# Characteristics of Vocal Communication Between Young Adults and Their Parents and Grandparents

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*This study examined characteristics of young adult children's vocal communication with parents and grandparents. Seven young adult women telephoned their parents and grandparents, had a brief conversation with them, and described a collage to them. Voice samples of the conversations were rated by groups of 12-15 male and female judges on scales reflecting vocal qualities and interpersonal attitudes. Judges also guessed with whom the speakers were talking. Finally, collage descriptions were coded for message complexity. The major findings were that although speakers did not manifest differences in the use of complex linguistic forms, their voices were generally higher in pitch and sounded more babyish, feminine, and unpleasant when conversing with grandparents versus parents. Moreover, speakers were judged to be more deferential and congenial when speaking to grandparents. Variations in the nature of young adult grandchildren's vocal behavior were interpreted more as reactions to familial obligations than to the perceived cognitive capacities of elderly grandparents.*

The capacity for a person's voice to convey interpersonal attitudes has been well documented in the nonverbal behavior literature (Knapp, 1980; Zebrowitz, 1990). Moreover, people possess the keen ability to express their attitudes by modifying their vocal behavior in social interactions. For example, women's voices become louder and more dominant sounding when talking with unfamiliar men to offset their perceived power disadvantage (Hall & Braunwald, 1981; Markel, Prebor, & Brandt, 1972). On the other hand, women's voices become softer and less dominant sounding when

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talking with intimate male friends to express their affection (Montepare & Vega, 1988). People also use the well-known "baby talk" speech register in a variety of interpersonal contexts. In particular, adults use this style of vocal behavior not only when talking to young children but also when addressing foreigners or retarded adults who are perceived to lack certain cognitive skills (DePaulo & Coleman, 1986).

This study examined modifications in vocal behavior in an intergenerational context. More specifically, young adults' speech to their parents was compared with speech to their grandparents. Variations in parent- and grandparent-directed vocal behavior was of interest for several reasons. First, although much is known about how parents speak to their children (Snow & Ferguson, 1977), relatively little is known about how children, particularly adult children, speak to their parents. Even less is known about the nature of children's communication with other important family members such as grandparents.

Although life-span researchers' interest in the grandchild-grandparent relationship has risen noticeably in the last few years, the breadth of research in this area is limited. In general, research has consisted of qualitative or correlational studies that examine variables such as perceptions, functions, styles, and psychological implications of grandparenting for older adults. Much to its credit, this research has demonstrated not only the importance but also the multidimensionally rich nature of the role of grandparenting in later life (see, e.g., Cherlin & Furstenberg, 1986). However, an adequate understanding of the grandchild-grandparent relationship necessitates initiatives in more diverse empirical directions.

Several researchers have realized one important direction that work in this area must take—examining the grandchild-grandparent relationship from the grandchild's perspective (Eisenberg, 1988; Hartshorne & Manaster, 1982; Kennedy, 1990; Matthews & Sprey, 1985). The present research attempted to extend this initiative by assessing grandchildren's actual behavior toward their grandparents rather than by simply examining their attitudes about them. This study focused on vocal behavior, because as discussed beforehand, vocal behavior is known to carry information about interpersonal attitudes and modifications in vocal behavior play important social functions in the expressing of these attitudes. Thus knowledge about children's vocal behavior toward their parents and grandparents may provide insights into the nature of cross-generation familial relationships.

Knowledge about adult children's vocal behavior would also bring us closer to understanding how young people's attitudes toward the elderly affect their behavior toward them and the social psychological implications of these

behaviors. Indeed, increasing amounts of empirical evidence indicate that young adults readily modify their speech to older adults by reducing the complexity of their message and talking in a more babyish, exaggerated vocal style (Caporael, 1981; Culbertson & Caporael, 1983; Caporael, Lukaszewski, & Culbertson, 1983; Rubin & Brown 1975). Such behaviors have been interpreted within communication accommodation theory (Coupland, Coupland, Giles, & Henwood, 1988) as an overaccommodating response to negative stereotypes about older adults' cognitive and communicative capacities. Listeners' reactions to such speech have also been considered and indicate that many older adults find such vocal behaviors unpleasant and demeaning (Ryan, Giles, Bartolucci, & Henwood, 1986).

To begin to unravel the nature of young adults' intergenerational vocal behavior, paralinguistic and linguistic features of young adult children's vocal behavior with parents and grandparents were evaluated from tape recordings of telephone conversations. On the basis of what is currently known about young-to-elderly vocal behavior, the present study tested the following hypotheses regarding how young adults would modify their vocal behavior.

*Hypothesis 1a:* Young adult children will speak in a higher-pitched, more variable, more babyish sounding, more feminine sounding, clearer, slower, louder, and less pleasant sounding voice when talking to grandparents as compared to parents.

*Hypothesis 1b:* Young adult children will use less complex linguistic forms when conversing with grandparents as compared to parents.

As indicated at the onset, research in nonverbal behavior has shown that vocal qualities systematically influence impressions of speakers' interpersonal attitudes. Montepare and colleagues (Montepare & Vega, 1988; Montepare & Zebrowitz-McArthur, 1987), for instance, found that speakers with childlike and feminine voices were perceived as weaker and warmer than their mature, masculine-sounding peers. Given how speakers' voices were expected to vary when conversing with parents and grandparents, the following hypotheses were made regarding interpersonal attitudes likely to be associated with their voices.

*Hypothesis 2a:* Young adult children will be perceived as less commanding and powerful when conversing with grandparents as compared to parents.

*Hypothesis 2b:* Young adult children will be perceived as warmer when conversing with grandparents as compared to parents.

Research in nonverbal behavior has also shown that cues such as vocal qualities often convey more valuable social information than cues such as speech content. For example, Archer and Akert (1977) demonstrated that interactants' relationships to each other were identified more accurately by observers on the basis of how the interactants spoke to each other compared to what they said. The present study attempted to demonstrate further the social utility of vocal behavior by exploring the following hypothesis.

*Hypothesis 3:* Observers will be able to identify whether young adult children are talking to their parents or grandparents on the basis of the children's vocal behavior.

## Method

### *Participants*

Although this study initially intended to use men and women as speakers, only women replied to requests seeking volunteers. The only requirement for participation was that in addition to both parents, speakers have at least one grandmother and one grandfather with whom they felt comfortable talking on the telephone. The women who served as speakers were undergraduates enrolled in an introductory psychology class and were between 18 and 20 years of age.

Forty male and female undergraduates enrolled in another psychology class and between 18 and 20 years of age volunteered to evaluate the voice samples. Approximately equal numbers of male and female judges were randomly assigned to rate the speakers' specific vocal qualities, general vocal qualities, or interpersonal attitudes. The judges were randomly assigned to one of two orders of presentation of the voice samples.

### *Procedure*

Speakers were told that the purpose of the study was to examine how young adults convey information about people to other groups of adults. In an attempt to minimize potential biases in speakers' behavior, they were told that parents and grandparents were of interest simply because they are a diverse group of adults to whom many young adults have access. Speakers were informed that their task would be to telephone their parents and grandparents, have a brief warm-up conversation with them, and then

describe a collage of pictures of different people. In a further attempt to minimize demand characteristics, speakers were not given any specific information about how their conversations would be evaluated other than that they would be examined using standard methods in person perception research. Speakers were informed that their conversations would be tape recorded and were assured that no information regarding their personal identity would be evident in the final voice samples to be used. During the recording sessions, speakers called their partners in accord with a prearranged schedule, and these orders differed randomly across the speakers. To preserve anonymity, speakers were asked not to use their partners' names and not to discuss personal matters that might reveal their partners' identities. Speakers were given 2 min to greet and talk informally with their partners before beginning the collage-description task. During this time, the speaker sat at a desk upon which was the telephone and a small tape recorder used to record only the speaker's portion of each conversation. To reduce self-consciousness, the experimenter left the room during the conversations.

In order to examine potential differences in message complexity, speakers described a collage of pictures of people to their partners. Other researchers have used such description tasks with success in assessing differences in message complexity (e.g., DePaulo & Coleman, 1986). After the warm-up conversation, the experimenter returned and randomly presented the speaker with one of four collages of pictures of people from magazines. Each collage had an equal number of men and women as well as people from different demographic groups. Care was taken to keep behavioral actions and potential distinguishing personal attributes constant across the collages. The collages differed with respect to background color as well as placement of the various pictures. Speakers were given another 2 min to complete their descriptions, during which time the experimenter once again left the room. Judges later coded transcripts of the speakers' descriptions of the collages for particular linguistic features.

Twenty-second voice samples from the warm-up conversations were selected and edited onto an experimental tape. The voice samples consisted of the first segment after the greeting in which the speaker could be clearly heard and was predominantly speaking rather than listening to her partner. Two orders of presentation were created. One order consisted of a random sequence of the resultant 28 voice samples; the second order was the reverse of the first order. The various orders of voice samples were ultimately rated by different groups of judges on scales reflecting the speakers' vocal qualities, their conversation partners' identities, and their interpersonal attitudes.

After all recordings were made, the speakers were given the survey described below to complete. Following completion of the survey, the specific hypotheses to be tested were discussed with the speakers.

### MEASUREMENTS

To assess differences in the speakers' vocal qualities, one group of 12 young adult judges rated the 28 voice samples on two sets of 7-point bipolar rating scales reflecting fundamental vocal qualities. The qualities in the first set were loud/soft voice, enunciates clearly/mumbles a lot, and smooth/uneven rhythm. The qualities in the second set were changing/monotone voice, talks slowly/talks rapidly, and deep/high voice. A second group of 15 young adult judges rated the voice samples on one set of three 7-point bipolar rating scales reflecting the following general vocal qualities: unpleasant/pleasant voice, masculine/feminine voice, and babyish/mature voice. After completing the foregoing ratings, the second group of judges guessed the speakers' conversation partners by checking options labeled *mother*, *father*, *grandmother*, and *grandfather*.

To assess differences in the linguistic features of speakers' vocal behavior, verbatim transcripts were made directly from the recordings of speakers' descriptions of the collages, with punctuation determined by intonation. Next, the transcripts were coded by two of the experimenters in light of several linguistic measures suggested to differentiate speech to elderly persons from speech to nonelderly adults (Culbertson & Caporael, 1983; Rubin & Brown, 1975). Specifically, the total number of words used, number of sentences, and average sentence length were computed for each description. The experimenters coded a few transcripts together until 100% agreement was achieved, and then one experimenter coded the remaining transcripts.

A final group of 13 judges rated their impressions of the speakers' interpersonal attitudes on two sets of 7-point bipolar trait scales reflecting power- and warmth-related traits. The power-related traits included submissive/dominant, respectful/condescending, and dependent/independent. The warmth-related traits included cold/warm, tense/relaxed, and uninvolved/enthusiastic. To reduce potential response biases, three trait scales were randomly selected from the six total scales and used in the first set of ratings made by the judges. The remaining three scales constituted the second set of ratings.

After the experimental tasks were completed, all young adult speakers and judges completed a survey regarding the nature of their verbal interactions with their parents and grandparents. In addition to completing open-ended questions and scales regarding communication quality and satisfac-

tion, respondents rated their vocal qualities when conversing with their parents and grandparents and what interpersonal attitudes these qualities might evoke. These ratings were made on the same bipolar scales used to evaluate the actual speakers. Data obtained from these measures were intended for use in exploratory analyses regarding speakers' awareness of the characteristics and consequences of their vocal behavior. Thus they will not be discussed in great detail in the present article.

### Rating Procedures

Judges completed the vocal quality, partner identity, and interpersonal attitudes ratings in small groups in the social-developmental psychology laboratory testing room. They were informed that they would be listening to twenty-eight 20-s voice samples of women talking to different people on the telephone. Judges were not informed of the listeners' identities in order to reduce potential biases in their ratings. After being acquainted with the rating procedures, the judges listened to each speaker and made their ratings on the first set of scales. After these ratings were completed, the tape was replayed and judges made their second set of ratings. After making these ratings, the judges completed the survey and were debriefed and thanked for their participation.

## Results

To determine if the paralinguistic features of young adult children's voices differed in systematic ways when talking with their parents and grandparents, a series of 2 × 2 (Parent vs. Grandparent × Mother vs. Father) analyses of variance for repeated measures was performed on mean vocal quality ratings averaged across the 7 speakers. The descriptive statistics for these comparisons are presented in Table 1. Power analyses for within-subjects designs were conducted for each of the tests reported and indicated their power to be approximately 80% to detect a $d$ of .75 and greater with $\alpha = .05$ (Kirk, 1982; Maxwell & Delaney, 1990).

Consistent with the prediction asserted in Hypothesis 1a that the paralinguistic qualities of speakers' voices would systematically differ when speaking to parents versus grandparents, speakers' voices sounded significantly higher in pitch ($F[1, 14] = 5.54$, $p < .04$, partial $\eta^2 = .38$) and more feminine sounding ($F$ [1, 14] = 4.45, $p < .05$, partial $\eta^2 = .24$) when talking with grandparents compared to parents. In addition, speakers' voices sounded somewhat more babyish ($F[1, 14] = 2.69$, $p < .12$, partial $\eta^2 = .16$)

Table 1
*Judges' Mean Ratings of Speakers' Vocal Qualities*

| Voice rating | Conversation partner | | | |
|---|---|---|---|---|
| | Mother | Father | Grandmother | Grandfather |
| Soft voice | 4.15[a] | 3.71[b] | 3.73[b] | 3.94[a, b] |
| Mumbles a lot | 4.26 | 4.15 | 4.22 | 3.89 |
| Uneven rhythm | 4.39 | 4.38 | 4.37 | 4.25 |
| Monotone voice | 4.00 | 3.83 | 3.61 | 3.72 |
| Talks rapidly | 4.31 | 3.96 | 4.35 | 3.96 |
| High voice | 4.04 | 4.26 | 4.49 | 4.37 |
| Pleasant voice | 4.14 | 3.99 | 3.94 | 3.90 |
| Masculine voice | 3.01 | 3.12 | 2.90 | 2.84 |
| Mature voice | 4.42 | 4.36 | 4.31 | 4.16 |

*Note.* Means with different superscripts differ significantly at $p < .05$.

and less pleasant sounding ($F[1, 14] = 2.96$, $p < .12$, partial $\eta^2 = .18$), albeit not significantly so, when talking to grandparents.

An unexpected main effect and interaction revealed that the quality of speakers' voices was also affected by the gender of their conversation partner. More specifically, a significant main effect was found for talking speed and indicated that speakers were perceived to talk more rapidly to their mothers and grandmothers than to their fathers and grandfathers ($F[1, 11] = 6.04$, $p < .03$, partial $\eta^2 = .35$). Finally, an interaction was found for loudness ($F[1, 11] = 6.94$, $p < .03$, partial $\eta^2 = .38$), and follow-up comparisons indicated that speakers talked more softly to their mothers than to their fathers and grandmothers. Contrary to predictions, no significant effects were found for ratings of clarity, variability, or rhythm.

To assess differences in the linguistic features of the speakers' vocal behavior, a series of 2 × 2 (Parent vs. Grandparent × Mother vs. Father) analyses of variance for repeated measures were performed on the complexity scores derived from the 7 speakers' collage descriptions. Counter to the prediction stated in Hypothesis 1b that speakers would use less complex linguistic forms when speaking to grandparents than to parents, no significant differences were found regarding the number of words, the number of sentences, or the average length of sentences that speakers used in their collage descriptions. However, these null effects should be viewed with caution because the power of these tests was only about 50% to detect a $d$ of .75 or greater for $\alpha = .05$.

To assess impressions of speakers' interpersonal attitudes created by their vocal behavior, two composite scores were computed by averaging across trait

Table 2
*Judges' Mean Ratings of Speakers' Interpersonal Attitudes*

| Trait rating | Conversation partner | | | |
|---|---|---|---|---|
| | Mother | Father | Grandmother | Grandfather |
| Deference | 4.10 | 3.61 | 4.11 | 3.85 |
| Congeniality | 4.01[a] | 4.39[b] | 4.43[b] | 4.24[b] |

*Note.* Means with different superscripts differ significantly at $p < .05$.

scales in the a priori groupings.[1] More specifically, power-related ratings of how respectful, submissive, and dependent the speakers sounded were averaged, and the composite was labeled *deference*. Warmth-related ratings of how enthusiastic, relaxed, and warm the speakers sounded were averaged, and the composite was labeled *congeniality*. These composite scores were then submitted to a 2 × 2 (Parent vs. Grandparent × Mother vs. Father) analysis of variance for repeated measures that had a power of approximately 85% to detect a $d$ of .75 or greater with $\alpha = .05$. Descriptive statistics appear in Table 2.

Consistent with the prediction made in Hypothesis 2a that speakers would be perceived as less commanding and powerful when conversing with grandparents versus parents, a significant main effect regarding how deferential the speakers sounded indicated that they were perceived as more deferential when talking with their grandparents than with their parents ($F[1, 12] = 6.61, p < .03$, partial $\eta^2 = .35$). An unexpected main effect regarding the gender of the speakers' partners was also found and revealed that speakers were perceived as more deferential when conversing with their mothers and grandmothers than with their fathers and grandfathers ($F[1, 12] = 19.85, p < .001$, partial $\eta^2 = .62$).

Supporting Hypothesis 2b, which predicted that speakers would be perceived as warmer when conversing with grandparents versus parents, a significant interaction for congeniality was observed ($F[1, 12] = 15.56, p < .002$, partial $\eta^2 = .57$), and post hoc $t$ tests revealed that the speakers were perceived as more congenial when talking to their grandparents as compared to their mothers. Interestingly, and unexpectedly, they were also perceived as more congenial when talking to their fathers compared to their mothers.

The extent to which judges could identify the speakers' conversation partners was examined by using an analysis of variance on the proportion of correct judgments. In partial support of Hypothesis 3, which maintained that speakers' vocal behavior would reveal information about the identity of their partners, mothers and grandmothers were accurately identified significantly

more often than fathers and grandfathers ($F$ [1, 14] = 5.18, $p < .04$, partial $\eta^2$ = .28). Moreover, one-sample $t$ tests comparing these proportions to chance levels showed that judges identified the speakers' partners when they were talking to their mothers and grandmothers at better than chance levels ($M$ = .35, $t$[14] = 2.57, $p < .05$). Counter to predictions, however, their identification of fathers and grandfathers was random ($M$ = .27, $t$ <1).

## Discussion

This study revealed a number of interesting and systematic differences in characteristics of young adults' vocal communication with their parents and grandparents. Consistent with predictions, speakers' voices became higher, louder, and more feminine sounding as well as slightly more babyish and unpleasant sounding when conversing with their grandparents compared to their parents. Also consistent with predictions, speakers were judged to be more deferential and more congenial when conversing with their grandparents. How might these findings be explained, and what do they reveal about the nature of grandchildren's communication with their grandparents?

Consistent with communication accommodation theory (Coupland et al., 1988), one possible explanation is that grandchildren hold stereotypical beliefs about the cognitive capacities of their elderly grandparents and modify their voices to offset these perceived decrements. Contrary to this explanation, however, the collage task did not produce differences in message complexity that one would expect to find if grandchildren considered their grandparents' cognitive functional level to be impaired. Although the null effects for message complexity should be viewed with caution given the low power of the tests, the speakers' vocal behavior in the present study is consistent with the work of Rubin and Brown (1975), who failed to find convincing evidence for differences in complexity when speakers explained a drawing task to elderly adults who were not obviously cognitively impaired.

Another possible explanation for the present findings may be gleaned from considering speakers' responses to the exploratory survey questions about their verbal interactions with their grandparents. Although some speakers reported that they enjoyed speaking to their grandparents, especially their grandmothers, the responses of several speakers suggested that their verbal exchanges with their grandparents were not always sincere and at times were affected. For example, one speaker remarked that in response to her grandfather's concerned inquiries about how well she is doing academically and financially, she always tells him that things are grand. Several speakers also indicated that they preferred to talk with their grandparents about

commonplace issues rather than personal matters. Thus the observed variations in the vocal behavior of the present sample of speakers and the interpersonal attitudes associated with these variations may reflect over-accommodating speech to grandparents motivated by grandchildren's sense of familial politeness and obligation.

In addition to demonstrating that speakers' voices change in systematic ways when talking with particular partners, the present study showed that listeners could identify some conversation partners accurately on the basis of the speakers' vocal behavior. In particular, listeners were able to identify when speakers were talking to their mothers and grandmothers with better than chance accuracy. Although it is not unreasonable to assume that such judgments reflected differences in nonverbal vocal information, it is also possible that the content of speakers' conversations influenced the identity judgments, as well as the trait judgments described beforehand. However, several points argue against this possibility. First, care was taken to advise speakers not to discuss personal matters that might reveal the identities of their partners. Second, the brief voice samples provided minimal contextual information. Third, the speakers reported greater communication ties with their (grand)mothers compared to (grand)fathers in the exploratory survey measures. These arguments should not be taken to imply that content is not an integral aspect of the communication process. Rather, they should be interpreted as indicating that in certain kinds of intergenerational verbal exchanges, nonverbal vocal qualities are valuable sources of social information.

The present study also produced several unpredicted, yet nevertheless noteworthy, results. One such finding was that speakers sounded less deferential and more congenial when talking to their fathers than to mothers. Speakers' responses to some of the exploratory survey measures regarding their verbal interactions with their parents provide a likely explanation for this interesting difference. Many speakers described their mothers as good friends with whom they could be themselves and comfortably talk about personal matters. On the other hand, many reported difficulties talking with their fathers, noting that their fathers could be intimidating and cold. In light of these reported feelings, it is possible that the speakers talked in a less deferential manner to their fathers to offset their power disadvantage, as suggested by Hall and Braunwald's (1981) dominance-matching hypothesis. It is also possible that a less deferential style was adopted to gain their fathers' approval and acceptance, as predicted by the convergence principle of speech accommodation theory (Thakerar, Giles, & Chesire, 1982). The use of a more congenial speaking style to fathers than to mothers is consistent with such an approval-seeking function.

The present study was successful in demonstrating the effectiveness of research on intergenerational communication from a behavioral perspective. That is, the present study showed that exploring characteristics of young adult children's actual vocal behavior toward their parents and grandparents provides a wealth of information about the nature of the grandchild-grandparent relationship. As is the case when new lines of research are established, many issues arise for future consideration. For example, this study focused on only one end of the conversation process. Moreover, although this study attempted to provide an interaction context that was high in mundane realism, speakers' behavior may have nevertheless been influenced by the laboratory setting. Thus to achieve a more representative model of intergenerational interaction, future research should examine not only how parents and grandparents speak to their adult children but also how speakers' vocal behavior differs in more naturally occurring situations. In addition, research should explore the relation between real-time vocal behavior and interpersonal attitudes. Paradigms such as the one developed by Ickes, Bissonnette, Garcia, and Stinson (1990) to study objective behavior and subjective attitudes as they occur simultaneously in spontaneous, naturally occurring dyadic interactions should prove extremely useful in this work.

Future research would also benefit from considering how different demographic factors influence vocal behavior. The present study focused on a limited sample of White, middle-class adult children and their (grand)parents. The impact of social class and cultural background cannot be overlooked if a comprehensive understanding of intergenerational communication is to be obtained. Thus not only larger speaker samples but also more diversified ones should be studied. Similarly, it would be of interest to explore the impact of family structure (e.g., having only one parent or grandparent) and style of (grand)parenting on vocal communication between young adults and their parents and grandparents. Finally, insights may be gained from considering the developmental course of patterns of grandchild-grandparent communication across the life span.

## Notes

1. In an attempt to confirm the validity of the groupings, a principal components factor analysis with varimax rotation was performed on the survey trait ratings completed by speakers and judges after the experimental tasks. Separate analyses were performed for responses regarding parents and grandparents, and each resulted in a similar two-factor solution, accounting for a total of approximately 60% of the variance in ratings. Consistent with the deferential composite, the first factor consisted of ratings of how respectful, submissive, and dependent the speaker sounded. Consis-

tent with the congeniality composite, the second factor consisted of ratings of how enthusiastic, relaxed, and warm the speaker sounded.

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