

## **Judging Communicative Competence: Investigating Age-Related Stereotypes in Speech-Language Pathology Students**

The proportion of the US population over age 65 is projected to reach almost 80 million by the year 2040, doubling the numbers from 2000 (Administration on Aging, 2012). With the aging of the population, the incidence of age-related diseases and disorders like stroke and dementia is expected to increase, adding to the caseloads of speech-language pathologists (SLPs). Most SLPs, by contrast, are younger adults; over a quarter of SLPs in the US are under age 35 (ASHA, 2012). Thus, as the elderly population grows, more intergenerational communication encounters will occur between SLPs and their aging clients, increasing demands for cultural competence, specifically with regard to ageism. However, the field of speech-language pathology has seen little research into the impact of age-related stereotypes on service delivery (Armstrong & McKechnie, 2003).

One's interactions with people are implicitly shaped by stereotypes, widely held unconscious representations of groups of people (Devine, 1989). According to the Age Stereotypes in Interaction model (Hummert, 2012), there are three main factors that trigger stereotypes: the perceiver's self-system, the context of the interaction, and physical traits. 'Self-system' refers to one's beliefs and attitudes, which are themselves determined by one's age, cognitive complexity, and past experiences (Hummert, 2012; Ryan, 2007). Stereotypes can be reinforced by the context in which intergenerational encounters occur. To illustrate, Hummert and colleagues (1998) found that younger adults used different language when speaking to older adults in the hospital *vs* an apartment. Aspects of physical appearance (*e.g.* grey hair, stooped posture) create an immediate impression of the older individual (Adams *et al.*, 2012). Using photographs, Hummert and colleagues (1997) found that adults perceived to be older were stereotyped more negatively than younger-looking adults. Negative stereotypes may, in turn, affect older adult's responses, resulting in a cycle of reinforced stereotypes and negative interactions (Ryan, 2007). Williams and colleagues (2009) found that nurses who used 'elderspeak' met with more resistance to care in their patients with dementia. To prevent such negative interactions, SLPs must become aware of the potential impact of implicit age-related stereotypes. The purpose of this study was to determine whether SLP students are influenced by age-related stereotypes when judging the communication of older adults.

### **Methods**

Participants were 23 Year1 (96% females) and 21 Year2 (100% females) students recruited from clinical foundations courses of the MA-SLP program at the University of \_\_\_\_\_. Their average age was 23 years. Students participated for course credit.

Transcribed language samples were selected from a previous study (\_\_\_\_\_, 2012) in which 80 adults ranging in age were asked to describe a turning point in their lives. From these, we selected 8 samples representing "high" and "low" quality narratives. Narrative quality was judged on the basis of several objective language measures chosen to represent five dimensions: 1) relevance (% narrative words), 2) vocabulary specificity (noun:pronoun ratio, heavy verb:light verb ratio); 3) grammatical accuracy (% complete sentences, % well-formed sentences); 4) grammatical complexity (degree of clausal embedding, mean utterance length); and 5) fluency (speech rate, number of verbal and non-verbal fillers).

From the database of Minear and Park (2004), we selected eight black and white pictures of adults with neutral facial expressions: four older (mean age: 73.5 years) and four younger (mean age: 30.5 years), with two males and two females in each age group. Across participants, each picture was paired with each narrative, to assess whether the age of the person in the pictures influenced participants' perception of the language in the narratives. Participants were told that the purpose of the study was to examine the language analysis skills of SLP master's students. This element of deception was necessary to ensure that they not become aware of the age manipulation, in case they tried to inhibit or compensate for any stereotypes.

The experiment was administered by computer using E-Prime (Schneider et al., 2000), presenting the eight narratives in random order. On each trial, a written narrative was presented with one of the pictures, creating the impression that the narrative came from the speaker pictured (see Figure 1 for sample slides). Participants were asked to subjectively rate each narrative on five scales, corresponding to the language measures described above: relevance, vocabulary specificity, grammatical accuracy, grammatical complexity, and fluency. In addition, they were asked to rate the speaker's overall communicative ability, and the likelihood that they would refer the speaker for further assessment.

## Results

Repeated measures ANOVAs were conducted to assess the effects of narrative quality (high vs low), picture age (older vs younger), picture gender (male vs female), student's year of education (Year1 vs Year2), and rating scale. The analysis of language ratings showed no significant influence of picture age or gender, or of year of education. There was a strong main effect of narrative quality ( $p < 0.0001$ ), indicating that students were clearly able to differentiate between the high- and low-quality narratives. Narrative quality also interacted with rating scale ( $p = 0.0002$ ), which post-hoc tests revealed to be due to a lack of difference in two scales—relevance and fluency (see top graph in Figure 2). This is likely because the high- and low-quality narratives were not well differentiated on the fluency measures, as can be seen in the bottom graph in Figure 2. The samples *were* different in the relevance measure (% narrative words), but this measure does not appear to reflect how the students judged relevance.

We repeated the ANOVA excluding the relevance and fluency scales, and an interaction between picture age and picture gender emerged: older men were rated more highly than younger men, but the opposite pattern was found for women (see Figure 3). Recall that each language sample was paired with each picture, so this effect was not due to language differences, but to the characteristics of the pictured speakers.

A separate ANOVA was conducted on the referral rating: "How likely would you be to refer this speaker for further assessment?". A main effect of narrative quality was again found ( $p < 0.0001$ ), indicating that students appropriately based their referral recommendations on the quality of the language. No main effects of picture age, picture gender, or student year were found, but picture age and student year both interacted with narrative quality ( $p = 0.0235$ ). As evident in Figure 4, this arose from differences in how students responded to the pictures. Year1 students (Figure 4, right) seemed more likely to refer low- than high-quality narratives for further assessment when paired with pictures of older speakers, although this two-way interaction did not reach significance ( $p = 0.374$ ). By contrast, Year2 students (Figure 4, left) were more likely to refer low-quality narratives for further assessment when paired with pictures of younger speakers ( $p = 0.022$ ). In other words, low-quality narratives from older speakers did not result in more

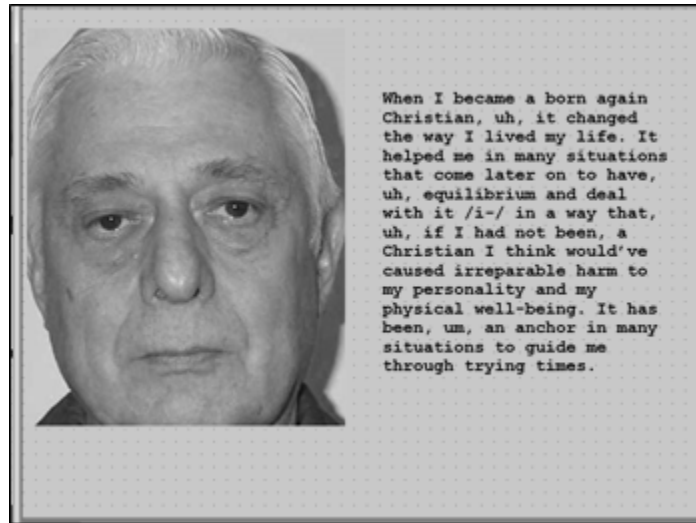
referrals by Year2 students, perhaps because they know more about normal age-related declines in language production.

### **Conclusions**

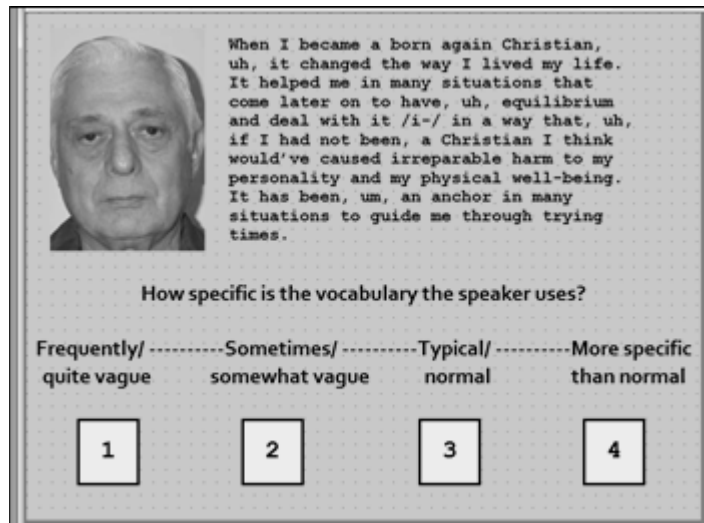
Our results are encouraging in suggesting that SLP students are able to accurately discriminate high- and low-quality language samples, and do not appear to be strongly influenced by age-related stereotypes. However, some subtle effects of bias were present in the interaction of age and gender on judgements of communicative ability, and in differential rates of referrals for younger and older speakers.

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When I became a born again Christian, uh, it changed the way I lived my life. It helped me in many situations that come later on to have, uh, equilibrium and deal with it /i-/ in a way that, uh, if I had not been, a Christian I think would've caused irreparable harm to my personality and my physical well-being. It has been, um, an anchor in many situations to guide me through trying times.



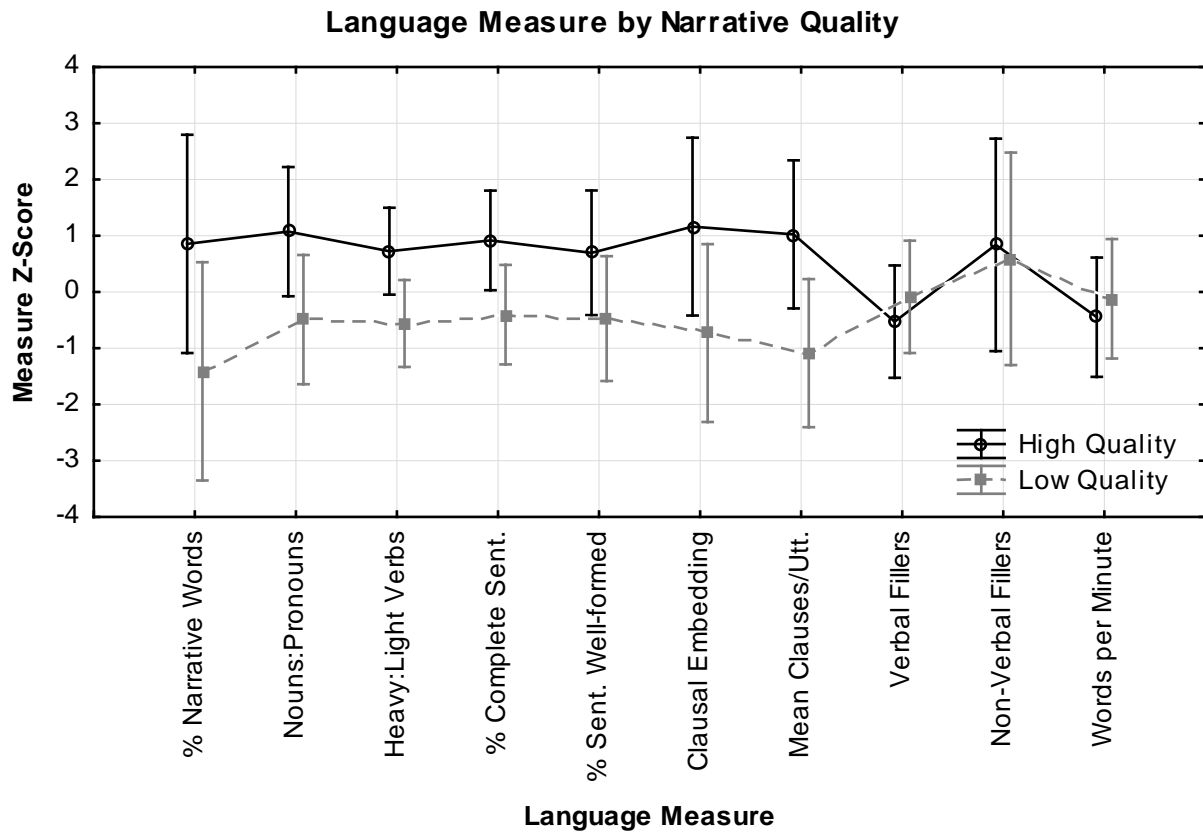
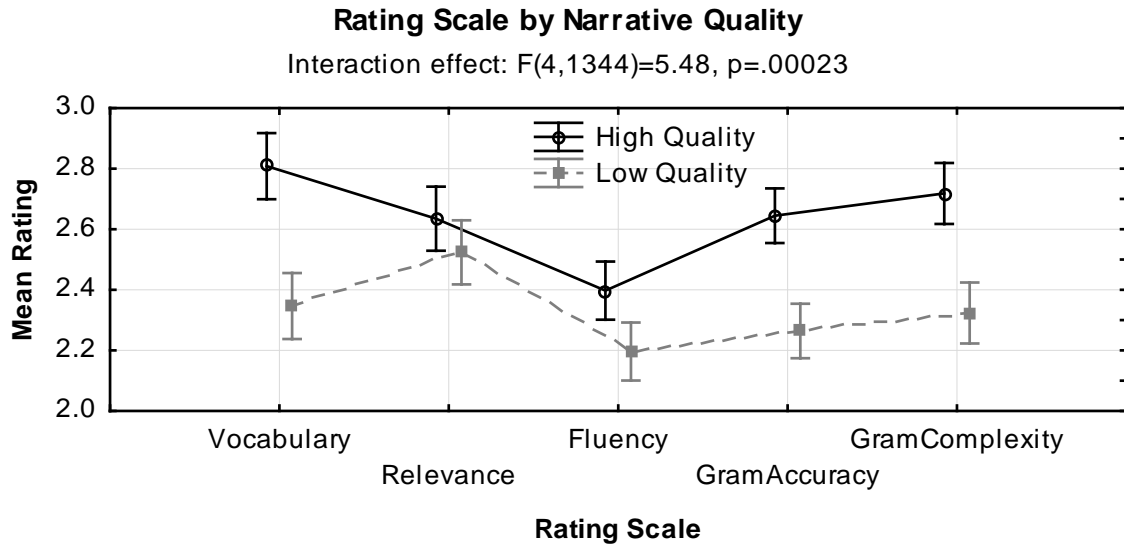
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How specific is the vocabulary the speaker uses?

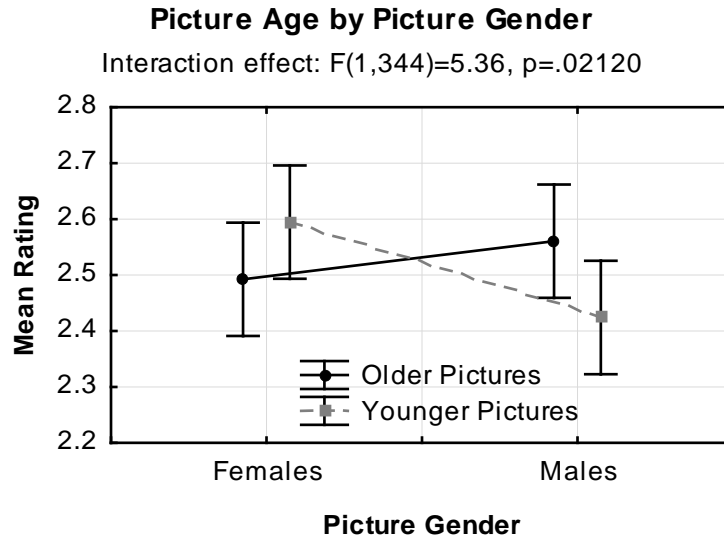
Frequently/ ----- Sometimes/ ----- Typical/ ----- More specific  
 quite vague      somewhat vague      normal      than normal

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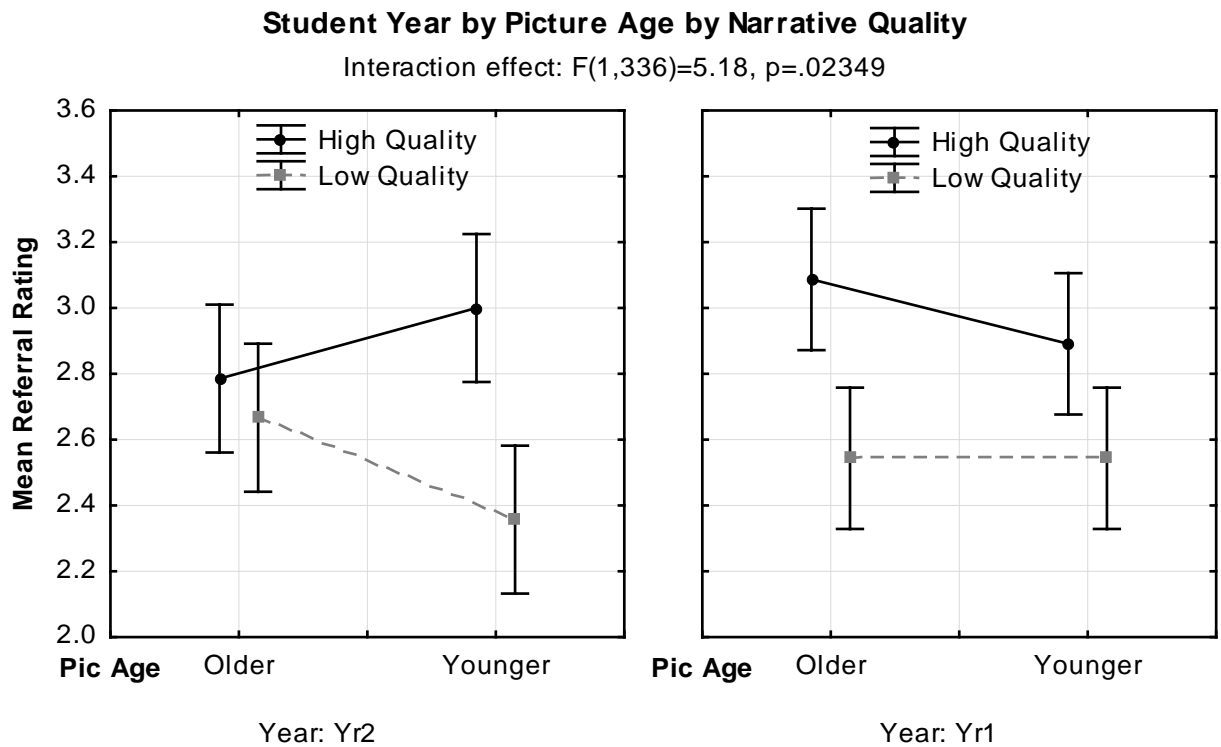
**Figure 1.** Sample slides from the experiment: Written narratives were presented first with the picture, then both were presented with each rating scale in turn.



**Figure 2.** Subjective student ratings (top graph) and objective language measures (bottom graph) of the high-quality vs low-quality narratives.



**Figure 3.** Interaction between picture age and picture gender on mean student ratings of language quality (significant scales only—vocabulary, grammatical accuracy, grammatical complexity).



**Figure 4.** Interaction between picture age, narrative quality, and student year of education.