Compare the expected percentages with the actual percentages. The difference between the two is the coefficient of distribution. If it is a positive percentage, the praise being directed at that sex is more than expected. If it is a negative percentage, that sex is receiving less praise than expected. If the percentage is 0, both sexes are receiving as much praise as expected.

   e.g.  12.5\% actual male praise
         -43\%  expected male praise
         -30.5\% less male praise than expected

     87.5\% actual female praise
     -57\%  expected female praise
     +30.5\% more female praise than expected