

Conversational Performance of Adults With a Hearing Loss

Rachel Caissie, Andrea L. Dawe, Catherine Donovan,
Holly Brooks, and Shirley M. MacDonald
*School of Human Communication Disorders
Dalhousie University*

Three experiments were conducted to (a) compare the conversational behaviors of adults with a hearing loss to those of normally hearing adults, (b) examine the effect of partner familiarity on conversational performance, and (c) compare conversational performance during dyadic and group interactions. In Experiment 1, 12 adults with a hearing loss and 8 normally hearing adults were videotaped in 20-min dyadic conversation with young adults; in Experiment 2, 5 adults with a hearing loss were videotaped in conversation with familiar and unfamiliar people; in Experiment 3, 5 couples, where 1 of the spouses had a hearing loss, were videotaped in dyadic interaction and in group interaction with 2 normally hearing couples. Conversations were analyzed for number of speaking turns, mean length of turn, number and types of topic shifts, occurrence of questions, requests for clarification used by the adults with a hearing loss, and repair strategies used by the partners. Most of the participants with a hearing loss exhibited conversational control, in that they expressed longer speaking turns than their partners, shifted topics of conversation to topics that focused on themselves, and asked few questions. Controlling behaviors were more prominent when adults with a hearing loss interacted with unfamiliar partners and in groups. Conversational control was not as frequently observed when they interacted with a spouse or a friend or in dyads consisting of normally hearing adults. Adults with a hearing loss were more likely to request clarification from familiar partners than from unfamiliar partners. They primarily used nonspecific clarification requests, rather than specific requests, regardless of partner familiarity or dyad versus group condition. Partners tended to use primarily message repetition, which may have been linked to the high occurrence of nonspecific requests by the adults with a hearing loss.

Correspondence concerning this article should be addressed to Rachel Caissie, PhD, who is Associate Professor, School of Human Communication Disorders, Dalhousie University, 5599 Fenwick St., Halifax, Nova Scotia, Canada B3H 1R2. Tel.: (902) 494-5159. FAX: (902) 494-5151.

Conversational exchanges are fundamental to communication and social interaction. As some authors have suggested (e.g., Johnson & Pichora-Fuller, 1994; Searle, 1969), people do not solely engage in conversation to seek or exchange information but also to simply initiate a social interaction. Indeed, a very popular topic of adult conversation – weather – is one in which the need for social interaction usually outweighs the necessity of exchanging information. The inability to function effectively in conversation, as may be the case for individuals with a hearing loss, can thus not only lead to reduced reception of information but also to psychosocial difficulties such as social isolation and depression (Hétu, Jones, & Getty, 1993; Trychin, 1994). The study of conversational performance, therefore, is important to increase our understanding of the types of communication difficulties exhibited by adults with a hearing loss and to improve intervention strategies.

Through analyses of videotaped conversation samples, some researchers have examined the effect of a hearing loss on adults' ability to participate in conversation (Caissie & Rockwell, 1993, 1994; Gibson & Caissie, 1994; Tye-Murray & Witt, 1996; Tye-Murray, Witt, & Schum, 1995). Current research suggests that adults with a hearing loss exhibit communication behaviors that are different from those of their normally hearing conversational partners. A number of studies have documented the presence of controlling behaviors in the conversations of adults with a hearing loss. For example, some adults have been observed to dominate conversations by taking longer speaking turns than their partners (Caissie & Rockwell, 1993, 1994; Tye-Murray & Witt, 1996). Tye-Murray et al. (1995) further noted that adults with a hearing loss expressed more words per speaking turn during interaction with unfamiliar partners than during interaction with familiar partners. Adults with a hearing loss have also been observed to dominate conversations by controlling the topic (Caissie & Rockwell, 1994; Tye-Murray et al., 1995) and by interrupting their partners in order to regain control of the conversational floor (Tye-Murray & Witt, 1996). Moreover, in Tye-Murray and Witt's study, adults with a hearing loss were noted to occasionally abruptly shift the conversation topic to one that was more familiar. Furthermore, they have been found to rarely ask questions to solicit information from their partners, and thus to infrequently offer the conversational floor to partners (Caissie & Rockwell, 1993; Johnson & Pichora-Fuller, 1994; Tye-Murray & Witt, 1996). These various forms of conversational control may be used as a way of reducing the amount of time spent listening to a partner, thereby avoiding communication breakdowns that would result from the misperception of a partner's message.

When faced with misperception of a partner's message, adults with a hearing loss do not always attempt to repair the communication breakdown through use of clarification requests (Caissie & Rockwell, 1994; Erber, 1996; Gibson & Caissie, 1994). In some instances, they may not recognize that a communication

breakdown has occurred, or they may not be able to identify the source of the perceptual difficulty to request clarification. Other times, although they may be aware of their perceptual difficulties, they may bluff or pretend to understand because of a lack of assertiveness or a fear that their partners may react negatively if they interrupt an ongoing conversation to request clarification. According to Pichora-Fuller, Johnson, and Roodenburg (in press), the decision to request clarification of misperceived messages may depend on the conversational goal. That is, if the goal is interactional in nature, adults with a hearing loss may choose not to request clarification as often so that the social interaction is not disrupted. On the other hand, if the goal is transactional (i.e., one of information exchange), they may be more willing to request clarification to ensure that important information is not missed. Another factor that may influence their willingness to use requests for clarification is whether they are interacting with a familiar or unfamiliar person. In studies by Tye-Murray, Purdy, and Woodworth (1992) and Tye-Murray, Knutson, and Lemke (1993), participants reported on a questionnaire that they would be more likely to request clarification with familiar partners than with people with whom they were unfamiliar. However, when Tye-Murray et al. (1995) videotaped and analyzed samples of conversations, they found that partner familiarity did not affect the way that adult cochlear implant users employed clarification requests.

When requests for clarification are used to resolve perceptual difficulties, they may be specific (e.g., "You went to see who?") or nonspecific (e.g., "Pardon me?"). Although many experts advocate the use of specific requests for clarification for effective management of communication breakdowns (Erber, 1996; Gagné, Stelmachovich, & Yovetich, 1991; Gagné & Willie, 1989), analysis of conversation samples has shown that individuals with a hearing loss tend to use primarily the less effective nonspecific type of clarification request (Caissie & Rockwell, 1994; Tye-Murray & Witt, 1996; Tye-Murray et al., 1995). This observation highlights the need for audiological rehabilitation on appropriate use of clarification requests. Gibson and Caissie (1994) documented the successful outcome of such rehabilitation by observing a greater proportion of specific clarification requests and fewer nonspecific requests in the conversations of adults with a hearing loss following intervention.

Successful management of communication breakdowns does not solely rest with the person with a hearing loss; it also requires that conversational partners respond appropriately to requests for clarification. Partners have been found to be attuned communicators in that they rarely ignore clarification requests by adults with a hearing loss (Tye-Murray & Witt, 1996). However, they tend to repeat their original message when attempting to resolve a breakdown in communication (Caissie & Rockwell, 1993; Tye-Murray & Witt, 1996; Tye-Murray et al., 1995) rather than to use strategies considered more effective, such as paraphrasing the misperceived message (Gagné & Willie, 1989). The type of repair

strategy used by partners may be influenced by the type of clarification request used by the person with a hearing loss. In fact, Tye-Murray et al. (1995) described several "repair strategy-response" adjacency pairs; for example, a conversational partner will typically provide a repetition of the original message following a nonspecific request for clarification by the adult with a hearing loss. The high occurrence of message repetition by partners may thus be related to the fact that adults with a hearing loss tend to use primarily nonspecific requests for clarification.

To date, researchers who have analyzed discourse to study the effects of hearing impairment on communicative competency have typically compared the communicative behaviors of adults with a hearing loss to those exhibited by their normally hearing conversational partners. Because control dyads consisting of adults with normal hearing have generally not been included in studies, it remains unclear whether, for example, the dominating behaviors observed in conversations where one of the participants has a hearing loss are also present in some of the conversations between two normally hearing adults. Conversations are characterized by dynamic, reciprocal events between two or more people, where the behaviors of one conversationalist influence those of the other participants in the communicative exchange. Studies that have compared the behaviors of adults with a hearing loss to those of their conversational partners have not accounted for the fact that the communicative behaviors of normally hearing partners may be influenced by the fact that they are interacting with someone who has a hearing loss. Thus, it is unclear whether unequal amounts of conversational participation occur because the adult with a hearing loss dominates the conversation or because the adult with normal hearing adopts a more passive role when talking with someone with a hearing loss.

Other issues pertaining to communicative competency of adults with a hearing loss also remain unexplored. Few studies have examined the effect of partner familiarity on the conversational performance of adults who wear hearing aids. Previous research on partner familiarity has focused on profoundly hearing-impaired cochlear implant users (e.g., Tye-Murray et al., 1995). Because cochlear implant users tend to receive more extensive rehabilitation than most adults who wear hearing aids, the effect of partner familiarity on their communicative competency may be different from that experienced by hearing aid users.

Apart from this, although adults with a hearing loss frequently complain of difficulty communicating in groups, research on their conversational performance has been restricted to analyses of dyadic interactions. It is well accepted that dyadic interactions generally create fewer communication challenges for adults with a hearing loss than do group interactions; however, there is a dearth of research comparing the amount and types of conversational difficulties experienced in each of these two interaction settings.

More research is needed on the types of communicative behaviors exhibited by

adults with a hearing loss during conversational exchanges, and on their ability to manage communication breakdowns through appropriate use of clarification requests. The purpose of this study was to expand knowledge on various issues related to conversational performance of adults with a hearing loss. More specifically, three experiments were conducted to (a) compare the conversational exchanges where one of the conversationalists uses hearing aids to those where both partners have normal hearing, (b) examine the effect of partner familiarity on conversational performance of adults who wear hearing aids, and (c) compare the conversational behaviors of adults who use hearing aids during dyadic and group interactions. For each experiment, the same conversational features were coded and analyzed to allow easier comparison among the results of each study.

EXPERIMENT 1

The goal of Experiment 1 was to compare the conversational behaviors of adults with a hearing loss to those of adults with normal hearing. The study was performed in reaction to the paucity of normative data in previous studies of conversational performance of adults with a hearing loss and, therefore, included control dyads consisting of normally hearing adults.

Method

Participants

Twelve adults with a hearing loss and 8 adults with normal hearing participated in this experiment. Participants with a hearing loss included 9 males and 3 females with a mean age of 62 years ($SD = 10.5$). Their mean pure tone threshold average (PTA) was 60.8 dB HL ($SD = 19.4$) for the right ear and 53.9 dB HL ($SD = 21.8$) for the left ear. They had acquired a bilateral sensorineural hearing loss in adulthood and were long-term users of amplification. They reported satisfaction with their hearing aids and wore them consistently throughout the day. None of them had received prior aural rehabilitation targeting the management of conversational difficulties. Normally hearing participants included 3 males and 5 females with a mean age of 57 years ($SD = 4.0$). A hearing screening test was performed in a sound proof booth, using a Grason-Stadler GSI 10 audiometer, to ensure that hearing thresholds were no worse than 25 dB HL at audiometric frequencies between 500 and 4000 Hz.

Three young female adults with normal hearing (one audiology and two speech language pathology students) also participated in this experiment and served as unfamiliar conversational partners. Their mean age was 24 years ($SD = 1.2$). They provided consistency of partners for the two groups, in that they each conversed with approximately an equal number of adults with a hearing loss and adults with normal hearing. They had had limited or no previous experience interacting with adults with a hearing loss at the time of data gathering.

Procedure

Each dyad, composed of an older adult with impaired or normal hearing and a younger adult with normal hearing, was videotaped while engaged in a 20-min conversation. Participants were informed that the purpose of the study was to examine the difficulties experienced by adults with a hearing loss during conversation. Dyadic members were introduced to one another and simply instructed to carry on a small conversation on topics of their choice. Topics chosen involved general knowledge such as those typical of social conversations. Examples included hobbies, travel, work, and family.

Videotaping occurred in a comfortable therapy room with the two participants facing one another and sitting approximately 1.5 m apart. A camera, positioned to capture a side view of each participant, was mounted on a tripod and the dyadic members were left alone in the room while videotaping was taking place. In order to simulate more real-life communicative interactions, the conversation samples were obtained in the presence of multitalker background noise (Auditec of St. Louis) presented at 65 dB SPL through two loudspeakers located on each side of the participant with a hearing loss (or the participant with normal hearing). To facilitate the transcription of conversations obtained in noise, each dyadic member wore a lapel wireless microphone with the FM receiver connected to the camera.

Coding of Conversation Samples

The conversation samples were orthographically transcribed and several conversational features were coded. These included number of speaking turns used by each conversationalist, mean length of speaking turn, number and types of topic shifts, occurrence of questions, number and types of clarification requests used by the participants with a hearing loss, and types of repair strategies used by the conversational partners. The first 5 min of each interaction sample were used to let the participants become more accustomed to one another and were discarded from the analysis.

The total number of speaking turns expressed by each conversationalist during the 15-min conversation was first tallied. Speaking turns were defined as the time that a participant possessed the conversational floor and could include one or a string of several utterances. Backchannel responses (e.g., saying "Yeah" while a partner has possession of the floor) were not counted as separate speaking turns. Next, following guidelines suggested by Caissie and Rockwell (1993), the mean length of turn (MLT) was measured for each participant by calculating the average number of words per turn. Also based on Caissie and Rockwell, a ratio of the hearing-impaired participants' MLT over their conversational partners' MLT was obtained for each dyad to characterize the share of the conversational floor by each conversationalist, with a ratio greater than 1.0 suggesting dominance by the adult with a hearing loss.

The proportion of speaking turns used to shift topics of conversation was also measured. A topic shift was defined as a turn where a conversationalist initiated a new topic, reintroduced a topic previously discussed, or shaded the current topic by changing its focus (Brinton & Fujiki, 1989). Moreover, based on Bedrosian (1993), participant orientation was considered in the analysis of topic shifts. That is, a distinction was made between self-oriented topic shifts where the new topic was directly related to the speaker's own interests or personal experiences (e.g., "I have a sister who's a pianist. She plays classical music.") and partner-oriented topic shifts where the new topic was related to the partner's interests or personal experiences (e.g., "So where are you from?"). For this experiment, the frequency of occurrence of self-oriented topic shifts was retained as a measure of the extent to which participants controlled conversational topics. The percentage of self-oriented topic shifts was calculated out of the total number of topic shifts.

Next, for each conversationalist, the proportion of speaking turns that included a direct question to the partner was determined. This analysis included only direct questions that were used to request information from the partner; it did not include tag and rhetorical questions or clarification requests. Requests for clarification were tallied separately and were defined as verbal and/or nonverbal expressions used to indicate to the partner that a misperception had occurred. Based on the work of previous researchers (e.g., Brinton & Fujiki, 1989; Gagné et al., 1991), they were divided into *nonspecific requests* (general request for repetition; e.g., "What?", "I didn't get what you said.") and *specific requests* (request for the partner to repeat a specific portion of the message, e.g., "You bought what?", or request for the partner to confirm the accuracy of what was heard, e.g., "Did you say ____?"). Finally, modified from Gibson and Caissie (1994) and Tye-Murray and Witt (1996), the conversational partners' responses to the requests for clarification (or repair strategies) were coded as *repetition* (exact or partial repetition of the original message), *paraphrase* (restatement of the message using different words or syntax but without adding new information), *elaboration* (addition of new information to help clarify the original message), or *confirmation* (affirmative or negative response to a request for confirmation).

Results

Results for the various conversational features analyzed are summarized in Table 1. The average number of speaking turns taken during the 15-min conversation samples was similar for the adults with a hearing loss and their partners, as well as for the adults with normal hearing and their partners. A two-way ANOVA for repeated measures (with *hearing status* as the between-subject factor and *partner* as the within-subject factor) confirmed the lack of significant difference with respect to number of speaking turns.

MLT results showed a tendency for the adults with a hearing loss to use more

Table 1
 Conversational Performance of Adults With a Hearing Loss and Adults With Normal Hearing
 During Interaction With Younger Normally Hearing Partners

	Adults with a hearing loss <i>n</i> = 12 mean age = 62 years	Partners <i>n</i> = 3 mean age = 24 years	Adults with normal hearing <i>n</i> = 8 mean age = 57 years	Partners <i>n</i> = 3 mean age = 24 years
Number of speaking turns				
<i>M</i>	77.2	78.0	73.5	73.6
<i>SD</i>	22.4	22.2	20.3	19.5
Mean length of turn (MLT)				
<i>M</i>	22.2	12.7	19.9	21.2
<i>SD</i>	12.2	6.1	8.2	12.2
Proportion of topic shifts				
<i>M</i>	13.5	12.3	10.4	11.8
<i>SD</i>	6.5	4.4	4.2	4.8
Proportion of self-oriented topic shifts				
<i>M</i>	90.5	45.3	71.2	44.9
<i>SD</i>	11.1	15.9	29.5	34.6
Proportion of questions				
<i>M</i>	3.6	18.9	18.7	10.2
<i>SD</i>	4.2	9.9	26.3	9.5

words per turn (22.2) than their partners (12.7), while normally hearing adults' mean MLT (19.9) was similar to that of their partners (21.2). A two-way ANOVA for repeated measures, however, failed to show significant main effects for hearing status, $F(1, 18) = 0.92, p = .34$, and for partner, $F(1, 18) = 1.68, p = .21$, or a significant interaction, $F(1, 18) = 2.82, p = .11$. However, the mean MLT ratio for the adults with a hearing loss and their partners was 1.93; and 9 of the 12 dyads had a ratio exceeding 1.0, suggesting an unequal share of the conversational floor. Seven of these dyads even had ratios larger than 2.0, which further highlights the extent to which controlling behaviors were present. In contrast, the adults with normal hearing and their partners exhibited a mean MLT ratio of 1.24, with only four dyads exhibiting an MLT ratio exceeding 1.0, and only one of these showing a ratio larger than 2.0.

Adults with a hearing loss, normally hearing adults, and partners used similar proportion of turns to shift topics of conversation. A two-way ANOVA for repeated measures confirmed the lack of significant difference with regard to topic shifting. The adults with a hearing loss produced the largest proportion of self-oriented topic shifts (90.5% of all topic shifts). Partners, on the other hand, exhibited a low proportion of self-oriented topic shifts whether interacting with adults with a hearing loss (45.3%) or adults with normal hearing (44.9%). A two-way ANOVA for repeated measures revealed a significant main effect for partner, $F(1, 18) = 15.9, p = .000$. The main effect for hearing status approached significance, $F(1, 18) = 3.5, p = .07$, while there was no significant interaction, $F(1, 18) = 1.11, p = .30$.

A small proportion of the turns used by the adults with a hearing loss included a question (3.6%). In contrast, their partners and the normally hearing adults used a high proportion of questions (18.9 and 18.7, respectively). A two-way ANOVA for repeated measures showed a significant crossover interaction, $F(1, 18) = 5.79, p = .02$. Post hoc testing indicated that the discrepancy between the proportion of questions used by the adults with a hearing loss and their partners was significantly different from the discrepancy between the proportion of questions used by the normally hearing adults and their partners. Therefore, a one-way ANOVA of the difference scores was performed and revealed that the use of questions by dyads where one of the members had a hearing loss was significantly different from the use of questions by dyads consisting of two normally hearing adults, $F(1) = 9.87, p = .005$.

Finally, as illustrated in Table 2, adults with a hearing loss used an average of 4.7 requests for clarification to solve misperceptions. Nonspecific requests were used slightly more often than specific requests. The types of repair strategies most frequently used by partners included repetition and paraphrase, while elaboration and confirmation were used less frequently. None of the adults with normal hearing or the partners expressed any clarification requests throughout the conversation samples.

Table 2
 Mean Number of Occurrences (With Standard Deviations in Parentheses) for Requests
 for Clarification Used by Adults With a Hearing Loss and Repair Strategies Used by Partners

Types of clarification requests	
Nonspecific	2.8 (2.1)
Specific	1.9 (2.0)
Total	4.7
Types of repair strategies	
Repetition	1.8 (1.9)
Paraphrase	1.7 (1.9)
Elaboration	0.7 (0.9)
Confirmation	0.6 (0.8)
Total	4.9

Discussion

A similar total number of speaking turns was used by each group of conversationalists. This finding was expected because a dyadic interaction is usually characterized by a process of continual back-and-forth message sending and receiving, where each person takes turns contributing to it. However, a larger proportion of adults with a hearing loss, compared to the proportion of adults with normal hearing, exhibited MLT ratios exceeding 1.0, which suggests an unequal share of the conversational floor. Moreover, more than half of the adults with a hearing loss showed MLT ratios larger than 2.0, indicating that they were talking at least twice as much as their partners. Some normally hearing adults also manifested controlling behaviors; however, only one of them showed such a large MLT ratio. Although statistical analysis did not show significant differences with respect to the mean number of words per turn, examination of MLT ratios indicated that unequal share of the conversational floor tended to be more prominent among adults with a hearing loss than among adults with normal hearing. The number of participants used in the study was small which may have contributed to the lack of significant difference in MLTs between groups.

Adults with a hearing loss and normally hearing adults used more self-oriented topic shifts than partners. The age difference between the dyadic members may be partly responsible for this finding. There was also a tendency for the adults with a hearing loss to use more self-oriented topic shifts than normally hearing adults, which is in agreement with Tye-Murray and Witt's (1996) observation that some adults with a hearing loss control conversations by shifting the topic to a more familiar one. Another form of conversational control noted in this study pertained to the use of questions. In dyads where one person had a hearing loss, the partner was the member the most likely to ask questions, whereas in dyads consisting of normally hearing adults, the partner was the member the least likely

to ask questions. By asking few questions, adults with a hearing loss infrequently solicited information from partners and were thus able to keep their turns for a longer time.

It is usually believed that unequal amounts of conversational participation occur because adults with a hearing loss produce longer speaking turns than normally hearing adults. However, control dyads with normally hearing adults have generally not been included in previous research. The present study did not support the notion that adults with hearing loss produce more words per turn than normally hearing adults. The large MLT ratios for the dyads where one member had a hearing loss may have been obtained because there was a tendency for partners to use fewer words per turn when interacting with someone with a hearing loss than when interacting with someone with normal hearing. These results suggest that partners, by providing less information and keeping their turns short, may contribute to the unequal share of the conversational floor typically found in the conversations of adults with a hearing loss. Their behavior, however, may be in response to other controlling behaviors manifested by the person with a hearing loss. For example, partners may have had little to contribute to the large proportion of self-oriented topics initiated by the adults with a hearing loss. Similarly, an infrequent use of questions by adults with a hearing loss may not have encouraged long speaking turns from partners. Whether or not partners modify their conversational style when interacting with someone with a hearing loss needs to be further investigated with a larger number of participants.

EXPERIMENT 2

Participants in Experiment 1 consisted of conversationalists of different ages who were not familiar with one another. The purpose of Experiment 2 was to determine whether the behaviors noted in Experiment 1 would also be observed when adults with a hearing loss interacted with familiar partners of similar ages. Experiment 2 therefore compared the conversational behaviors of adults with a hearing loss during interaction with familiar and unfamiliar partners.

Method

Participants

Five adults with a hearing loss (3 females and 2 males), with a mean age of 63 years ($SD = 9.4$), participated in this experiment. None of these participants were involved in Experiment 1 primarily due to recruitment constraints. All exhibited an acquired bilateral sensorineural hearing loss with a mean PTA of 59.7 dB HL ($SD = 11.9$) for the right ear and 48.4 dB HL ($SD = 12.4$) for the left ear. Similar to the participants of Experiment 1, they were long-term and consistent users of amplification and had not previously participated in an aural rehabilitation program targeting communication strategies. In addition, 10 conversational partners

(6 females and 4 males) with normal hearing participated in the study. Their mean age was 52 years ($SD = 9.7$). They consisted of 5 adults who were either the spouse or a long-term friend of each participant with a hearing loss (familiar partners) and 5 adults who had not previously met the participants with a hearing loss (unfamiliar partners). Three of the familiar partners were spouses while two were friends of the same gender as the person with a hearing loss. Dyads consisting of unfamiliar partners were matched for gender. Rather than using the same unfamiliar partner for all participants with a hearing loss, different partners were used in order to reduce possible learning effects resulting from the partners' increased familiarity with interacting with someone with a hearing loss.

Procedure

Each participant with a hearing loss was videotaped while engaged in two 20-min conversations: one with a familiar partner and one with an unfamiliar partner. The order of the two videotaping conditions was counterbalanced. Similar to Experiment 1, participants were informed that the purpose of the study was to examine the difficulties experienced by adults with a hearing loss during conversation, and they were simply instructed to carry on a conversation on topics of their choice. Videotaping was conducted in background noise in a manner similar to that of Experiment 1. The types of conversational behaviors analyzed in Experiment 1 were also coded in this experiment.

Results

Results are presented in Table 3 and interpreted in a descriptive manner rather than statistical because of the small number of participants. Analysis of the conversation samples revealed that, for each condition, dyadic members took a similar number of turns. However, there was an overall smaller number of turns during conversations between unfamiliar partners (59 turns) compared to conversations between familiar partners (80 turns).

The adults with a hearing loss used a greater number of words per turn in conversation with an unfamiliar partner (31.9 words) than in conversation with a familiar partner (16.4 words). Familiar and unfamiliar partners used approximately the same number of words. Dyads consisting of unfamiliar partners exhibited higher average MLT ratio (3.02) than dyads consisting of familiar partners (1.19). Figure 1 further shows that, for each dyad, the MLT ratio was always greater during interaction between unfamiliar partners than during interaction between familiar partners.

As also shown in Table 3, when conversing with a familiar partner, the adults with a hearing loss used an average of 9.4% of their speaking turns to shift the topic of conversation, a proportion which was similar to that of their partners (10.2%). When interacting with an unfamiliar person, however, they tended to use a higher proportion of topic shifts. Moreover, during conversations between

Table 3
 Conversational Performance of Adults With a Hearing Loss During Interaction With Familiar and Unfamiliar Partners

	Conversation with familiar partners		Conversation with unfamiliar partners	
	Adults with a hearing loss <i>n</i> = 5 mean age = 63 years	Partners <i>n</i> = 5 mean age = 56 years	Adults with a hearing loss <i>n</i> = 5 mean age = 63 years	Partners <i>n</i> = 5 mean age = 49 years
Number of speaking turns				
<i>M</i>	80.2	80.4	59.0	59.0
<i>SD</i>	28.7	28.6	16.6	17.1
Mean length of turn (MLT)				
<i>M</i>	16.4	12.9	31.9	11.7
<i>SD</i>	10.1	5.9	12.2	4.5
Proportion of topic shifts				
<i>M</i>	9.4	10.2	16.0	12.3
<i>SD</i>	1.6	1.6	5.3	2.5
Proportion of self-oriented topic shifts				
<i>M</i>	54.3	52.8	91.1	41.6
<i>SD</i>	22.3	22.4	12.2	22.9
Proportion of questions				
<i>M</i>	12.4	6.8	6.9	15.9
<i>SD</i>	6.7	4.4	8.3	7.1

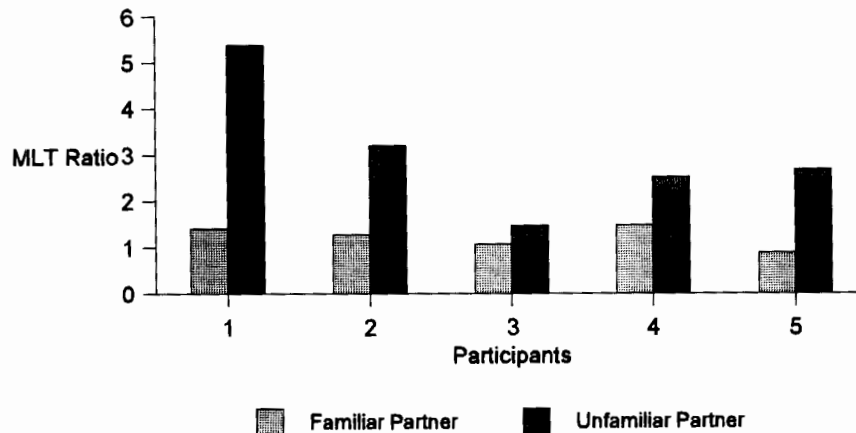


Figure 1. MLT ratios during conversation with familiar and unfamiliar partners.

familiar persons, the proportion of self-oriented topic shifts was comparable for the adults with a hearing loss and their partners (54.3 and 52.8% of all topic shifts, respectively). However, during interaction with an unfamiliar person, 91.1% of topic shifts by adults with a hearing loss were of the self-oriented type, compared to only 41.6% for their partners.

During conversation between familiar partners, the adults with a hearing loss were the dyadic members the most likely to ask questions (12.4% of their turns compared to 6.8% for their partners). On the other hand, when conversing with an unfamiliar partner, they only used 6.9% of their turns to request information, while 15.9% of their partners' turns included a question.

Finally, as shown in Table 4, adults with a hearing loss used on average 12.2 requests for clarification when conversing with a familiar compared to only 5.4 when interacting with an unfamiliar partner. All but one participant used a greater number of clarification requests when interacting with a familiar partner. Nonspecific requests for clarification tended to be used more often than specific requests in both situations. Repetition was the type of repair strategy most commonly used by familiar and unfamiliar partners. Paraphrase tended to be used mostly by familiar partners. Other strategies were not frequently used by either types of partners.

Discussion

Results suggest that adults with a hearing loss tend to modify their conversational behaviors depending on whether they are interacting with familiar or unfamiliar partners. The controlling behaviors that were observed in Experiment 1 were also noted in this experiment but only during conversation with unfamiliar

Table 4
 Mean Number of Occurrences (With Standard Deviations in Parentheses)
 for Requests for Clarification Used by Adults With a Hearing Loss
 and Repair Strategies Used by Familiar and Unfamiliar Partners

Types of clarification requests		
	Conversation with familiar partners	Conversation with unfamiliar partners
Nonspecific	8.6 (7.4)	3.8 (3.4)
Specific	3.6 (4.8)	1.6 (2.5)
Total	12.2	5.4
Types of repair strategies		
	Familiar partners	Unfamiliar partners
Repetition	6.4 (6.5)	3.0 (1.8)
Paraphrase	4.0 (3.6)	0.8 (0.8)
Elaboration	2.0 (1.4)	1.6 (1.8)
Confirmation	0.6 (0.8)	0 (0)
Total	13.0	5.4

partners. Conversational control was typically not observed when the adults with a hearing loss interacted with their spouses or a friend. That is, MLT ratios were around 1.0, suggesting an equal share of the conversational floor, and similar topic manipulation behaviors were observed in both dyadic members.

When people who are unfamiliar with one another participate in a conversational exchange for the first time, one would expect that they would often use questions as a means for becoming acquainted with one another. Interestingly, results showed that the adults with a hearing loss were less likely to ask questions when in conversation with an unfamiliar person than when in conversation with a friend or spouse. By infrequently addressing questions to their unfamiliar partners, they rarely relinquished their speaking turn and, consequently, were able to keep their turns for a longer time.

The adults with a hearing loss tended to use more clarification requests with familiar partners than with unfamiliar partners. Familiar partners may display greater empathy and may be more willing to comply with the use of repair strategies, which may have had an impact on hearing-impaired adults' willingness to use clarification requests with people that they know. These results are in disagreement with those of Tye-Murray et al. (1995) who found that adult cochlear implant users did not tend to use more requests for clarification when interacting with familiar partners than when interacting with unfamiliar people. It is possible that adults who use hearing aids may be less assertive in requesting clarification with unfamiliar persons than adult cochlear implant users who generally undergo extensive rehabilitation programs including training on assertiveness and

communication breakdown management. In addition, differences in degrees of hearing loss between cochlear implant users and most hearing aid users likely impact on the need to request clarification.

Adults with a hearing loss were found to employ primarily nonspecific clarification requests regardless of partner familiarity. Surprisingly, familiar partners did not consistently use particularly effective types of repair strategies more frequently than the unfamiliar partners. Their high use of message repetition for repairing communication breakdowns may have partly resulted from the hearing-impaired adults' high use of nonspecific requests for clarification, which provide no information to the partner with respect to what part of the message was misunderstood.

EXPERIMENT 3

Both Experiments 1 and 2 examined communication performance during one-to-one conversations; however, it is generally accepted that group conversations create a greater challenge for adults with a hearing loss. The purpose of Experiment 3 was to compare the conversational behaviors of adults with a hearing loss during dyadic interaction with their spouses and during small group interaction with two other couples.

Method

Participants

Five adults with a hearing loss, who were not involved in Experiments 1 or 2, participated in Experiment 3. They included 4 males and 1 female with a mean age of 62 years ($SD = 10.9$). They had an acquired bilateral sensorineural hearing loss, with a mean PTA of 51.0 dB HL ($SD = 15.3$) for the right ear and 43.8 dB HL ($SD = 9.0$) for the left ear. Similar to Experiments 1 and 2, participants were long-term and consistent users of amplification and had not previously participated in an aural rehabilitation program targeting communication strategies. The spouses of the adults with a hearing loss also participated in this study. Their mean age was 60 years ($SD = 13.2$). All spouses reported normal hearing, however, a hearing test revealed that one of the spouses exhibited a bilateral mild hearing loss (thresholds not worse than 45 dB HL) at 2000 and 4000 Hz. Ten other couples, who reported no hearing difficulties, also participated in this experiment. Their mean age was 53 years ($SD = 11.8$). A hearing test revealed that 8 of these 20 participants exhibited a mild hearing loss at no more than one audiometric frequency in one ear.

Procedure

All participants with a hearing loss and their spouses attended two 20-min videotaping sessions. In one session, each couple engaged in dyadic conversa-

tion, while in the other session, each couple engaged in group interaction with two normally hearing couples. The order of the two videotaping sessions was counterbalanced. None of the three couples had met prior to this investigation and were therefore unfamiliar with one another. Similar to Experiments 1 and 2, participants were informed that the purpose of the study was to examine difficulties experienced by adults with a hearing loss during conversation, and they were simply instructed to carry on a conversation on topics of their choice. The couples were not informed by the researcher as to which group member had a hearing loss; however, people with a hearing loss chose to disclose their hearing impairment during group interaction. Thus, the topic of hearing loss was discussed in all groups but several other topics (e.g., teenagers, environmental issues) were also discussed.

For the group condition, the three couples were seated around a table. The camera was positioned so that it faced the person with a hearing loss, while still capturing a view of all other group members. Unlike Experiments 1 and 2, the conversations did not occur in the presence of multitalker noise. It was thought that, because noise tends to occur naturally in group interaction, there was no need to deliver multitalker noise during videotaping. Conversational behaviors analyzed were the same as those for Experiments 1 and 2.

Results

Results are presented in Table 5 and will be discussed descriptively because of the small sample size. Adults with a hearing loss and their spouses took a similar number of turns during dyadic interaction (83 turns). Although smaller number of turns were used during group interaction by all conversationalists, there continued to be little difference between the mean number of turns used by the adults with a hearing loss (34.6) and the other group members (32.8).

The MLTs for the adults with a hearing loss and their spouses were comparable during dyadic interaction. In contrast, during group interaction, adults with a hearing loss exhibited longer MLTs than other group members, yielding an average MLT ratio of 2.38 compared to 1.02 during interaction with a spouse. Each participant with a hearing loss showed a greater MLT ratio during group interaction than during dyadic interaction as shown in Figure 2.

As also shown in Table 5, in dyadic interaction, adults with a hearing loss shifted topics of conversation in proportion similar to that of their spouses. In groups, however, they tended to shift the topic more often than other group members. Moreover, during dyadic interaction, the proportion of self-oriented topic shifts by adults with a hearing loss and their spouses was comparable. Adults with a hearing loss tended to produce a greater proportion of self-oriented topic shifts when in groups. Finally, there was a tendency for the adults with a hearing loss to use more questions when interacting with their spouses than during group interaction.

Table 5
 Conversational Performance of Adults With a Hearing Loss During Dyadic and Group Interaction

	Dyadic interaction		Group interaction	
	Adults with a hearing loss <i>n</i> = 5 mean age = 62 years	Spouses <i>n</i> = 5 mean age = 60 years	Adults with a hearing loss <i>n</i> = 5 mean age = 62 years	Group members <i>n</i> = 25 mean age = 53 years
Number of speaking turns				
<i>M</i>	83.6	83.8	34.6	32.8
<i>SD</i>	17.5	17.9	18.9	12.9
Mean length of turn (MLT)				
<i>M</i>	12.2	14.4	22.4	9.0
<i>SD</i>	4.1	6.8	16.9	2.9
Proportion of topic shifts				
<i>M</i>	11.2	13.3	15.1	8.6
<i>SD</i>	3.7	4.9	4.9	2.5
Proportion of self-oriented topic shifts				
<i>M</i>	32.5	27.5	73.3	60.1
<i>SD</i>	13.7	13.4	36.5	6.2
Proportion of questions				
<i>M</i>	11.2	8.2	6.4	6.8
<i>SD</i>	7.1	4.1	8.2	2.5

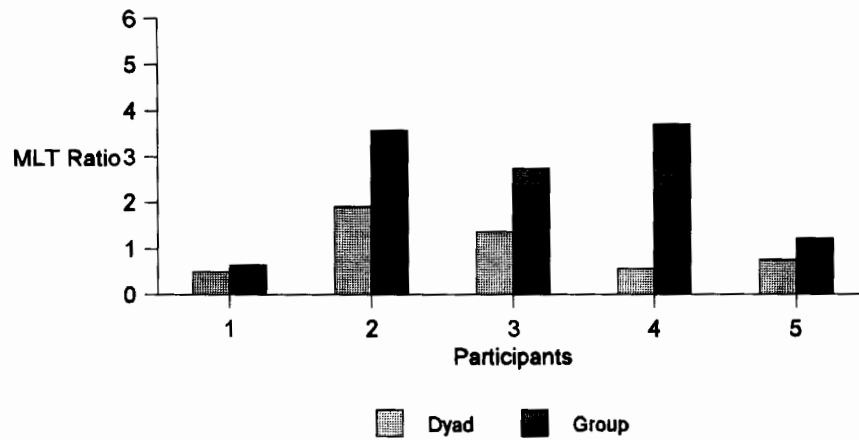


Figure 2. MLT ratios during dyadic and group interaction.

As depicted in Table 6, requests for clarification by adults with a hearing loss were rare; that is, they occurred, on average, less than two times during dyadic or group interaction. In groups, each participant used nonspecific requests exclusively; specific clarification requests never occurred. Spouses tended to use the elaboration repair strategy more often during dyadic interaction while group members most frequently repeated their original message.

Table 6
 Mean Number of Occurrences (With Standard Deviations in Parentheses)
 for Requests for Clarification Used by Adults With a Hearing Loss
 During Dyadic and Group Interaction and Repair Strategies Used by Partners

Types of clarification requests		
	Dyadic interaction	Group interaction
Nonspecific	1.0 (1.0)	1.4 (2.1)
Specific	0.8 (1.3)	0 (0)
Total	1.8	1.4
Types of repair strategies		
	Spouses	Group members
Repetition	0.4 (0.8)	0.8 (1.3)
Paraphrase	0.6 (0.8)	0.4 (0.8)
Elaboration	1.0 (0.7)	0.2 (0.4)
Confirmation	0.4 (0.8)	0 (0)
Total	2.4	1.4

Discussion

Not surprisingly, a smaller number of turns was used during group interaction compared to dyadic interaction. Since the length of the conversational samples was the same, there were simply more people to share the conversational floor with in groups. As for Experiments 1 and 2, the conversations of adults with a hearing loss showed some controlling behaviors. These behaviors were noted during group situations but were not typically observed during interaction with a spouse. This finding is consistent with Experiment 2 where a share of the conversational floor was noted among familiar partners.

Interestingly, clarification requests were not often observed when interacting with a spouse or in groups. This finding may be due to the fact that, unlike the other experiments, videotaping in Experiment 3 was conducted in quiet, and as a result, perceptual difficulties may not have been experienced to a great degree. Similar to the two other experiments, when challenged by misperceptions, adults with a hearing loss tended to primarily employ nonspecific clarification requests. Of particular interest was the finding that only nonspecific requests were used during group interactions. In order to express a specific request, a listener must hear a portion of the message. Group conversations may have created a very challenging listening situation which resulted in the failure to perceive any part of the message, leaving the participants with a hearing loss unable to make any specific clarification requests. It should be pointed out, however, that due to the limited number of occurrences of communication breakdowns, conclusions on clarification requests and partner repair strategies are difficult to draw.

GENERAL DISCUSSION

The majority of the participants with a hearing loss in the three experiments demonstrated the communicative behaviors typical of conversational control. Others (Caissie & Rockwell, 1994; Johnson & Pichora-Fuller, 1994; Tye-Murray et al., 1995) have also shown that when adults with a hearing loss take turns in the conversation, they usually keep their turns for a longer period of time than their partners. The present results further suggest that this behavior is more pronounced when the conversation setting presents greater challenges, such as during interaction with unfamiliar people and during group interaction. For example, MLT ratios were consistently higher when the participants interacted with unfamiliar people or in groups. On the other hand, an equal share of the conversational floor was exhibited when participants with a hearing loss interacted with a friend or spouse and when normally hearing adults interacted.

It has also been suggested that adults with a hearing loss tend to control topics of conversation (Tye-Murray et al., 1995). Results obtained highlight the extensive nature of this communicative behavior. That is, when adults with a hearing loss initiated topics during conversation with unfamiliar people, over 90% of

their new topics focused on themselves rather than on their partners. As pointed out by Erber (1996), individuals with a hearing loss may function more effectively in conversation when they are familiar with the topic under discussion. One way of ensuring that the topic is a familiar one, especially when conversing with unfamiliar partners, is to introduce topics related to one's own interests rather than initiating topics that target the partner's interests. During interaction with a friend or spouse, this strategy may no longer be needed because one is, to some extent, familiar with the partner's experiences and interests. However, Bedrosian (1993) has suggested that adults who consistently introduce topics about themselves may be less adept at developing satisfying relationships with others. People may react unfavorably to a high occurrence of self-oriented topics because such behavior suggests a lack of interest in the partner.

As suggested earlier, adults with a hearing loss may control conversations perhaps in an attempt to reduce communication breakdowns. That is, less listening effort is required when one does most of the talking or infrequently requests information from the partner. Consequently, communication breakdowns due to the misperception of the partner's message, along with requests for clarification, may occur less frequently; and adults with a hearing loss may thus appear to function more effectively in communicative interactions. Because normally hearing adults tend to react unfavorably to frequent communication breakdowns in conversation (Gagné et al., 1991), one may question whether conversational partners would react negatively to people with a hearing loss who control the conversation in an attempt to reduce communication breakdowns. More research is needed to determine whether fewer communication breakdowns actually occur when a person with a hearing loss dominates the conversation, and whether dominating behaviors are perceived negatively by conversational partners.

Withdrawal from communicative interaction has long been recognized as a prevalent response to significant hearing impairment (Hull, 1992; Trychin, 1994). Interestingly, results of the present experiments, as well as those obtained by Tye-Murray et al. (1995), suggest that most adults with a hearing loss control rather than withdraw from conversations. Withdrawal behaviors may manifest themselves more in the forms of avoiding situations where communication is likely to be required, such as choosing not to attend social gatherings or leaving social events early. When engaged in semi-structured dyadic or small group interactions, however, adults with a hearing loss may feel obligated to participate, and consequently choose to dominate the conversation. This concept is supported by the work of Hallberg and Carlsson (1991) who documented, using participant interviews, two coping patterns used by adults with a hearing loss. On one hand, they may avoid the social scene by avoiding communicatively demanding situations, and therefore, participate less often in social and leisure activities. On the other hand, they may control the social scene by dominating conversations or selecting topics of discussion.

Although the effects of hearing loss severity and speech reading abilities were not investigated, they would likely have an impact on the conversational competency of adults with a hearing loss. Personality characteristics would also likely influence their communicative performance. In addition, the gender of the participants may play a role as gender differences in conversational styles have been documented (Tannen, 1990; Zimmerman & West, 1975). For example, Lakoff (1973; cited in Thorne & Henley, 1975) noted that women tend to ask more questions than men. Gender differences in conversational styles may have influenced some of the present results, especially in Experiment 1, where the gender of the adults with a hearing loss and normally hearing adults was not balanced in each group. Adults with a hearing loss (most of whom were men) were found to ask few questions, which appears to be in agreement with Lakoff's observation. However, it should be specified that Lakoff also found that women are more likely to use *tag questions* or *indirect requests* (e.g., rising intonation at the end of a declarative statement), while men are more likely to ask direct questions. Only direct questions were coded in the present study. Interestingly, female partners were still more likely to ask direct questions than the group of adults with a hearing loss even though this group included primarily men. The effects of gender on the conversational dominance exhibited by adults with a hearing loss should be addressed in future studies.

Adult audiological rehabilitation programs that offer a component on communication strategies usually include intervention on the effective management of communication breakdowns through use of requests for clarification and assertive behaviors, along with information counseling on improving the listening environment. Intervention on repair strategies is obviously crucial for adults with a hearing loss, especially considering the large proportion of nonspecific requests noted in the three experiments. On the other hand, less emphasis is typically placed on the interactive nature of conversational exchanges and the maladaptive behaviors that adults with a hearing loss adopt not only when in the role of the listener but also when in the role of the speaker (e.g., control of topic, long speaking turns, and few questions). Erber (1996) has described several exercises for intervention targeting the pragmatic aspects of communication. Further research may determine whether modification of conversational style (e.g., decreasing dominating behaviors) is a desirable intervention goal in order for adults with a hearing loss to function more effectively in conversation, especially with unfamiliar people or in groups.

ACKNOWLEDGMENTS

Appreciation is extended to Maybelle Santos, MSc, for her assistance in the collection and orthographic transcription of conversation samples.

REFERENCES

- Bedrosian, J. (1993). Making minds meet: Assessment of conversational topic in adults with mild to moderate mental retardation. *Topics in Language Disorders, 13*(3), 36-46.
- Brinton, B., & Fujiki, M. (1989). *Conversational management with language-impaired children*. Rockville, MD: Aspen Publications, Inc.
- Caissie, R., & Rockwell, E. (1993). A videotape analysis procedure for assessing conversational fluency in hearing-impaired adults. *Ear and Hearing, 14*(3), 202-209.
- Caissie, R., & Rockwell, E. (1994). Communication difficulties experienced by nursing home residents with a hearing loss during conversation with staff members. *Journal of Speech Language Pathology and Audiology, 18*, 127-134.
- Erber, N. (1996). *Communication therapy for adults with sensory loss*. Victoria, Australia: Clavis Publishing.
- Gagné, J.-P., Stelmachovich, P., & Yovetich, W. (1991). Reactions to requests for clarification used by hearing-impaired individuals. *The Volta Review, 10*, 368-374.
- Gagné, J.-P., & Willie, K.M. (1989). Relative effectiveness of three repair strategies on the visual identification of misperceived words. *Ear and Hearing, 10*, 368-374.
- Gibson, C., & Caissie, R. (1994). The effectiveness of repair strategy intervention with a hearing-impaired adult. *Journal of Speech Language Pathology and Audiology, 18*, 14-21.
- Hallberg, L. & Carlsson, S. (1991). A qualitative study of strategies for managing a hearing impairment. *British Journal of Audiology, 25*, 201-211.
- Hétu, R., Jones, L., & Getty, L. (1993). The impact of acquired hearing impairment on intimate relationships: Implications for rehabilitation. *Audiology, 32*, 363-381.
- Hull, R. (1992). The impact of hearing loss on older persons: A dialogue. In R. Hull (Ed.), *Aural Rehabilitation* (pp. 247-256). San Diego, CA: Singular Publishing Group.
- Johnson, C.E., & Pichora-Fuller, M.K. (1994). How communication goals may alter handicap. *Journal of Speech Language Pathology and Audiology, 18*, 235-241.
- Pichora-Fuller, K., Johnson, C., & Roodenburg, K. (in press). The discrepancy between hearing impairment and handicap: Balancing transaction and interaction in conversation. *Journal of Applied Communication Research*.
- Searle, J. (1969). *Speech acts: An essay of the philosophy of language*. Cambridge, England: Cambridge University Press.
- Tannen, D. (1990). Gender differences in conversational coherence: Physical alignment and topical cohesion. In B. Dorval (Ed.), *Conversational coherence and its development* (pp. 167-206). Norwood, NJ: Ablex.
- Thorne, B., & Henley, N. (1975). Difference and dominance: An overview of language, gender, and society. In B. Thorne & N. Henley (Eds.), *Language and sex: Difference and dominance* (pp. 5-42). Rowley, MA: Newbury House Publishers, Inc.
- Trychin, S. (1994). Helping people cope with hearing loss. In J. Greer Clark & N.F. Martin (Eds.), *Effective counselling in audiology* (pp. 247-277). Englewood Cliffs, NJ: Prentice-Hall.
- Tye-Murray, N., Knutson, J.F., & Lemke, J.H. (1993). Assessment of communicative strategies use: Questionnaires and daily diaries. *Seminars in Hearing, 14*, 338-353.
- Tye-Murray, N., Purdy, S.C., & Woodworth, G.G. (1992). Reported use of communication strategies by SHHH members: Client, talker, and situational variables. *Journal of Speech and Hearing Research, 35*, 708-717.
- Tye-Murray, N., & Witt, S. (1996). Conversational moves and conversational styles of adult cochlear-implant users. *Journal of the Academy of Rehabilitative Audiology, 29*, 11-25.
- Tye-Murray, N., Witt, S., & Schum, L. (1995). Effects of talker familiarity on communication breakdown in conversations with adult cochlear-implant users. *Ear and Hearing, 16*, 459-469.
- Zimmerman, H., & West, C. (1975). Sex roles, interruptions, and silences in conversation. In T. Thorne & N. Henley (Eds.), *Language and sex: Difference and dominance* (pp. 105-129). Rowley, MA: Newbury House Publishers, Inc.