Production and Perception of "Verbosity" in Younger and Older Adults

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Older adults produced more off-topic speech (OTS) than younger adults during autobiographical interviews in previous studies, a finding attributed to age-related deficits in inhibiting irrelevant information. In this study, older adults produced more OTS than younger adults for autobiographical topics, but not for picture descriptions. A 2nd sample of younger and older participants rated older adults' story quality more positively than that of younger adults, a problematic finding for the inhibitory deficit explanation. Raer age affected ratings of how focused the speech was on the topic, suggesting age differences in criteria for OTS. These findings are consistent with the Pragmatic Change hypothesis, which maintains that older adults adopt communicative goals that emphasize the significance of life experiences rather than conciseness in their personal narratives.

This research was designed to shed light on a paradox engendered by the conclusion that older adults' speech is more prolonged and irrelevant to the topic than is that of younger adults, a condition that Arbuckle, Gold, and colleagues referred to as "off-topic verbosity" (Arbuckle & Gold, 1993; Gold, Andres, Arbuckle, & Schwartzman, 1988; Gold, Arbuckle, & Andres, 1994). The prevailing explanation of off-topic verbosity in old age is the Inhibitory Deficit hypothesis, which posits that older adults are impaired in an inhibition process that is general in nature and fundamental to language production and comprehension as well as other cognitive functions (Arbuckle & Gold, 1993; Hasher & Zacks, 1988; West, 1996; Zacks & Hasher, 1994).

There are two dimensions to the paradox: First, if older adults are generally more verbose, it is surprising that people believe that older adults produce more enjoyable stories than younger adults (Ryan, Kwong See, Mencer, & Trovato, 1992) and that they rate older adults' narratives more highly than those of younger adults (e.g., Kemper, Rash, Kynette, & Norman, 1990). Second, if older adults are generally more off topic, why is irrelevant speech absent in a wide range of the language production tasks that we review?

In this research we addressed this multifaceted paradox by measuring off-topic speech (OTS) in younger and older adults' narratives on a variety of topics and by measuring ratings of the quality of their speech. We determined, for example, whether OTS also can be more interesting speech and whether age differences in OTS are greater for autobiographical topics of the sort that Arbuckle and Gold (1993) examined than for other topics.

We use the more neutral term off-topic speech because the term off-topic verbosity conflates three characteristics that we measured separately in this study: lack of focus on the topic, talkativeness, and negative evaluation of speech quality.

We tested predictions of two hypotheses for our measures: The Inhibitory Deficit hypothesis and a nondecremental account of age differences in OTS, the Pragmatic Change hypothesis. According to the Pragmatic Change hypothesis, younger and older adults select different speech styles because they hold different communicative goals for their speech (Boden & Biehl, 1983; Giles & Coupland, 1991). In the next two sections, we review findings that support this summary of age differences in OTS and that are relevant to the two hypotheses.

OTS, Aging, and Inhibitory Deficits

Arbuckle, Gold, and colleagues (e.g., Arbuckle & Gold, 1993; Gold et al., 1988; Gold & Arbuckle, 1995; Gold et al., 1994) reported the first systematic studies. They analyzed the spoken responses of older adults (age range = 60–90+ years) to questions in a survey or a life history interview. For each participant, they measured item verbosity (i.e., the number of questions producing OTS) and extent verbosity (i.e., the experimenter's rating of the amount of off-topic information) and found that both increased with age. The frequency and extent of OTS was related to a composite score on neuropsychological tests purported to measure inhibitory processes, namely the Wisconsin Card Sort Test (WCST), the Trail Making Test, and fluency, but not to vocabulary or episodic memory scores (Arbuckle & Gold, 1993; Gold & Arbuckle, 1995). In addition, certain aspects of psychosocial functioning predicted OTS, such as high extraversion, stress, and unsatisfactory social support.
Arbuckle and Gold (1993) argued that OTS in older adults is linked to a deficit in the ability to inhibit irrelevant stimuli, as postulated by the Inhibitory Deficit model of Hasher and Zacks (1988). According to this model, inhibitory processes decline with age so that older adults activate more irrelevant information and are less efficient in suppressing irrelevant information once it is activated (e.g., Stoltzfus, Hasher, & Zacks, 1996; Zacks & Hasher, 1994). This inhibition deficit is distributed across many cognitive systems and affects all levels of language processing. Consequently, the model predicts that in language production, older adults will retrieve more thoughts irrelevant to the topic under discussion and will be less able to suppress these irrelevant thoughts; their speech will contain more inappropriate, extraneous information (e.g., Zacks & Hasher, 1994). Arbuckle and Gold’s finding that performance on cognitive tests believed to reflect inhibitory functioning is negatively related to OTS supports this model.

A literature review revealed surprisingly few studies of speech production to corroborate the findings of Arbuckle, Gold, and colleagues. We excluded from consideration studies of recall or retelling of presented stories because of the heavy memory requirement; age differences in episodic memory would confound age differences in speech production in such tasks (Burke & MacKay, 1997). In an oral interview about their family and work experience, older adults’ responses were rated as being less coherent with respect to the topic than those of younger adults (Glosser & Deser, 1992). In peer-group discussions with a researcher, older participants developed topics that were tangential to those raised by the researcher, and their talk was characterized by a “pattern of topic flux” (Glosser & Deser, 1992, p. 164), although this style was coherent and well suited to personal narratives (Giles & Coupland, 1991; Giles, Coupland, & Wiemann, 1992). Juncos-Rabadan (1995) also reported more tangential information in older than younger adults’ stories generated to describe a set of pictures. Years of education, however, was substantially lower for the older than younger adults, and education had a stronger effect on tangential information than age, with age contributing little beyond the education effect.

Other researchers have reported no age differences in OTS. Gould and Dixon (1993) asked younger and older adults in a couple to collaborate in describing a vacation they took together and found no age differences in the amount of tangential information produced. In an oral picture description task, there was no age difference in the proportion of irrelevant speech (Chapman, Ulatowska, Kig, Johnson, & McIntyre, 1995; Cooper, 1990) or in the number of themes expressed (Shewan & Henderson, 1988), although in the latter study the authors did not evaluate the relevance of the themes. In “get acquainted” conversations between two previously unacquainted older or younger adults, age had no effect on the timing of turn taking or whether speech “rambled” (Boden & Bielby, 1983). Thus, age differences in OTS may occur only under certain conditions, and the relevant parameters of these conditions have yet to be identified.

Copiousness of speech is a criterion for off-topic verbosity, along with lack of focus (Gold et al., 1994). Gold et al. (1988) reported in two studies that participants categorized as extreme talkers in an interview were older than participants categorized as controlled talkers, and extreme talkers produced more OTS and their testing sessions were longer. Although these results suggest a correlation between talkativeness in general and OTS, younger and older adults do not consistently differ in talkativeness, as Arbuckle and Gold (1993) pointed out. Many researchers have failed to find age differences in the amount of speech, measured by total words, utterances, or propositions, in tasks including descriptions of inkblots (Hayeslip, 1981), pictures (Cooper, 1990), videos (Heller & Dobbs, 1993), memorable experiences (North, Ulatowska, Macaulay-Haynes, & Bell, 1986), and activities such as mailing a letter (Ulatowska, Caninto, Hayashi, & Fleming, 1985).

Within the inhibitory deficit framework, this lack of consistent age differences in OTS and talkativeness is surprising because the age decrement in inhibition applies to language production in general. Speech situations may vary in the extent to which they activate irrelevant information, but the a priori basis for predicting which situations would activate more irrelevant information than others remains unspecified. Speech production during semantic tasks in the laboratory have consistently yielded no age differences (for reviews, see Burke, 1997; Kemper, 1992; Light, 1991). There were no age effects in the typicality, relevance, or variability of spoken responses in generating word associations (Burke & Peters, 1986), scripts (Hess, 1985; Light & Anderson, 1983), category instances (Howard, 1980), and sentence completions (Cohen & Faulkner, 1983; Nebes, Boller, & Holland, 1986; see also Light, Capps, Singh, & Owens, 1994). Moreover, when asked to monitor irrelevant thoughts that came to mind (“mind wandering”), older adults did not report more irrelevant thoughts than younger adults who received the laboratory or everyday life (Giambra, 1989; Kramer, Humphrey, Larish, Logas, & Strayer, 1994).

The hypothesis that OTS is caused by a decrement in a fundamental cognitive mechanism is weakened by the absence of age-linked increases in irrelevant responses in other production tasks. It also is puzzling that despite this hypothesized cognitive decrement that increases irrelevant and tangential speech, Kemper and colleagues (Kemper, Kynette, Rash, O’Brien, & Sprott, 1989; Kemper et al., 1990) and Pratt and Robins (1991) reported that ratings of the quality of autobiographical or fictional narratives were higher for older than younger speakers. It is possible, however, that superior ratings occur for older adults only in the absence of OTS. In the current study we addressed this possibility by measuring both OTS and ratings of quality for the same participants speaking on the same topics.

OTS, Aging, and the Pragmatics of Language

The Pragmatic Change hypothesis provides an alternative account of the pattern of higher ratings of older adults’ narratives and age differences in OTS in some situations but not others. Pragmatics describes functional aspects of language beyond the exchange of information (e.g., the impact of a speaker’s intentions on the language produced). There is considerable evidence that intentions or communicative goals are a potent determinant of the quality and style of discourse. For example, communicative goals influence the selection of a speech style (e.g., Giles & Coupland, 1991; Hynes, 1972; Labov, 1969), thereby producing phenomena such as younger speakers’ patronizing speech to
older adults, regardless of the functional abilities of the older adults (Hummert, 1994; Kemper, 1994; Ryan, Giles, Bartolucci, & Henwood, 1986). In this case, the patronizing speech style clearly does not bear on the cognitive competence of the speaker but on the social context and identity of the speaker, which in turn shape communicative goals with a particular listener. Similarly, within this framework, older adults’ expansive speech and OTS is a style selected to meet specific communicative goals that are related to the social context and identity of older speakers.

According to the Pragmatic Change hypothesis, older adults value the process of talk and the opportunity it provides for social interaction more than younger adults because older adults have more restricted social contacts or insufficient opportunities for discourse (Giles & Coupland, 1991; Giles et al., 1992). The Pragmatic Change hypothesis proposes that older adults hold different goals for their talk because they are more interested in personal narrative, reminiscence, and establishing their identity in discourse (Boden & Biehl, 1983, 1986; Coupland & Coupland, 1995). Within this framework, older adults’ increased talkativeness and OTS reflects a speech style driven by communicative goals that emphasize the telling of personal narratives and significant events rather than the concise exchange of information.

This pragmatic approach is consistent with Arluck and Gold’s (1993) finding that increased OTS was associated with extraversion, stress, and decreased satisfaction with social support, all factors that may increase the value placed on the process of discourse with another person. Moreover, OTS is linked to pragmatic principles that apply to conversational discourse, but not to experimental tasks such as generating scripts or word associations in which personal narratives are inappropriate. Inasmuch as older adults’ communicative goals emphasize exposition of significant life events, we would expect age-related increases in talkativeness and OTS in discourse situations involving personal narratives rather than in more objective communication situations such as describing a picture or video.

The Present Research

In this research we tested the Inhibitory Deficit and Pragmatic Change accounts of age-related changes in OTS by examining the effects of personal versus objective speech topics on talkativeness and OTS and by assessing the communicative value of OTS. In the first part of the study (Experiment 1a), younger and older adults were asked to speak on personal topics (i.e., education, family, and vacation) and objective topics (i.e., describing three pictures). We measured the length of their speech (in words) and the frequency of OTS, both as a function of topic type. If older adults’ OTS is caused by an impairment in the cognitive process of inhibition, which is fundamental to language production, then age-related increases in OTS should occur for both personal and objective topics. If younger and older adults differ in communicative goals such that older adults place greater emphasis on the communication of personal information about their life, there should be age-related increases in OTS for personal topics but not picture descriptions in which personal information is largely irrelevant. In the second part of the study (Experiment 1b), a new sample of younger and older adults rated the quality and communicative value of speech on personal topics generated by participants in Experiment 1a. If older adults’ speech is more verbose because of inhibitory deficits, this impairment should reduce speech quality by allowing the inclusion of inappropriate information. On the other hand, if older adults emphasize the communication of personal narratives more than younger adults, thereby aiming for an interesting story rather than a concise one, their speech should receive higher ratings of quality.

Experiment 1a

Method

Participants. We tested 20 young college students (M = 19.4 years, SD = 1.5; 13 women and 7 men) and 20 healthy, community-dwelling older adults (M = 73.1 years, SD = 4.2; 11 women and 9 men). The mean score on the Nelson–Denny Vocabulary Test (maximum score = 25) was higher for older (M = 21.7, SD = 1.7) than younger adults (M = 18.0, SD = 2.5), t(38) = 4.92, p < .001, and years of education was greater for older (M = 17.1, SD = 2.8) than younger adults (M = 14.0, SD = 1.1), t(37) = 4.58, p < .001. Because all the undergraduates were expected to obtain college degrees, we selected older adults with college degrees as often as possible. Not included in this sample were 1 older adult who did not want to discuss one topic and 6 older adults whose data were unusable because of equipment malfunctions. All participants were native English speakers and were paid for their participation.

Materials. For personal topics, participants were asked to describe their education, their family, and a memorable or enjoyable vacation. For picture topics, participants were asked to describe three pictures selected to be equally relevant to younger and older adults. One was the birthday picture, a black-and-white line drawing from the Boston Diagnostic Aphasia Examination (Goodglass & Kaplan, 1976). The other two pictures were relatively unknown paintings taken from art history books: One picture depicted an elderly man and woman sitting on a bench in a woods with a young family in the background, and the other picture depicted two women in 19th-century garb looking in a shop window in a village. The village picture was presented in a color photocopie and the cookie and bench pictures in black-and-white photocopies.

All participants completed the Nelson–Denny Vocabulary Test and questions about their age, sex, education level, and any medications they were taking. An audio tape recorder with a lapel microphone recorded all sessions.

Procedure. Participants were tested individually by one of two female experimenters (aged 20 and 19, with 15 and 14 years of education, respectively) whom they had not previously met. After completing the vocabulary test and background questions, the experimenter and participant engaged in small talk on a series of predetermined issues to allow the participant to become comfortable in the testing room, which resembled a small living room. The six topics were then administered to each participant with the order of topic type counterbalanced across participants. The instructions for the three personal topics were“I would like you to describe your education, beginning in grammar school or wherever you'd like,” “I would like you to describe your family,” and“I would like you to describe a memorable or enjoyable vacation you have taken.” The instructions for the three picture topics were“I would like you to describe this picture.” They were told to speak for 3–5 min on each topic. The experimenter occasionally nodded or responded “uh huh” when appropriate and spoke only to clarify procedural questions. Every effort was made to keep the experimenter’s comments uniform across participants.

Scoring. The audiocassettes of all responses to the topics were tran-
scribed verbatim. These transcriptions were used to obtain word counts, to identify OTS and, in Experiment 1b, to obtain ratings of quality.

Word counts were generated by computer for each description. One of the experimenters calculated the number of “uhhh,” “ummm,” stuttering repetitions, coughs, and metalinguistic comments (e.g., “I'm done”) and subtracted them from the computer’s word count, yielding the total number of words spoken per topic.

Following previous studies, we defined OTS as a verbalization whose meaning was not directly relevant to the topic. Any continuous block of speech about anything not directly relevant to the topic was scored as OTS; the measure was the number of words in the OTS. This is a more objective measure than the subjective rating of degree of verbosity on a Likert scale used in previous studies (e.g., Arbrack & Gold, 1993; Glosser & Deser, 1992). OTS was further categorized as indirectly relevant (i.e., indirectly related to the topic) or irrelevant (i.e., no identifiable connection to the topic).

Examples of this scoring can be seen in the Appendix, where we present complete transcripts of one young and one older adult speaking on the education topic and one young and one older adult speaking on the vacation topic. These transcripts were selected because they were mid-range for their age group for number of words, proportion of OTS and story quality rating, and they were from four different participants. OTS is indicated by underlining and relevant versus irrelevant OTS by superscript.

One coder (25 years old, 20 years of education) scored each participant’s transcript for OTS, and two additional coders (ages 20 and 19, with 15 and 14 years of education, respectively) each independently scored half of the transcripts. Prior to coding these transcripts, the coders scored transcripts from pilot subjects and discussed applying the criteria for OTS. Intercoder agreement for whether or not a participant had any instances of OTS in his or her speech on each topic was 92% (96% for young and 88% for older participants). Inter-coder agreement for the specific instances of OTS within each topic was 89% (95% for younger and 82% for older participants). Coding discrepancies usually consisted of differences in the number of words coded as off topic, and there were occasional discrepancies in coding speech as indifferently relevant or irrelevant to the given topic. Fewer coding discrepancies occurred for younger adults’ transcripts than older adults’ transcripts because younger adults frequently had no instances of OTS. All differences in coding were resolved to 100% agreement through discussion prior to further analyses.

Results and Discussion

Word count. The total number of words spoken by each participant about each topic was analyzed in an analysis of variance (ANOVA) with age group (younger, older) as a between-subjects variable and topic type (personal, picture) as a within-subject variable. As shown in Figure 1, older adults spoke more words than younger adults, $F(1, 38) = 13.44, p < .01, MSE = 36,752.53, and personal topics elicited more words than picture topics, $F(1, 38) = 27.73, p < .001, MSE = 23,811.32$. There was also an Age Group x Topic Type interaction, $F(1, 38) = 14.43, p < .01, MSE = 23,811.32$, because older adults produced more words than younger adults for personal topics, $t(38) = 3.96, p < .001$, but not for picture topics, $t < 1$.

The age difference in number of words for personal topics was further explored in an ANOVA with age group (younger, older) and personal topic (education, family, vacation) as variables. As shown in Figure 2, older adults produced more words than younger adults, $F(1, 38) = 15.67, p < .001, MSE = 159,189.21$. Number of words varied by topic, $F(2, 76) = 3.80, p < .05, MSE = 71,228.67$. Paired t tests showed that both age groups produced more words about education than about family, $t(39) = 2.09, p < .05$, or about vacations, $t(39) = 2.27, p < .05$. There was no interaction of age group and personal topic. As we will see in the next section, older adults produced more OTS, so we conducted another analysis to determine if older adults still produced more words when all OTS was eliminated from the analysis. An ANOVA on number of words for personal topics, using only words that were on topic, showed that older adults produced more on-topic words than younger adults ($Ms = 194$ and 382 words, respectively), $F(1, 38) = 14.26, p < .01, MSE = 74,347.35$, and there was again a significant effect of topic, $F(2, 76) = 4.58, p < .05, MSE = 27,473.08$, but no interaction.

OTS. For all topics combined, the number of instances of OTS for each participant ranged from 0 to 6 for younger adults and from 0 to 12 for older adults. The total number of words spoken that were off topic ranged from 0 to 144 for younger adults and from 0 to 1,234 for older adults.

For the six topics combined, 18 older and 10 younger participants produced at least one instance of off-topic verbose speech, $X^2(1, N = 40) = 7.62, p < .01$. Separate chi-square analyses by age were performed on the number of participants with instances of OTS on each of the topics, shown in Table 1. For each of the three pictures, there was no age difference ($ps > .2$). More older than younger adults produced instances of OTS for the education topic, $X^2(1, N = 40) = 14.55, p < .001$, and the family topic, $X^2(1, N = 40) = 5.23, p < .05$, but this age effect was marginal for vacation descriptions, $X^2(1, N = 40) = 3.64, p = .057$.

For all topics combined, the 18 older and 10 younger adults who generated OTS generated one or more instances of indirectly relevant OTS, $X^2(1, N = 40) = 7.62, p < .01$. Nine older adults and no younger adults produced instances of irrelevant OTS, $X^2(1, N = 40) = 9.18, p < .01$.

The mean percentage of words spoken that were classified as off topic for picture and personal topics is presented in Figure 3. Nonparametric analyses were necessary because the distribution of the percentage of words that were off topic (indirectly
relevant and irrelevant combined) for each participant was skewed (i.e., many participants produced no off-topic words). Kruskal–Wallis analyses on the mean proportion of off-topic words showed larger proportions for older than younger adults for both picture topics ($H = 4.14, p < .05$) and personal topics ($H = 15.49, p < .001$). Separate analyses for each picture and personal topic revealed a marginally larger proportion of off-topic words for older ($M = 0.03$) than younger ($M = 0.00$) adults for the bench picture ($H = 3.16, p = .076$) and no significant age differences for the village or cookie pictures ($p s > .14$). For personal descriptions, the proportion of off-topic words was larger for older than younger adults in their descriptions of education ($Ms = 0.16$ and 0.01, respectively; $H = 16.83, p < .001$) and of family ($Ms = 0.15$ and 0.03, respectively; $H = 6.12, p < .05$), but this age effect was marginal for vacations ($Ms = 0.08$ and 0.04, respectively; $H = 2.85, p = .091$).

In summary, older adults were more talkative than younger adults in terms of producing more words, but only for the personal topics. This age difference was not a consequence of older adults’ OTS because it held when only on-topic speech was analyzed. More older than younger adults produced instances of OTS, but only for personal topics. Age differences in the proportion of OTS were identified for both picture and personal topics, but the age effect was more pronounced for personal than picture topics. The age differences with personal topics were not caused by a few older adults because 75% of older adults generated OTS when discussing their education, for example. These results replicate a pattern shown across previous studies and resolve the apparent inconsistency among these studies, with some reporting age-linked increases in talkativeness and OTS (e.g., Gold et al., 1988) and some reporting no age differences in these measures (e.g., Cooper, 1990). Our results suggest that this inconsistency reflects the difference in topics among studies because personal topics elicited talkativeness and OTS in our older participants and picture descriptions did not. Interestingly, the vacation topic yielded age differences in the amount of speech and marginal age-linked OTS, whereas Gould and Dixon (1993) reported no age differences in digressions during descriptions of vacations. Because Gould and Dixon measured descriptions generated by couples, the presence of a second speaker (and listener) may have eliminated the OTS generated by solo speakers in our study.

Why do these different types of topics vary in the extent to which they evoke talkativeness and OTS? One basic difference between picture and personal topics is the extent to which the participant’s autobiographical experience is relevant: The personal topics specifically queried this experience, whereas autobiographical experience was irrelevant to a description of the pictures. The finding of selective talkativeness and selective OTS for older adults is compatible with an age-related change in communicative goals such that older adults place greater importance on, and are more interested in, talk that is relevant to their personal history. On the other hand, as a reviewer pointed out, the critical difference between the personal and picture topics may be that instructing participants “to describe your family” invited a narrative, whereas asking them “to describe a picture” did not. In this case, the age difference could be in telling narratives regardless of their personal significance. Future researchers can resolve this issue by instructing participants to

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<th>Group</th>
<th>Picture topic (%)</th>
<th>Personal topic (%)</th>
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<tr>
<td></td>
<td>Bench</td>
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<td>Younger</td>
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Note. Probability values are from chi-square analyses in Experiment 1a.
tell a story, and comparing their stories about a personal experience and a picture.

It is noteworthy that we found no evidence that older adults were more likely than younger adults to stray off topic while describing a picture, for example, by talking about autobiographical events whose recall was triggered by the picture. Thus, there was no evidence that older adults were impaired in suppressing personally relevant information that was irrelevant to the topic during picture descriptions. This is consistent with previous findings showing no age differences in irrelevant information during language production that does not involve personal narratives (see Burke, 1997). Personal narratives seem to be exceptional in evoking OTS in older adults. This pattern of selective talkativeness and OTS is inconsistent with theories that predict age-related increases in the production of irrelevant information regardless of context.

**Experiment 1b**

To shed more light on the reason for selective talkativeness and OTS in older adults, in Experiment 1b we obtained ratings of the communicative value of speech generated in Experiment 1a. Younger and older adults rated verbatim transcripts of the responses to the personal topics in Experiment 1a on a variety of dimensions, including overall quality. We used only responses to personal topics because these topics generated the most OTS and the largest age differences.

According to the Inhibitory Deficit hypothesis, older adults are unable to suppress irrelevant and inappropriate information as effectively as younger adults, and this information is produced in older adults' speech. Inasmuch as the suppression of this irrelevant information enhances younger adults' communication by eliminating distracting and tangentially related material, their speech should be rated as clearer, more focused, more informative, and better overall than that of older adults. Superior ratings for younger speakers may be particularly pronounced for younger raters because, according to the Inhibitory Deficit hypothesis, younger adults suppress the type of information that older adults produce in OTS, presumably because they consider this information extraneous. Alternatively, if OTS results from a particular communicative style chosen by older but not younger adults to enhance their exposition of personal narratives, then older adults' speech should be rated more positively than that of younger adults. Inasmuch as older adults are using an effective style, albeit off topic and involving more words, both younger and older raters should produce these more positive ratings.

**Method**

**Participants.** Participants were 10 younger adults (M = 18.3 years, SD = 1.3; 5 women and 5 men) and 10 healthy, community-dwelling older adults (M = 72.3 years, SD = 5.5; 5 women and 5 men). They were carefully selected to ensure confidentiality of the participants who generated the speech in Experiment 1a. All older adults were from a different area of Southern California, and younger adults were either in their first year of college or graduate students, making it highly unlikely that they knew the participants from Experiment 1a. The mean score on the Nelson–Denny Vocabulary test was higher for older (M = 21.0, SD = 4.4) than younger (M = 16.6, SD = 2.1) adults, t(18) = 2.85, p < .05, and mean years of education was greater for older (M = 16.7, SD = 2.6) than younger (M = 12.6, SD = 1.3) adults, t(18) = 4.45, p < .01. All were native English speakers who were paid to participate.

**Materials.** The verbatim transcripts of all spoken responses to the three personal topics by the 20 younger and 20 older adults in Experiment 1a were printed with each speaker's response to each topic on a separate page. The transcripts for 10 younger and 10 older speakers were assigned to one set, and the transcripts for the other 10 younger and 10 older speakers were assigned to a second set. Speakers were assigned to a set so that the two sets of transcripts were as comparable as possible in length (number of words) and proportions of OTS within an age group. Table 2 shows the mean number of words and percentage of OTS for each set.

Booklets were created with 60 pages, 1 page for each response in a set. Each page contained six questions that addressed the following dimensions: (a) interest—Was the story interesting? (b) informativeness—Was the story informative? (c) clarity—Was the story clear and easy to follow? (d) focus—Did the speaker stay focused on the topic? (e) talkativeness—Was the speaker talkative? and (f) story quality—Was it a good story? Underneath each question was a 5-point scale ranging from 1 (completely) to 7 (not at all). For the story quality question, the scale ranged from 1 (very good) to 7 (very bad). Participants completed the vocabulary measure and background questions used in Experiment 1a.

**Procedure.** Participants took 2–4 hr to complete the ratings depending on their pace, with testing over one or two sessions depending on the participants' preference. After completing the vocabulary measure and background questions, participants were instructed that the experiment was examining what makes a good story and that they would read transcripts of real interviews with people, which they were to evaluate on a variety of dimensions. The following rules for performing the task were explained and posted in a visible place: (a) work slowly and carefully; (b) ignore speech errors, pauses, and "ums" in the transcripts; (c) do not let the length of the story be the sole basis for any judgment; (d) read through a few stories before making any ratings; and (e) ask questions if necessary. They also were instructed to write the story number they were rating on the top of the appropriate page in the booklet.

Participants became familiar with the procedure in a practice session. The participant and experimenter together read two transcripts from participants not used in Experiment 1a and then completed the rating scales until the participant was comfortable with the procedure. Next, the participant rated a set of transcripts from Experiment 1a.

Half the younger and half the older participants rated one set of transcripts, and the other half of the participants rated the other set of transcripts. Within each set, all 20 responses (10 younger and 10 older adults) on a given topic (education, vacation, or family) were presented together. The order of presentation of topics was counterbalanced across participants. Within a topic, the 20 transcribed speech samples were presented in a different random order for each rater. Parti-

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<th>Table 2</th>
<th>Characteristics of the Two Sets of Transcripts in Experiment 1b</th>
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<td>Mean no. words</td>
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<td></td>
<td>Younger speakers</td>
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<td>Set 1</td>
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<td>1</td>
<td>546</td>
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<td>2</td>
<td>660</td>
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Table 3
Mean Ratings of Younger and Older Speakers’ Focus, Talkativeness, Clarity, Interest, Informativeness, and Overall Story Quality Averaged Across Younger and Older Raters in Experiment 1b

<table>
<thead>
<tr>
<th>Variable</th>
<th>Education</th>
<th>Family</th>
<th>Vacation</th>
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<tr>
<td></td>
<td>Younger M</td>
<td>SD</td>
<td>Younger M</td>
</tr>
<tr>
<td>Focus</td>
<td>4.85</td>
<td>1.14</td>
<td>4.26</td>
</tr>
<tr>
<td>Talkativeness</td>
<td>3.56</td>
<td>0.53</td>
<td>4.73</td>
</tr>
<tr>
<td>Clarity</td>
<td>4.49</td>
<td>0.97</td>
<td>4.64</td>
</tr>
<tr>
<td>Interest</td>
<td>3.30</td>
<td>0.88</td>
<td>4.37</td>
</tr>
<tr>
<td>Informativeness</td>
<td>3.60</td>
<td>0.73</td>
<td>4.60</td>
</tr>
<tr>
<td>Story quality</td>
<td>3.22</td>
<td>0.87</td>
<td>4.17</td>
</tr>
</tbody>
</table>

Note. Range: 1 = not at all; 7 = completely. For story quality, 1 = very bad and 7 = very good.

Participants were not told that the same speakers responded to all three topics or that the age of the speakers varied. Transcripts did sometimes contain information that indicated the speaker’s age (e.g., “I went to grammar school during the Second World War”). Such information occurred in 42% of the younger speakers’ responses and 47% of the older speakers’ responses.

Results and Discussion

Ratings were analyzed in a separate ANOVA for each of the six questions, with the age of the rater (younger and older) and topic (education, family, and vacation) as between-subjects variables. The rating scale was reversed so that larger numbers indicated greater focus, greater talkativeness, greater clarity, and more interesting, informative, or better stories.

Ratings for focus and talkativeness were analyzed first to determine whether the raters identified speaker age effects parallel to speaker age effects in OTS and talkativeness identified by the coders in Experiment 1a. The mean ratings for each question by speaker age and topic are shown in Table 3. Younger speakers were rated as being marginally more focused than older speakers, F(1, 18) = 3.33, p = .085, MSE = 0.59, and this effect was qualified by two interactions. Speaker age interacted with topic, F(2, 36) = 8.36, p < .01, MSE = 0.16, because younger speakers were rated as being more focused than older speakers on the education topic, t(19) = 3.53, p < .01, but the age difference was not reliable for family or vacation topics (p > .2). Most important, speaker age also interacted with rater age, F(1, 18) = 8.00, p < .05, MSE = 0.59, because, as can be seen in Figure 4, younger participants rated the younger speakers as being more focused than older speakers, t(9) = 3.20, p < .05, whereas older participants did not rate younger and older speakers differently (t < 1). Thus, only the younger raters perceived older speakers as being less focused on the topic than younger speakers.

As can be seen in Table 3, talkativeness ratings were higher for older than younger speakers, F(1, 18) = 79.50, p < .001, MSE = 0.45, and varied with topic, F(2, 36) = 3.34, p < .05, MSE = 0.27, because ratings for education were higher than for family, t(19) = 2.89, p < .05, and marginally higher than for vacation, t(19) = 1.77, p = .092. There was a marginally significant interaction between speaker age and rater age, F(1, 18) = 3.50, p = .078, MSE = 0.45, because talkativeness ratings for younger speakers were lower with younger raters (M = 3.13) than older raters (M = 3.70), t(18) = 2.22, p < .05, but for older speakers ratings did not vary for younger and older raters (Ms = 4.46 and 4.57, respectively). Overall, older adults were perceived as being more talkative than younger adults.

For mean ratings of clarity, the only effect approaching significance was a marginal effect of topic, F(2, 36) = 2.84, p = .072, MSE = 0.38, because vacation descriptions were rated as being clearer than education descriptions, t(19) = 2.17, p < .05, and marginally clearer than family descriptions, t(19) = 1.78, p = .092 (see Table 3).

In summary, both younger and older raters judged older speakers as being more talkative than younger speakers, but this speaker age effect was larger for younger than older raters. Younger, but not older, raters judged older speakers as being less
focused on the topic. The age of the speaker did not influence ratings of clarity.

Figure 5 shows that older speakers’ responses were consistently rated higher than younger speakers’ responses on the interest, $F(1, 18) = 55.85, MSE = 0.30$; informativeness, $F(1, 18) = 62.33, MSE = 0.47$; and story quality dimensions, $F(1, 18) = 49.85, MSE = 0.36, p < .001$. As shown in Table 3, topic affected interest ratings, $F(2, 36) = 4.71, p < .05, MSE = 0.30$, because ratings for vacation were higher than for family, $t(19) = 4.06, p < .01$. Speaker age interacted with topic, $F(2, 36) = 6.53, p < .01, MSE = 0.13$, such that the age difference was biggest for education (difference = 1.14), $t(19) = 8.46, p < .001$; followed by vacation (difference = 0.91), $t(19) = 6.45, p < .001$; and then family (difference = 0.57), $t(19) = 3.40, p < .01$.

Speaker age also interacted with topic for informative ratings, $F(2, 36) = 8.55, p < .01, MSE = 0.12$, such that the age difference was biggest for vacation (difference = 1.32), $t(19) = 9.46, p < .001$; followed by education (difference = 0.97), $t(19) = 7.65, p < .001$; and then family (difference = 0.70), $t(19) = 3.85, p < .01$.

Speaker age also interacted with topic for story quality ratings, $F(2, 36) = 4.10, p < .05, MSE = 0.10$, in that the age difference was biggest for education (difference = 0.91), $t(19) = 7.65, p < .001$; followed by vacation (difference = 0.88), $t(19) = 6.39, p < .001$; and then family (difference = 0.54), $t(19) = 3.45, p < .01$.

These findings indicate that although the older speakers were rated as being more talkative than younger speakers, and younger adults rated older speakers as being less focused on topic, older speakers also were rated more positively on interest, informativeness, and overall story quality than younger speakers regardless of rater age. Although the speaker age effects on these three dimensions often varied with topic, there were no crossover interactions in which younger adults’ speech was rated higher than older adults’ speech on specific topics. Thus, older adults produced more OTS, but their speech appeared to have greater communicative value than that of younger adults. There was no evidence consistent with a decremen in the quality of older adults’ discourse because of reduced ability to inhibit irrelevant information. Moreover, there was evidence that younger and older adults adopted different criteria for what constitutes off-topic information because younger, but not older, adults rated younger speakers as being more focused on the topic than older speakers. Thus, speech categorized as off topic in Experiment 1a may have been spoken by older adults not because they were unable to inhibit it but because they considered it germane to the topic. The transcripts in the Appendix illustrate a characteristic difference between younger and older adults’ speech: Older adults often included anecdotes that might have been off topic but expressed the significance or meaning of incidents in their narratives.

To explore the relation between OTS and communicative value more directly, we divided older adults into low-OTS and high-OTS groups using as a division point the median percentage of off-topic words for personal topics. Ratings were combined across personal topic and analyzed for each of the six questions in separate ANOVAs, with OTS group (low and high) a between-subjects variable and age of rater (younger and older) a within-subjects variable.

The first two panels of Figure 6 show that the high-OTS group was rated as being less focused and more talkative than the low-OTS group, $F_s(1, 18) = 39.26, MSE = 0.32$, and $12.59, MSE = 1.77$, respectively ($p < .01$). For ratings of focus, OTS group interacted with rater age, $F(1, 18) = 7.98, p < .05, MSE = 0.16$, such that although both younger and older adults rated the low-OTS group as being more focused than the high-OTS group, the difference was twice as large for younger raters (difference = 1.47), $t(18) = 6.98, p < .001$, as for older raters (difference = 0.76), $t(18) = 3.37, p < .01$.

Figure 6 also shows that the high-OTS group was rated lower on the clarity dimension than the low-OTS group, $F(1, 18) = 8.62, p < .01, MSE = 0.23$. Thus, consistent with having greater OTS in Experiment 1a, the high-OTS group was rated as being
more talkative and their speech less focused and less clear than the low-OTS group.

As can be seen in Figure 7, ratings for the interest, informativeness, and story quality dimensions were greater for the high-OTS group. Although the effect was significant for interest and story quality, $F(1, 18) = 6.62$, $p < .05$, $MSE = 0.94$, and $F(1, 18) = 5.21$, $p < .05$, $MSE = 0.90$, respectively, but not for informativeness ($p = .24$). There was an effect of rater age only for informativeness, with younger raters ($M = 4.68$) giving higher scores than older raters ($M = 4.41$), $F(1, 18) = 8.53$, $p < .01$, $MSE = 0.09$.

Thus, although high-OTS speakers were rated as being more talkative and their responses less focused and clear, their speech was rated higher on the interest and story quality dimensions than that of the low-OTS group. There was evidence that older adults viewed topics more broadly than younger adults. Although both younger and older adults gave poorer ratings on the focus dimension to the high-OTS groups, this difference was smaller for older than younger raters. These findings provide evidence for an age-related change in the pragmatics of language, a topic we discuss next.

**General Discussion**

These results provide evidence for selective age-related talkativeness and OTS. We replicated the age-related increases in
OTS on personal topics found by Arbuckle, Gold, and colleagues (1993; Gold et al., 1988) and by Glosser and Deser (1992), and we replicated the absence of age differences for picture descriptions found by Cooper (1990) and others. The evidence to date suggests that only autobiographical topics elicit OTS in older adults. Our demonstration of this dissociation of age and topic in a single study suggests that talkativeness and OTS are not static features of older adults' language caused by an impaired cognitive process but that they are speech styles that are selected under certain conditions to accomplish specific communicative goals.

The hypothesis that there are such age-related changes in pragmatic aspects of language is based on previous observations that older adults place greater emphasis on discourse in personal narratives and on finding meaning in their life experiences (e.g., Boden & Bielby, 1983, 1986; Kemper, 1992). This, together with changes in older adults' social situation, is hypothesized to contribute to a different view of the function of talk compared with younger adults (e.g., Giles et al., 1992). According to the Pragmatic Change hypothesis, older adults' speech on personal, autobiographical topics is longer and more off topic than that of younger adults because older adults intend to communicate a meaningful description of past life events rather than a concise description of facts. The Appendix contains examples of these different styles, with younger adults' speech characterized by a chronology of events and older adults' speech characterized by anecdotes (often straying from the topic) that illustrate significant life events. This interpretation also is consistent with the ubiquitous lack of age differences in the intrusion of irrelevant information in nondiscourse language production in experimental tasks (Burke, 1997).

Consistent with the hypothesis that older adults emphasize communicating a meaningful personal narrative more than younger adults, older adults' speech was rated more positively on the interest, informativeness, and story quality dimensions than that of young adults. Indeed, story quality was linked to OTS because the responses of older adults with more OTS were rated more positively on the interest and story quality dimensions than the responses of older adults with less OTS. This finding seems particularly inconsistent with the view that OTS is a consequence of reduced cognitive competence in the form of inhibitory deficits.

The age of the rater had remarkably little effect on the evaluation of the speech, suggesting little age change in criteria for what constitutes an interesting or good story. The one exception, however, was in the evaluation of focus on a topic: Older adults appeared to have less stringent criteria for what information was off topic than younger adults. These findings are relevant to the Gold et al. (1988) proposal that adherence to Grice's (1975) maxims for speech declines in old age. Two Gricean maxims are germane here: relevance (i.e., staying on topic) and quantity (i.e., providing as much information as necessary, but not more than is necessary). Rather than violating the Gricean maxim for relevance, older adults appear to use a broader definition of relevance than younger adults. Similarly, rather than violating the Gricean maxim for quantity, older adults appear to hold goals for personal narratives that require more information than younger adults' narratives. Thus, speech categorized as off topic may have been produced by older adults because they considered it relevant to their personal narrative, not because they were unable to inhibit it or ignored a Gricean maxim.

There are several caveats that apply to this interpretation of our results in terms of the Pragmatic Change hypothesis. First, the older adults in this study were highly educated; indeed, they had completed more years of education than the younger adults at the time of testing. It is unlikely that higher education would produce more OTS because Junco-Rabadan (1996) found the opposite relation, and Arbuckle and Gold (1993) found no effects of education on verbosity. Future research, however, must demonstrate whether the superior quality of older adults' stories is related to higher education and whether age differences in the quality of stories hold for less well-educated participants.

A second caveat concerns the difference in the age of the listener and speaker in our study: The experimenters who tested participants were similar in age to the younger participants. Similarity of age does influence conversational dynamics, with greater similarity increasing the amount of self-disclosure (Collins & Gould, 1994). Although this suggests a bias opposite to the observed results, it also seems possible that older adults may have felt the need to provide more background information for younger listeners because they believed they had not shared similar experiences. If such background information were off topic and younger speakers did not feel the need to offer background information, this would contribute to the age differences in OTS and in the amount of speech. The effects of age of listener on older adults' OTS and the quality of speech requires systematic investigation in future research.

Finally, Kemper (1992) pointed out that older adults' personal narratives may be more interesting because they have more interesting experiences to relate. Although this may be a factor for topics such as education, which, according to the participants' responses, was considerably less straightforward 50 years ago than it is today, it seems less influential for topics such as vacation. Although number of life experiences is, in general, confounded with age, experiences are not inherently interesting but become interesting through evaluation and analysis. Indeed, older adults often gave vivid, sometimes droll, descriptions of seemingly common experiences, such as a schoolteacher (see Appendix) or losing a purse on vacation. The possible contribution of differences in events experienced must be tested, however, in future research in which younger and older adults describe identical events.

There is no a priori basis under the Inhibitory Deficit hypothesis for predicting the selective talkativeness and selective OTS found in our study. Any post hoc explanation of why older adults are able to inhibit irrelevant information in some situations and not others must also account for the lack of age differences in producing irrelevant information in virtually every laboratory task used in aging research to measure spoken responses about semantic knowledge (see Burke, 1997). Because inhibitory deficits have been specifically postulated for semantic information (e.g., Hasher & Zacks, 1988), not just for personal, autobiographical information, it is unclear how the model can account for this pattern.

The most persuasive evidence for a link between OTS and inhibitory deficits in older adults is Arbuckle and Gold's (1993) report that higher OTS was associated with more perseverations on the WCST, longer times on the Trail Making Test, fewer
responses on a fluency test, and smaller release from proactive interference when these four test scores were combined. Correlations between either of the two measures of OTS and the four individual tests, however, were not consistently found: Only three of the eight correlations exceeded a critical value of .2 (correcting for eight comparisons). Arbuckle and Gold demonstrated with factor analysis that the WCST, the Trail Making Test, and fluency loaded on a single common factor that they argued was the ability to inhibit irrelevant information. Other investigators, however, have argued that these tests do not simply measure a single cognitive process such as inhibition (e.g., Corcoran & Upton, 1993; Grafman, Jonas, & Salazar, 1990; Hartman, Bolton, & Sweeny, 1996; Salthouse, 1993; Salthouse, Fristoe, & Rhee, 1996; Stuss, 1991). Moreover, Gold et al. (1988) reported that verbosity was related to decreased performance on nonverbal (but not verbal) intelligence tests, such as picture completion, suggesting that a number of cognitive processes may be related to verbosity.

An important question is whether the OTS measures in those previous studies is the same phenomenon measured in our study. There are many indications that it is. Criteria for OTS appear to be the same in this study and the Arbuckle and Gold (1993; Gold et al., 1988) studies. Direct comparison of the amount of OTS is not possible because of differences in measures used here and in previous studies. Gold, Arbuckle, and colleagues measured verbosity using subjective ratings of the amount of extraneous information, but our subjective measure was highly correlated with their objective measure of number of answers containing any OTS. In this study and those of Arbuckle and Gold (1993; Gold et al., 1988), almost all older participants appeared to produce at least some OTS. Despite differences in the precise topic cues for eliciting speech, the nature of OTS shown in the Appendixes in Arbuckle and Gold’s (1993) and Glosser and Deser’s articles (1992) is similar to what we obtained in this study (see Appendix).

On the other hand, our finding that responses with more OTS were rated more highly than responses with less OTS seems at odds with Arbuckle and Gold’s (1993) finding that verbosity was associated with reduced performance on some cognitive tests. Previous studies, but not our study, included participants over 80 years of age and thus it is unknown whether speakers over the age of 80 continue to produce OTS that receives high ratings of story quality.

Research on OTS in old age is particularly important because of its relevance to negative beliefs about older adults and their speech. Giles, Fox, Harwood, and Williams (1994) demonstrated that the same words spoken by a younger speaker and an older speaker were labeled as “dodderly, vague and rambling” (p. 134) for the older but not the younger speaker. Even in view of this bias, we believe that attributing older adults’ OTS to a cognitive decrement (e.g., Zacks & Hasher, 1994) is inappropriate when this speech yields higher communicative value ratings from both younger and older adults. We also believe that a better understanding of language in old age requires consideration of not only older adults’ cognitive decrements but also of the social and personal changes that accompany old age, are known to influence language, and may shift the function of speech in a way that enhances rather than impairs its quality.

References


Examples of Younger and Older Adults' Responses to Personal Topics

Younger Speaker: Education Topic

Okay. Um I attended elementary school and junior high in a really small town in southern Arkansas. Um and generally throughout that entire period of my life the schools were geared towards simply getting the kids to finish that year, not necessarily um um helping or not necessarily ... it wasn't stimulating to a lot of the children. Um until my freshman year in high school. I opted to go to boarding school in New Hampshire and I was there for 3 years and when I first attended it was very difficult because I had never been to a school that was really challenging. Um but over those, through the course of those 3 years I learned how to study and learned um how to work and actually enjoyed learning. And then I decided to come um to this college and um have been there for a year and a half now, for a year and a couple months. Um and it is ... I'm very content at the school. It's very um challenging. I enjoy my classes um as well as the people I've met. And I have no idea what my major is but ... or just, um I don't know. I'm having a good time trying to figure it out, taking a lot of different classes and stuff like that.

Older Speaker: Education Topic

I started in grammar school in Porterville, Ohio and, uh we lived about a block about 8 blocks and I used to go home for lunch. One of the things I remember so vividly was a fire across the street and they pulled a lady out on a stretcher and I was very, very upset. And upset for a long, long time." I remember my second-grade teacher. Her name was Lucy Keller and she had buck teeth and when I looked up she scared the daylight out of me. As an adult, as I knew her better, why she probably was one of the most wonderful people I'd ever met but uh as a little child ... I've thought of that with my own children. If they run into something I kind of check what uh what's cooking because it could be something simple like a very tall person with uh buck teeth." Uh we played games in the play ... playground, I think around second ... first, second grade. We started learning to read, which was fun because my parents had a lot of books and uh I had started learning the alphabet and could start looking up things for myself. I used this with our son who had a very inquisitive mind and uh we got a set of encyclopedias so that we would read from the encyclopedia what his answer was that he needed." Uh we were in a very old, old school building. Ohio ... it probably was built in 1800s and uh it had been built as a high school and later changed into an elementary school. We used to uh I remember the playground so well. One time I was turning somersaults on a rung, iron rung and hit the middle pipe and got a black eye. I remember that. We used to make angels in the snow lying down and like that. It seems to me I remember more things outside of school than I do inside of school. But I did get inside and we had old fashioned desks that uh had curlicue iron and uh we didn't go in circles like they do now. We uh were just in regular rows. And uh have I talked 5 minutes? I think that's just about all that I remember too much.

Younger Speaker: Vacation Topic

Uhh. All right. Every, every year when I was a kid uh my grandmother lives in San Diego and we would come out to San Diego and I can't really discern between different ones just because I was so young and what not. But every time we'd go down there we'd stay at my grandmother's house which is down on the coast and just looked out into the ocean. And so, and she has this beautiful like backyard with a terrace garden which I'd just run around in and I got to mow the lawn a couple times. I don't know why I enjoyed doing that but I did. I played in her ... built little wooden things in her, in her, in my grandson's uh workshop. He was dead. She had a big orange tree in the backyard and um we'd always go to the San Diego Zoo which which I still love to this day. Go there and look at the animals and ride around and, and uh uh I don't know, just lurrrred memories.

Older Speaker: Vacation Topic

Hoo boy. Only one? Aw shucks. Oh well ... Well most of the vacation ... well no, that's not quite true. I was going to say most of the vacations have been associated also with somethin' else. Uh. But uh I would say one of the, certainly one of the most pleasurable uh years I've ever spent, was one year when we were on sabbatical and uh we went to uh to Eugene and uh ... and I worked in the law school at, uh, at the University of Oregon and uh at that point uh my uh my kids were were uh 6 and 9, twins were 6 and and my older daughter was 6. And uh at that point uh I tried to introduce them to backpacking and so we arrived on the 4th of July and uh immediately on weekends we would take off into the hills and and uh ... we uh the first, I think my first backpacking trip they hiked a quarter of a mile was all. But in Oregon that's uh can get you into some beautiful country and uh I think as I say we walked about a quarter of a mile and made camp and uh there was a place where my son could fish and the girls could walk around in the meadow with all kinds of wildflowers and uh catch butterflies and uh her desires and we just had a splendid time. Uh and then over the course of the next uh year we camped every weekend from then until the end of October, which everybody told me you can't do in Oregon because it rains all the time. Well that wasn't the case in the year we were there. And uh uh so we hiked regularly and uh hiked a little further each time and the uh ... the result of that I think was that all three of the kids still uh love to camp and love to hike and uh have introduced their kids uh to uh to camping and hiking. Uh all with different interests in what they do when they're out there but uh but have have enjoyed the out of doors and I think that's one of the things that I um look back on and say we did something right. Uh and I still enjoy backpacking and, and uh uh fishing, photography and so on. And uh my son does too. The girls are more into photography and art ... artistic efforts than they are into fishing and whatnot but uh they still, uh, still enjoy the ... the beauties of being out in nature where uh you uh you don't have all the modern conveniences.