CLASSROOM INTERACTION MEDIATED BY
GENDER AND TECHNOLOGY: THE LANGUAGE LABORATORY COURSE

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Abstract: This present study investigates classroom interaction with reference to gender and technology. The study data were gathered through partial ethnography by a non-participant observer; two sessions of the course Language Laboratory 1 were carefully observed, and notes were taken with a focus on the nature of interactions. Results of the study show that the interaction patterns are gender-related only to some extent. Also, the interaction pattern in the laboratory classes is similar to, but not the same as, the whole-class discussion patterns proposed in earlier literature. However, the main difference between the two is that the teacher's role in controlling and confirming the volunteer's contribution to the discussion is markedly visible.

Key Words: Classroom Interaction; Gender; Technology; Language Laboratory; Language Teaching.

Özet: Bu çalışma sınıf içi iletişimin cinsiyet ve teknoloji bağlamında irdelenmesini amaçlamaktadır. Çalışmanın verileri etnografik sayılabilecek bir gözlem yöntemiyle iki öğretmenin katılımcı olmayan bir gözlemci tarafından Dil Laboratuvarı 1 dersinde izlenmesi ve sürecin not tutulması yoluyla kayıt altına alınması ile elde edilmiştir. Çalışmanın sonuçları sınıf içi iletişim desenlerinin belirli bir oranda cinsiyete dayalı olduğu ve bu iletişim ağının önceki çalışmalarda gösterilmiş bulunan tüm sınıf iletişimine benzediğini göstermektedir. Buna karşın, bu ikisi arasındaki fark öğretmenin kontrol edici ve onaylayıcı rollerinin önemli bir ölçüde farklı olduğu yönündedir.

Anahtar sözcükler: Sınıf içi etkileşim, cinsiyet, teknoloji, dil laboratuvarı, dil öğretimi.

1. INTRODUCTION

Many factors are discussed about the classroom environment but one central argument could be the behavioral differences between male and female learners, and the reflection of gender-based social divisions in such interactions. One of the little-researched areas in Teaching English as a Second Language is how a student's gender may affect teacher-student interaction in an adult EFL classroom (Duffy, 2001). The research published from the 1960s to the 1990s illustrates that the expectations of teachers and the society often lead to unequal treatment of male and female students in pre-college and college-level classrooms (Brophy & Good, 1990; Sadker & Sadker, 1992; Tannen, 1991). In addition, faculty attitudes and behaviors have been found to have a profound effect on a student's intellectual development - especially for female students (E1-Khawas, 1980).

A report by Hall (1982) on the gender-directed behavior of university teachers stated that although university teachers generally wish to treat male and female students equitably, some may treat their male students differently. College teachers have been found to ask male students, but not female students, higher-order questions demanding critical thought (Sadker & Sadker, 1992), make eye contacts more frequently with males than with females (Thorne, 1979), allow their classrooms to be

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male-dominated by calling on males more frequently (Thorne, 1979), allow males to interrupt females (Hall, 1982), and respond to males with attention and females with diffidence (Hall, 1982). Teachers of both genders also frequently give male students more interaction time than female students (Sadker & Sadker, 1992), and initiate more contact with male students than with female students. Hall (1982) also reported that the university classroom climate could frequently be inhospitable to women, due to the everyday inequities carried into these classrooms. Male and female postsecondary students, she noted, receive different levels of informal feedback, encouragement, and praise for their efforts. In a comprehensive review, Howe (1997) examines the role of gender in classroom interaction in four different categories: whole-class discussions, desk-based group work, group work around computers, and discussion for oral assessment. The whole-class interaction is the only part of this framework which seemed relevant to the focus of the present study. The only difference lies in the presence of laboratory equipment which is the medium of interaction in language laboratories.

Research on the whole-class interaction gained momentum in the late 1960s, in response to the belief that the educational process is as important a focus as the learning outcome. At first, the research used rather crude methods, adapted from early social psychologists, which typically involved observing behavior and coding it *in situ* into a small number of global categories, such as 'praise' and 'response' (Howe, 1997). Inevitably, very general conclusions were drawn. For instance, consider Flanders' (1970) famous 'two-thirds rule', that (a) for about two-thirds of the time someone is talking, (b) about two thirds of this talk is the teacher's, and (c) about two-thirds of the teacher's talk consists of 'lecturing' or 'asking questions'. However, it seems clear that a great deal of classroom talk is non-interactive (e.g. lecturing), being limited to what Barnes (1973) calls the 'transmissive' mode. On the contrary, the occurrence of asking questions suggests some teacher-led interactive behavior. This impression is confirmed by the research of Sinclair & Coulthard (1975), which demonstrates, firstly, that whole-class interaction typically follows an initiation-response-feedback structure and, secondly, that responsibility for initiation and feedback lies almost exclusively with teachers.

Having reviewed the whole-class interaction, we decided to focus on the interaction patterns across both genders of teachers and students in language laboratories at the University of Isfahan, Iran to ascertain if teacher-student and student-student interactions are affected by the students' and teachers' gender. In other words, assuming that the characteristic pattern of whole-class interaction is teacher initiation, pupil response and teacher feedback, the crucial questions would appear to be as follows:

(1) Can gender-based interaction be the same when students interact with the assistance of laboratory equipment? And

(2) If so, do gender-related patterns follow the *initiation-response-feedback* structure, or some other model should apply?

2. METHOD

This qualitative study was conducted at the University of Isfahan in the fall 2007. A number of patterns (of classroom interaction) emerged from the study data, which will be presented later in this report. The term *interaction* is used in a general sense in this study, referring to any sort of interaction: student-student or teacher-student discussions, group discussions, and any type of classroom participation (Long & Sato, 1983). The focus on interaction was mainly based on the assumption that it leads to better learning, and will activate learners' competence (Malamah-Thomas, 1987). It is also maintained in literature that an increase in the amount of classroom interaction will help learners learn the target language easily and quickly (Brock, l986). She believes that increased language output will improve language learning. None of the already-invented and used schemes completely suited the purpose of the study. Therefore, it was decided to carry out the observation in a way similar to partial ethnography.

Two sessions of the course *Language Laboratory 1* (taught by two different teachers) were carefully observed by the observer, and notes were taken with a focus on the nature of interactions. They taught

the same course and syllabus within the same department and applied almost the same methodology. *Teacher A* was a young male PhD candidate at UI teaching 30 students in a language lab where options were technologically supported for interaction. *Teacher B* was a female PhD candidate at the same university teaching 25 students in a language lab where technologically supported interaction was possible.

Other participants in the study were students of English attending *Language Laboratory 1*. The focus of the observation was on all participants in the course, and their participation in teacher-fronted or group discussions were observed. The only way to collect useful data was non-participant observation. Therefore, the observer carried out the observation personally, sitting in the laboratory from beginning to the end of each session, taking notes of teachers' behavior, and students' reaction to construct a well-established interaction. None of them knew about the focus of the study. However, they were informed about it after the data were collected. Teachers and students were observed with no reference to their age, psychological traits or other sorts of bias. After data collection, the observed patterns were analyzed with reference to earlier studies to find and reveal noticeable patterns in teachers' and students' interactional behavior.

3. RESULTS

3.1. Summary of *Teacher A* Observation

A young male teacher enters a language laboratory of around 30 students who are mainly female with only 5 male students. He starts the session very quickly and goes on directly to the topic of discussion. Students volunteer to speak after the introduction of the topic and he activates their microphone so that everybody can hear them. From the very early moments, his typically corrective behavior was observable; he interrupts frequently and stops the flow of speech even for minute errors on pronunciation. It seems that the gravity of errors is not important and the teacher expects impeccable pronunciation. But it should not be overlooked that his own pronunciation is very good and typically oriented towards US English. An interesting point observed in the class was the serious management of the discussion. The teacher satisfactorily managed the class without any humor. He was a kind of authoritative, serious teacher and preferred to socialize with learners under controlled supervision.

The distribution of interaction is inclined more towards male students, and female learners seem to abstain participating unless they are called upon. Although female participants outnumber the male ones, teacher-student interaction occurs with the dominance of 5 male students. However, an interesting point was that there was no student-student interaction in the real sense, and even if there was, the moderating role of the teacher diminished it to a remarkable degree. Any time a student wants to participate and react to another student's oral contribution, the microphone should be activated, and there is no possibility of simultaneous speaking for more than one person at a time. Although this is an advantage for the teacher to manipulate the discussions and make participants listen to the discussion, the interaction between students was only indirectly possible with the mediation of the teacher and the equipment. Another important point is that all students seemed to be content with the class discussion and no one seemed to be uneasy. Many females even preferred to be listeners from the beginning to the end.

3.2. Summary of *Teacher B* Observation

A female teacher enters a language laboratory of around 25 students who are mainly female with only 11 male students. She starts the session by roll-call as soon as possible, during which there was a kind of disorder. She starts the discussion by referring to pages of the course material, doing some listening tasks first, asking a number of easy looking comprehension-check questions directed at diverse course members, and commenting on their responses. After the listening component, a discussion topic is introduced and the teacher herself talked about it for five minutes or so. Students volunteer to speak after the introduction of the topic, and turn allocation occurs with the activation of their microphones so that everybody can hear them. Attentively she listens to their oral contributions and comments on

them; she does not interrupt their speech flow but comments on the position they take in relation to the topic; then, she picks up a point in one student's response and puts the idea into discussion with another student of her own choice. However, it was possible for the participants to volunteer since from time to time, she said that '*OK, number 10 is beeping*", for instance. It was also observed that she solemnly managed the discussion and tried to illicit the desired response even from the low-proficient participants. She was serious but easygoing and used controlled humor from time to time. Relying on her earlier experience, she approached the teaching through structured and guided interactions.

The patterns of interaction is not so easy to detect as most of the time, it is the teacher who allocates turns by calling on the participants. However, since the teacher welcomes volunteering too, it was observable that both and female students participated in discussions. But the distribution of male-female participants in this class was not favored towards one sex (14 female versus 11 male). Despite this roughly balanced distribution, in most cases, volunteers were male rather than female. But the participation of the females was also noticeable since the teacher fairly allocated turns. An interesting point to be observed was that the student-student interaction in this class was not really observed. But the teacher tried to pick up points from students' responses and shift them to other students. Although volunteering can be sometimes considered as a sign of inclination to react to peers' comments but that was not possible without the teacher's intervention. Interestingly, all students left the class happily at the end since everybody had a chance to speak – whether volunteered or required to!

During the data collection procedure, a number of general patterns of interaction were explored, which are presented here.

1. Teachers introduce topics of discussion by asking a number of questions before they formally start the lesson. These help the students warm up for the tasks, and get familiar with the general topic. However, as it was noted, Teacher B warmed up the class for discussion but Teacher A started the discussion quite abruptly at the beginning of the session. *Teacher B* herself talked about the topic for a few minutes and provided them with relevant input. Although her remarks were mostly in a transmissive, rather than interactive, mode, the outcome was an enhanced rate of volunteering and participation since students were oriented towards the discussion and got an impression of the dimensions of the discussion.

2. Teachers used a number of general questions which were not directly addressed to any of the students present in the classroom. Such questions as "What's a tsunami?", "Has anybody ever been to Mexico?", "Any questions so far?" and so on, are of this kind. The interesting aspect of these questions is that learners are given the chance to volunteer. Students in class B especially seemed to volunteer more than those in class A. One important aspect in Teacher B's mannerism was 'to avoid interrupting her students', which provided them with some emotional support. Therefore, every course member felt that s/he had the chance of contributing to the discussion freely and at any appropriate time, and getting the desired feedback on the content (as Teacher B did) rather than on the form (as teacher A did through his corrective feedback). Teacher A's corrective behavior probably hindered some of the students from volunteering.

3. Teachers usually paraphrase, rather than repeat, their questions whether the same person or another is asked. However, teachers often avoid waiting long during a period of silence for the answer.

4. Teacher B often allocated turns to less socializing learners by directly questioning them. It was observed that some students were less confident or shy and they participated only when the teacher allotted them a turn. Teacher A, on the other hand, did not tolerate errors and expected perfect answers. Accordingly, his students left the floor to more proficient peers and preferred to be listeners rather than speakers.

4. DISCUSSION

The study focused mainly on gender-related patterns of oral interaction in the language laboratories, and specifically on teachers-student and student-student interactions. Through observation, it was found that male and female university students behaved differently in participating in discussions and

responding to teacher's questions and discussion prompts. In earlier studies, the results are generally presented with reference to pupils' responses, then to teachers' initiations, and finally to teachers' feedback. The most straightforward manifestation of responses lies in the volume of contributions, with male participants occupying the floor more than the female ones. In the present study, this was also the case although the majority of both classes consisted of female participants.

In addition though, there is evidence that boys make themselves relatively prominent, suggesting that teachers' choices may be a reflection of 'visibility' rather than gender *per se*. The most obvious manifestation of this lies in hand-raising: Swann & Graddol (1988) found that teachers tend to select the pupil whose hand goes up first, and this pupil is very likely to be a boy. However, boys are also likely to be the focus of attention even before the questions are asked. Boys have been shown by Good *et al.* (1973) and Morgan & Dunn (1988) to be more restless than girls in classrooms, and their movement may attract attention. In the present study, males volunteered more than females despite the different attitude of teachers to the suggested volume of interaction, one being authoritative and serious (Teacher A), the other socializing and welcoming all sorts of interaction (Teacher B). All in all, then, the research suggests that pupils play an active part in bringing the gender differences in classroom interaction into being: boys are more likely than girls to create conditions where their contributions will be sought by teachers, and they are more likely than girls to push themselves forward when contributors are not explicitly selected. However, this is not to say that teachers are entirely passive in the process.

In the present study, the two teachers differed in the way they treated volunteered interactions. Teacher A avoided socializing and seriously pushed on the discussion topic; his interactants were those confident (male) students who were not afraid of corrective behavior. This gave the male participants the impression that he is male-oriented, and female participants avoided volunteering accordingly. However, Teacher B allocated turns fairly to all participants irrespective of their gender and language proficiency. Apparently two factors minimized the effect of gender in her class: treating both genders equally and allocating turns to every any course member.

Also, studies have provided evidence of women's lower self-esteem in coeducational colleges than in single-sex schools. It is found that women are verbally less assertive than men, in the sense that they were more likely to use hedges, qualifiers and questioning intonations. By contrast, women are more assertive than men at the coeducational institutions. An important aspect of classroom interaction would be the teacher's gender. Little research has been done on the effects of teacher's gender on interaction patterns (Hopf & Hatzichristou, 1999) but differences have sometimes been found in the classroom interactions of male teachers compared with female teachers (Meece, 1987). Female teachers are mainly found to be more sensitive and to give more warning to students about behavioral problems than male teachers (Hopf & Hatzichristou, 1999) but this is not generalizeable and it is situation-specific as this was not the case in the present study. Male teachers, on the other hand, tend to be more authoritative and instrumental whereas female teachers tend to be more supportive and expressive (Meece, 1987; Freeman & McElhinny, 1996).
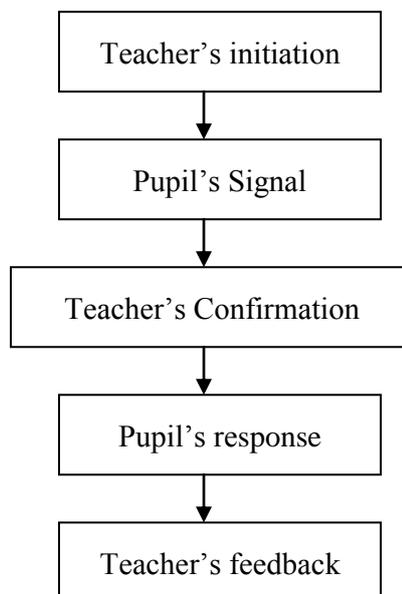
In the present study, the female teacher was found to be more tolerant and letting students speak freely. She did not interrupt them and managed the discussions skillfully. It might be expected that male and female students would receive equal attention in classes. Yet, recent research indicates that teachers tend to interact differently with male students than with female students. Generally, male students receive more attention in class from teachers than do female students (Bailey, 1993; Sadker & Sadker, 1986). These interaction patterns may partially depend on the gender of the teacher (Hopf & Hatzichrisou, 1999) and the topic of discussion (Holden, 1993; Hopf & Hatzichrisou, 1999). Krupnick (1985) concluded that male students talked much longer in the predominant classroom circumstances, i.e., the situation in which the instructor is male and the majority of the students are male. However, the rate of interaction in the two classes observed in the present study favored towards male students irrespective of the teachers' gender. On the other hand, the presence of female instructors apparently had an inspiring effect on female students. Data from class B suggested that a teacher's gender can play a role in classroom discussion, in the sense that it appears to influence the extent to which male

students dominate classrooms. However, the evidence that teachers' behavior towards male and female students depends on the topic of discussion is weak at the present time.

In addition to the observed patterns elaborated in the preceding paragraphs and differences in the interactional patterns in classes A and B, the most significant conclusion to be drawn from the observation data is that, despite the close correspondence between the *teacher's initiation-pupil's response-teacher's feedback* pattern in the whole-class discussions and laboratory classes, the latter do not completely match the pattern proposed by Howe (1997). Therefore, the first research question was answered negatively.

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┌─────────────────────────┐
│   Teacher's initiation   │
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             │
             ▼
┌─────────────────────────┐
│    Pupil's response     │
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             │
             ▼
┌─────────────────────────┐
│    Teacher's feedback   │
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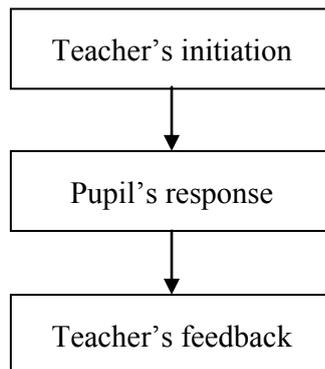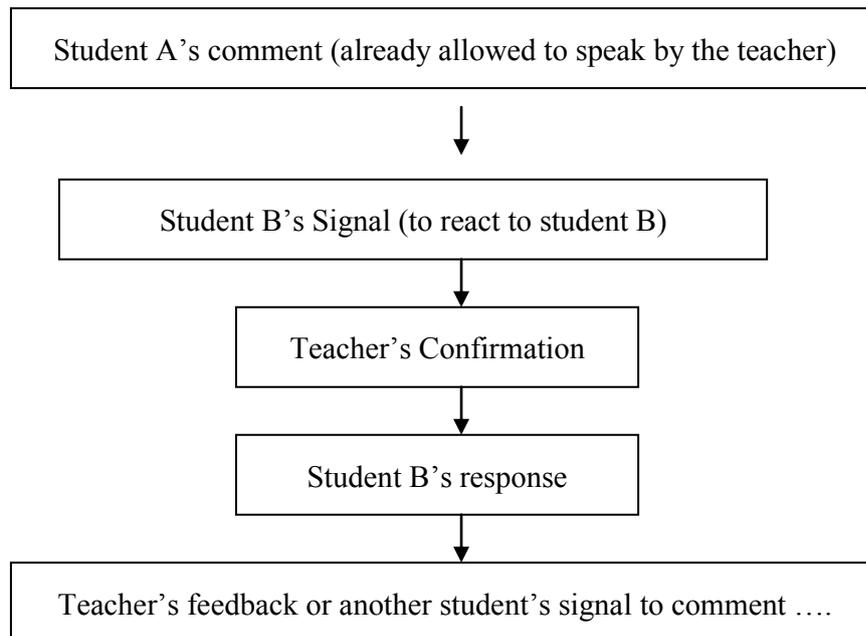
As noted earlier, the observed teachers initiate a discussion by asking questions. Many students may wish to participate and respond, they all push on the *Call* button, but only one is allowed to speak and this requires the teacher's control and confirmation. The process of turn allocation itself may be influenced by the teacher's inclination and preference towards one gender over the other. Also, the impression conveyed to the students via earlier interactions with their teacher may enhance or minimize their volunteering behavior. All in all, their responses, whatsoever, require the teacher's confirmation. When the students respond after this step, the teacher will have his/her feedback, which in turn will shape the impressions on how the discussion will probably go on to the end. Therefore, the following model may answer the second research question.

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┌─────────────────────────┐
│   Teacher's initiation   │
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             │
             ▼
┌─────────────────────────┐
│     Pupil's Signal      │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│  Teacher's Confirmation │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Pupil's response     │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐
│    Teacher's feedback   │
└─────────────────────────┘
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This type of the interaction pattern will be, therefore, unique to the laboratory classes and accordingly different from the whole-class discussions. While this model fits the teacher-student interactions, it may also apply to the students' reaction or response to another student's comment in the middle of the

discussion. Any sort of contribution from the learners should be controlled and confirmed by the teacher. Therefore, a similar model for the student-student interaction can be conceived as follows:

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┌─────────────────────────────────────────────────────────────┐
│   Student A's comment (already allowed to speak by the teacher) │
└─────────────────────────────────────────────────────────────┘
                              │
                              ▼
        ┌─────────────────────────────────────────────┐
        │   Student B's Signal (to react to student B)  │
        └─────────────────────────────────────────────┘
                              │
                              ▼
              ┌─────────────────────────────┐
              │    Teacher's Confirmation    │
              └─────────────────────────────┘
                              │
                              ▼
              ┌─────────────────────────────┐
              │      Student B's response    │
              └─────────────────────────────┘
                              │
                              ▼
    ┌─────────────────────────────────────────────────────────┐
    │  Teacher's feedback or another student's signal to comment …. │
    └─────────────────────────────────────────────────────────┘
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To summarize, observation of the two classes led the researchers to conclude that the interaction patterns are gender-related to some extent. Also, the interaction pattern in the laboratory classes is similar to the whole-class discussion patterns proposed by Howe (1997). However, the main difference between the two is that the teacher's role in controlling and confirming the volunteer's contribution to the discussion is markedly visible since the teacher's role in confirming one student's response to the other is really decisive in laboratory contexts.

5. LIMITATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

This small-scale study can be considered as a rudimentary step towards a focused analysis of gender-related interactional patterns in language laboratories. In addition to the reported patterns, there are certainly areas which are not noted in this report and treating them requires a large-scale and more serious study. Among the limitations to this study, the following can be noted for further research:

A. Self-esteem and the social values we ascribe to both genders can be studied to find out why males are more outspoken even in female-dominated classes and women are not. Personal in-depth interviews can help complement the findings in this regard.

B. A second limitation of this study was its ignorance of the personality of the human participants. It would be fruitful if both teachers and students can express their feelings toward the classroom, the technology, peers, etc.

C. Language proficiency is a very important element in this regard since mastery of the foreign language can also enhance self-confidence.

D. The interactional patterns across genders can be compared in another study with other situations, e.g. conversations classes which do not use technology and interactions are face-to-face, without the intervention of technology and the teacher.

E. Affective factors also play important roles in developing interactions. These factors may be studied more carefully.

F. The postmodern turn (Cameron, 2005) can be adopted as the theoretical framework in the analysis of gender issues in language classroom, to get away from the limitations of the difference model.

G. A well designed study and more structured techniques in observation plus quantitative analysis of the classrooms can be more fruitful in combination with observations of longer time spans.

H. An important ingredient is student-student interaction which is quite absent from the laboratory classes. This can be either attributed to the low language proficiency of the learners, the nature of the topics discussed, the attitude of the teacher to the teaching environment (authoritative or democratic), co-ed nature of the courses at university after 12 years of segregated education, the personality of participants, the socio-affective atmosphere of the class and many other factors which are to be investigated in more serious studies.

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