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Speak Loud and Clear: Relating Intergenerational Service-Learning to Ageism and Elderspeak

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Abstract

Speech modification for older adults, commonly referred to as “elderspeak,” is a discriminatory behavior that affects older adults in interactions with family, friends, strangers, healthcare professionals, and long-term care facility staff. The current study investigates the relationship between Intergenerational Service-Learning (ISL) and both ageism and elderspeak.

Undergraduate students enrolled in service-learning (SL) projects with older adults (N = 11) or children (N = 20), completed the Fraboni Scale of Ageism (FSA), an Implicit Associations test (IAT), and a communication map task. In the communication map task, students were asked to verbally describe a route on a given map to both a middle-aged adult and also to an older adult. It was hypothesized that students who completed SL with older adults would express less explicit ageism, similar amounts of implicit ageism, and a greater degree of speech modification than students who completed SL with children. While results showed that ISL was not related to ageism or to elderspeak, significant differences were found between the two SL groups (older adults, children) on verbal fluency and on ratings of confidence with the task. Overall, explicit attitudes toward older adults were generally positive, while implicit attitudes towards older adults were generally negative. On the map task, participants spoke more slowly to the perceived older adult than to the perceived middle-aged adults. Finally, the current study established a correlation between scores on the Fraboni Scale of Ageism and on the Implicit Associations Test, an unexpected result.
Speak Loud and Clear: Relating Intergenerational Service-Learning to Ageism and Elderspeak

Much like racism and sexism, ageism is prevalent in society and its effects are widespread (Nussbaum et al., 2005). Erdman B. Palmore, a prominent researcher on the topic, describes ageism as “the third great ‘ism’ after racism and sexism” (Palmore, 2004). Based on a review of previous research and taking into account the various cognitive, affective, and behavioral components of ageism, researchers offer the following comprehensive definition of ageism:

“Ageism is defined as negative or positive stereotypes, prejudice, and/or discrimination against (or to the advantage of) elderly people on the basis of their chronological age or on the basis of a perception of them as being “old” or “elderly.” Ageism can be implicit or explicit and can be expressed on a micro-, meso-, or macro-level” (Iversen, Larsen & Solem, 2009).

In comparison to racism and sexism, there has been relatively little psychological research on ageism (Nelson, 2005), despite the fact that it is the only “ism” that has the potential to be relevant to every individual in his or her lifetime (McGuire et al., 2008).

Ageism is prevalent in the daily lives of older adults in both the United States and in Canada, according to a study which found that ninety-one percent of Canadian respondents over 50 (Palmore, 2004) and eighty-four percent of U.S. respondents over 60 (Palmore 2004; McGuire et al., 2008) reported that they had experienced at least one form of ageism (Palmore, 2004). A literature review by Nussbaum et al. suggests that older adults are especially affected by ageism in both the workplace and in healthcare settings. Physicians are less willing to work with older adults, they communicate with older patients differently than other patients, and they prescribe more prescription medications to older adults compared to younger adults. Older women are especially likely to experience the negative effects of ageism in the healthcare context because in combination with sexist views, ageism can lead healthcare providers to
modify their practice by underemphasizing active healthcare and underappreciating the seriousness of an older woman’s medical problems (Nusbaum et al., 2005).

Ageist stereotypes in the United States tend to be negative (Kite & Johnson, 1988 as cited in Levy, 2001), and implicit biases in general also tend be negative (Perdue & Gurtman, 1990). Historically, older adults were esteemed in many societies and were held in high regard due to their contributions as teachers and historians. After the arrival of the printing press and the start of the industrial revolution, however, the status of older adults in society was greatly reduced (Nelson, 2005). According to Branco & Williamson (1982), the power traditionally held by elders was reduced by the initiation of the printing press because culture, tradition, and history could now be recorded, thus eliminating the need for elders to act as historians in their societies (as cited in Nelson, 2005). In addition, Stearns (1986) argues that the industrial revolution affected older adults by making families more mobile and by establishing jobs that were more physically taxing, while at the same time putting less emphasis on experience (as cited in Nelson, 2005).

Today, older adults in the United States experience ageism to a greater degree than do adults in other countries (Nelson, 2005). A common “doddering, but dear” image of older adult influences different age groups in the United States to perceived older adults as warm, but incompetent (Cuddy & Fiske, 2002). Abramson & Silverstein (2004) found that certain age stereotypes are especially prevalent in younger adults (compared to middle-aged adults and older adults), and that younger adults are more likely to consider the majority of older adults as “lonely, miserable, senile or suffering from defective memory,” and are more likely to view older adults as less competent in the workplace (as cited in Wurtele, 2009). When students in a 2009 qualitative study by Wurtele were asked to describe what older adults probably do with
their time, the top five activities that turned up in student descriptions were socializing, exercising, watching television, sleeping, and reading (Wurtele, 2009). Wurtele (2009) describes these results as most consistent with the “Disengagement Theory of Aging,” in which older adults are thought to become removed from society as they age.

Understanding “Elderspeak”

One of the most common forms of age discrimination is speech modification for older adults, often referred to as “elderspeak.” Characteristics of elderspeak typically include simple diction, inappropriate use of intimate terms, inappropriate pluralism, and changes in pitch, tone, speed, sentence length, and volume. Elderspeak is most commonly used by family and caregivers of the elderly, and penetrates virtually all spheres of an older adult’s life. The elderly encounter elderspeak in interactions with strangers, in interactions with friends and family, and in interactions with professionals in the context of physical and mental health care, as well as in long-term care facilities (Nussbaum et al., 2005). Frequent patronizing communication between nurses and the elderly, particularly in long-term care facilities, can compromise the social environment for residents whose physical, psychological, and social well-being are strongly tied to the relationships that they have with nursing staff. The use of elderspeak by nurses perpetuates negative behaviors (Williams et al., 2009), and this leads to a negative downward spiral and negative social outcomes for the elderly, including decreased social engagement in long-term care facilities (Nussbaum et al., 2005; Williams, 2006). This is especially alarming because social engagement in long-term care facilities has been shown to decrease mortality and increase life satisfaction (Williams, 2006).

Modified communication by younger adults that may not be necessary for the older adult can lead to dissatisfactory intergenerational encounters. Although modified speech patterns for
the elderly are often excused because of the apparent good intentions of the speaker, ageist language reinforces ageism (Nussbaum et al., 2005) and most researchers agree that the harm of elderspeak outweighs the benefits (Kemper et al., 1998). When exposed to elderspeak, elderly individuals tend to perceive themselves as being cognitively impaired (Kemper et al., 1998) which can unconsciously lead them to perform more poorly on tasks (Kemper & Harden, 1999). In a 1982 study, researchers Avorn & Langer found older adults in a nursing home to be more successful with a puzzle task when they were simply given encouragement as compared to when they were actually helped with the task.

**Understanding the “Contact Hypothesis”**

According to the contact hypothesis, associating with members of an out-group, under certain favorable conditions, increases respect and liking (Hale, 1998). The research on the contact hypothesis is relatively divided. While some research supports the notion that contact alone decreases prejudice, other research shows that the quality and conditions of the contact determine whether or not contact will decrease prejudice. In a meta-analysis performed in 2006, Pettigrew and Tropp found that while certain conditions aided in the reduction of prejudice, contact alone significantly reduced prejudice. Previous research that has applied the contact hypothesis specifically to ageism has supported the idea that contact alone increases positive attitudes towards the elderly. In a study done by Caspi in 1984, researchers found that children’s contact with elderly teaching assistants increased positive attitudes towards older adults (as cited in Bousfield & Hutchinson, 2010). Even self-reported contact has been shown to reduce prejudice toward older adults (Hale, 1998).

While some research supports the idea that contact alone can decrease prejudice and increase positive attitudes toward the elderly, a much more significant body of research suggests
that having a certain *quality* of contact is necessary to significantly reduce prejudice. Previous research by Gaertner et al. in 1994, Masson & Berkeyten in 1993, and by Peterson et al. in 1998 suggests that contact, in the context of certain conditions, leads to increased knowledge about older adults as well as decreased stereotypes against older adults (as cited in Hale, 1998). In 2001, a study by Schwartz and Simmons found that frequency of contact did not affect student attitudes towards older adults, but that quality of contact did significantly affect attitudes. Additional survey research revealed that quality of contact was predictive of young adults’ behavioral intentions and attitudes toward the elderly, whereas contact frequency was not predictive. Those who had positive contact with older adults also had greater behavioral intentions of prosocial behavior towards older adults (Bousfield & Hutchinson, 2010).

**Understanding Intergenerational Service-Learning**

According to a 2006 literature review by James R. Peacock, service-learning (SL) can be understood as an instructive approach that combines academic curricula with community service. SL enhances the typical passive learning of a classroom setting by adding valuable active elements of learning, such as applying critical-thinking skills to meet community needs. Many SL programs are intergenerational and aim to supplement course material by exposing learners to situations where they are able to meet the needs of the older adult community.

One of the goals of an intergenerational service-learning (ISL) program is to help dissolve ageist myths and stereotypes that students hold (Peacock, 2006). Students who participate in ISL have valuable exposure to, and experience with, older adults. Previous research supports the idea that ISL even decreases fear of students’ own aging (Dorfman et al., 2004).
A previous study by Dorfman et al. (2004) found that intergenerational service-learning (ISL) was effective at positively changing attitudes towards older adults only in certain groups of ISL students. The study examined the effects of ISL as an option offered in the Introductory Gerontology course at the University of Iowa over five separate semesters (establishing 5 groups for the study). The effects of ISL on attitudes toward self-aging (one’s own aging) and attitudes towards older adults were collected using both qualitative and quantitative measures. Contact with older adults through ISL only improved general attitudes towards older adults in one semester of students and marginally in a second semester. It is likely that the differences in the effects of ISL over time may have been caused by three separate factors: first that certain groups may have had a lower baseline of attitudes towards working with older adults, secondly that the older adults with whom students were paired may have experienced significant physical or cognitive decline in the time between the first and the fifth semester, and thirdly that the ISL experience in itself (the van ride to the SL site, being videotaped versus not being videotaped on site, enthusiasm by the faculty) may have differed over time (Dorman et al., 2004).

Relevance of the Work

Building on the relatively limited research on ageism is particularly vital today due to the fact that most developed nations have rapidly aging populations, including the “baby boomer” population in the United States (Bousfield & Hutchinson, 2010; Nelson, 2005). A changing demographic met with ageist attitudes may not only decrease the quality of life for older adults, but could also foster negative experiences for younger adults as they age (Bousfield & Hutchinson, 2010).

The structure of the current study approaches ageism from several different angles (explicit expression of prejudice, implicit biases, and discriminatory behavior) and therefore may
prove useful in understanding the relationship between the unconscious, conscious, and affective components of ageism. Additionally, given the conflicting research on the topic, the results of the current study may also contribute to understanding how contact affects ageist behavior.

Previous research has measured the effect of intergenerational contact on ageism (Hale, 1998; Bousfield & Hutchinson, 2010), but the specific effects of contact through service-learning have not received a significant amount of research attention.

**Aim of the Current Study**

The current study examines relationships between implicit ageist biases, explicit ageist attitudes, and discrimination based on age. More specifically, the study aims at studying whether or not regular contact with older adults, in the form of “service-learning,” influences students’ attitudes, biases, and/or behaviors towards older adults. The current study focuses on the following research questions:

1. Does contact with older adults, through service-learning, influence levels of ageism?
2. Is there a relationship between service-learning contact with older adults and the degree of speech modification used in communication with older adults?

In order to explore these questions, participants were asked to complete both an explicit and an implicit measure of ageism. In addition, participants were asked to complete a task designed to elicit and measure levels of discrimination, in the form of elderspeak. The current study compared responses from students who have participated in service-learning with the elderly for one semester to those who completed service-learning with children for one semester.

**Hypotheses: Explicit Ageism**

Previous research has shown that contact with an out-group significantly reduces prejudice and increases positive attitudes towards older adults (Bousfield & Hutchinson, 2010; Hale, 1998). In one study, adolescents who were randomly assigned to a 6-week, high-quality relationship with older adults tended to have more positive attitudinal changes than did adolescents who were randomly assigned to a
condition in which they simply learned about older adults or to a control condition (Meshel & McGlynn, 2004). Coupled with earlier mentioned support for the relationship between intergenerational service-learning and reduced prejudice in certain groups of students (Dorfman et al., 2004) and with the general support for the relationship between intergenerational contact and ageist attitudes (Hale, 1998; Bousfield & Hutchinson, 2010), increased contact with older adults is proposed to be related to lower levels of explicit ageism.

In addition to the proposed relationship between contact with older adults and reduced negative attitudes, previous research also shows that high knowledge of aging is significantly correlated with lower scores on a measure of explicit ageism (Stuart-Hamilton & Mahoney, 2003) which indicates that those who know more about aging have less negative attitudes towards older adults. These results are further supported by Jackson et al. (2007), who found that increased knowledge of aging led to decreased negative attitudes towards older adults for both students and for health-care workers. Since students who completed service-learning with older adults had to complete projects and papers on aging, outside of class, it is likely that they had a greater knowledge of aging compared to SL children participants.

Beyond knowledge of aging, a previous study by Djikic, Langer & Stapleton (2008), established a relationship between mindfulness and explicit attitudes. Langer (1978, 1989, 1997, 2005) describes mindfulness in terms of the ability for individuals to actively create novel distinctions about stimuli which would otherwise be categorized in much larger and less-distinct groups (as cited in Djikic et al., 2008). Due to the fact that service-learning students worked primarily in communities where many older adults live together, SL Elderly participants likely interacted with many older adults which may have influenced the SL Elderly group to modify their stereotypes about older adults by classifying each older adult into smaller sub-categories based on novel distinctions. In this case, rather than “old person” the student might see “old woman who is still cognitively intact” or even “old woman who is still cognitively intact but doesn’t speak very much.” Active categorization such as this may contribute to higher levels of
mindfulness in the SL Elderly group, which may in turn contribute to a relationship between SL condition and explicit stereotypes.

Finally, previous research has found that young adults who have more positive attitudes towards older adults also report more satisfaction with intergenerational communication than do those who have less positive attitudes (Chen & King, 2002). It is possible that students who elected to complete service-learning with older adults did so because they had previously engaged in satisfactory intergenerational communication and therefore it could be hypothesized that these students would have more positive attitudes towards older adults.

Given the fact that students who complete SL with older adults have contact with older adults, likely have more knowledge about aging than do students who completed SL with children, are exposed to many different older adults and therefore may have higher levels of mindfulness, and because students consciously elect to complete their service-learning with older adults, the researcher hypothesizes that students who participated in SL with the elderly will have lower levels of explicit ageism than students who completed SL with children.

**Hypotheses: Implicit Ageism**

Implicit attitudes are generally understood as less malleable than explicit attitudes. Previous research on the development of implicit and explicit racism found that while adults had more positive explicit racial attitudes than did children, children and adults did not differ on levels of implicit racism as measured by a race IAT test (Baron & Banaji, 2006). Additionally, a 2007 study by Rydell et al. found that explicit attitudes change more quickly in the face of counter attitudinal information than do implicit attitudes. The idea that implicit attitudes generally stay the same even when explicit attitudes change, leads the researcher to believe that there will be no relationship between implicit ageism and SL condition (older adults, children)
due to the fact that SL Elderly students only spent about twenty hours interacting with older adults.

Even so, recent research has established a significant link between contact with an out-group and reduction of implicit attitudes in low-status groups. In their 2006 research, Henry & Hardin found that contact significantly reduced negative prejudice by blacks for those who are white, and by Muslims for those who are Christians, but not vice versa. In the current study, however, since the older adults represent the low-status group it was predicted that SL students who participated in service-learning with the elderly would not differ significantly from students who participated in service-learning with children on measures of implicit prejudice (due to the fact that students do not represent the low-status group).

In light of the relative stability of implicit attitudes especially in a high-status group, no significant difference is expected between service learning conditions (older adults, children), since students had a relatively limited time frame for interaction with older adults (participants only spent twenty hours with older adults during the semester), and since students belong to the high-status group (young, rather than old).

**Hypotheses: Elderspeak**

Nursing staff in long-term care facilities commonly use elderspeak when interacting with residents (Williams et al., 2009). In one study, researchers found that all types of staff at a long-term care facility used speech modification when communicating with residents (Williams, 2006). The communication between staff and residents at long-term care facilities is generally task related and it is often necessary for staff to move quickly through personal cares such as bathing, toileting, and feeding. Speech accommodation is used to accomplish tasks because older adults are perceived as less competent, are often more physically frail, and because staff
members are generally not trained in appropriate intergenerational communication (Williams, 2006).

Even if students are not asked to perform duties that are comparable to those of the nurses, it is likely that they will take the nurses’ behaviors as cues for how to behave in intergenerational interactions, especially if the students have not had substantial contact with older adults outside of service-learning. This is based on the idea that in-group attitudes affect an in-group member’s perception of out-group members even when they have not had direct contact with the out-group member (De Tezanos-Pinto et al., 2010). Essentially, if the SL Elderly students feel an alliance towards nursing staff (due to the fact that they also do not belong to the “older adult” group or due to the fact that they are also in the “caregiver” role in the context of the long-term care facility), then it is likely that they will allow their attitudes towards older adults to be influenced by that of the nursing staff to whom they are exposed.

In addition to exposure to elderspeak through nurse-resident interactions, the misinterpretation of elderspeak as a positive way of interacting with older adults may mediate a relationship between SL condition and elderspeak. Previous research has shown that caregivers may use elderspeak with good intentions of increasing seniors’ comprehension (Kemper et al., 1998). Students who voluntarily elect to work with older adults may use speech accommodation as an expression of their good intentions towards helping the elderly.

Since students who participate in service-learning with the elderly are exposed to staff-resident communication while students who participate in service-learning with children are not, and given the possible good intentions of those who elect to work with older adults, the researcher hypothesizes that students who completed SL with the elderly will modify their speech significantly more than will students who completed SL with children.
Method

Participants

Participants were 31 undergraduate Developmental Psychology students (4 male, 27 female; M = 19.77 years, SD = .92; age range 19 to 22) from the College of Saint Benedict and St. John’s University. Participants were recruited from three sections of PSYC 360: Developmental Psychology in the fall semester of 2011. All students were offered extra credit for volunteering to participate in one of three undergraduate research projects (see Appendix B). The current study only selected students who were in the process of completing the service-learning option of the class.

Of the 33 students originally selected, 20 specified that they were completing SL with school-aged children, 11 specified that they were completing SL with older adults, and two students specified that they were completing SL with middle-aged adults. For the purpose of creating two relatively homogeneous groups for the study, responses from the two SL middle-aged students were omitted. The two final groups were SL Children (N = 20, M = 19.95, SD = 1.05) and SL Elderly (N = 11, M = 19.45, SD = .52).

Measures

The Fraboni Scale of Ageism (FSA): The Fraboni Scale of Ageism (Fraboni et al., 1990) is a 29-statement survey that measures explicit attitudes towards aging and older adults. The FSA has been shown to have adequate construct validity and high internal validity. A Cronbach’s alpha coefficient of 0.86 was established by Fraboni (1990), which demonstrates high overall internal reliability.
Statements on the FSA represent three categories of behavior: *antilocution* (e.g., “Teenage suicide is more tragic than suicide among the old”), *avoidance* (e.g., “I sometimes avoid eye contact with old people when I see them”) and *discrimination* (e.g., “It is best that old people live where they won’t bother anyone”). Statements are rated on a 4-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree), and statements that represent positive rather than negative attitudes towards older adults are reversed scored. FSA scores range from 29 to 116, with higher scores representing more negative attitudes towards older adults. Using a sample of 231 participants (151 female, 72 male, 8 unknown; mean age = 31.19; age range of 16 to 65) Fraboni et al. (1990) established a FSA mean score of M = 57.89 with a standard deviation of SD = 11.86.

**The Implicit Association Test (IAT):** The Implicit Association Test (IAT; Greenwald et al., 1998) is an established measure of automatic (implicit) stereotypes. The IAT has been subject to a great deal of research since its creation, and a recent literature review by Greenwald et al. (2009) shows evidence that supports the IAT’s internal, construct, and predictive validity.

During the IAT, participants are asked to quickly sort words and photos according to different pairings of four categorical words. The logic behind the test is that participants will respond more quickly to certain pairings, thus indicating a stronger automatic association between the words. If, for example, a participant responds more quickly when the word “old” is paired with the word “bad,” and more slowly to the pairing of “old” and “good,” then an automatic bias against older adults is indicated.

The current study featured six photos of elderly individuals (3 female, 3 male) and six photos of younger adults (3 female, 3 male). The photos were retrieved from the Project
Implicit website (used with permission) and showed only the subject’s face, cropped at the forehead and chin (Nosek et al., 2007). Stimuli for the IAT consisted of the 12 photos described above along with eight “good” words (Joy, Love, Peace, Wonderful, Pleasure, Glorious, Laughter, and Happy) and eight “bad” words (Agony, Terrible, Horrible, Nasty, Evil, Awful, Failure and Hurt). The category words (which participants used as means of classifying the stimuli) were “good,” “bad,” “young,” and “old.”

During the IAT test, participants used the “i” and the “e” keys to quickly categorize words and images into corresponding categories on the top left and right hand sides of the screen. To start, participants simply categorized photos of old and young individuals by the words “young” and “old.” Next, participants categorized the 16 stimuli words into the categories of “good” or “bad.” Participants then became familiarized with categorizing both word and photo stimuli into category pairings, such as “old” or “good” and “old” or “bad.” Reaction times were collected during the next step, when participants categorized both words and photos into a category pair (old and good versus young and bad; young and good versus old and bad). Finally, the side of the screen on which the words “old” and “young” had previously been was switched, participants familiarized themselves with the change, and reaction times were collected for the final category pair. Participants were told that speed was an important factor and that because they were moving so quickly, a few mistakes were okay.

**Implicit Associations Test (IAT) Scoring:** A “D” value was calculated for each participant based upon a suggestion proposed by Greenwald, Nosek, and Banaji (2003). These researchers proposed that the “D” value is typically more accurate at capturing differences in association strengths independent of other confounding variables when compared to the original scoring procedure detailed in Greenwald et al. (1998). The “D” value can be understood as the
difference between mean reaction times from the sections of the task in which data was collected (the final pairings of “old and good versus young and bad” and “young and good versus old and bad”) divided by the pooled standard deviation of reaction times from these sections. Positive “D” values are associated with biases towards older adults, negative “D” values are associated with biases against older adults, and higher absolute values of “D” represent a higher degree of bias.

**Referential Communication Task:** A specific Referential Communication Task that was established by Kemper et al. (1995) has been shown to elicit elderspeak from young adult participants who are speaking to senior citizens. In this task, dyads of young-young, old-old, and young-old participants were given the task of having one member of the dyad explain a route on a map, while the other member of the dyad reproduces the route on a separate map. Members of the dyads were introduced to each other and though they did not have visual contact during the task, they were able to engage in dialogue and ask questions (Kemper et al., 1995). In a further study, Kemper et al. (1996) found that even when the direction receiver was unable to request clarification or express confusion, young adults still demonstrated elderspeak when communicating with older adults (as cited in Kemper et al., 1998). A 1998 study by Kemper et al. revealed that the effects of the speech modification were intensified further for older adults that were simulating dementia, when compared to those that were not, which suggests that young adults will alter their speech based on the perceived needs of their partner.

In the current study, participants were required to verbally describe a given route into an audio recorder. The route was consistent through all trials. Each participant completed the task twice, once to an older adult and once to a middle-aged adult. The order of the trials was randomized to avoid speech differences caused by an order effect. In light of Kemper et al.’s
finding that young adults still used elderspeak when there was no visual or audio contact during the task, the only information that participants were offered about their matches were a general age group (“middle-aged” or “senior citizen”) and what they looked like (a photo of a middle-aged woman or a photo of an older woman).

**Direction Variables:** Three undergraduate research assistants transcribed audio samples from the Referential Communication Map Task (Map Task) based on the researcher’s protocol for speech transcription (see Appendix A for sample transcriptions). Research assistants transcribed in randomized pairs and were required to: listen to each speech sample several times, double check the accuracy of each final transcript while listening to the speech sample, and enter the transcriptions into the Miller & Iglesias (2008) Systematic Analysis of Language Transcripts (SALT) computer program for analysis.

The following speech components were obtained from the map task speech samples, as a measure of elderspeak: Mean Length of Utterance (as a measure of general fluency), Type-Token Ratio (as a measure of lexical complexity; type-token ratio represents the number of different words in a speech sample divided by the total number of words), rate of speech (in words per minute), number of pauses (within utterance pauses that were longer than 2.0 seconds; between utterance pauses longer than 3.0 seconds) and total number of utterances per speech sample. In the current study, an “utterance” was defined as an action verb, its subject, and the surrounding modifiers. Restarts, repeats, abandoned utterances, and fillers were coded as “mazes” and the number of mazes per speech sample was also obtained. Based on previous research on elderspeak, significant differences in speech variables between trials (perceived older adult, perceived middle-aged adult) implicate elderspeak (Kemper et al., 1998; Williams, 2006).
Procedure

Each participant was required to sign up for one 30-minute time period in which they would complete four tasks. Participants were told that their responses would remain anonymous and they were randomly assigned a participant number in order to link their responses. After signing an informed consent form, participants completed the Fraboni Scale of Ageism (FSA) and the Implicit Associations Test (IAT). The order of these two tasks was randomized. Participants were introduced to the IAT task following a specific experimental script (Appendix C). Upon completion of both the FSA and the IAT, participants completed a bogus survey (see Appendix G) in order to minimize suspicion about the intention of the study. The bogus survey was created to mimic the Fraboni Scale of Ageism. The bogus survey was a 19-statement survey that asked participants to rate the degree to which they agree with certain statements such as “It is best that children play where they won’t bother anyone” on a four-point Likert scale (1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree).

The final task in the study was the referential communication task. Participants were required to complete two trials of the task, one after the other. Participants received a written copy of the task instructions (see Appendix D) and were asked to follow along as the researcher read the instructions out loud. The researcher then told the participant that she would check to see if the participant match was ready. After leaving the room for a brief period, the researcher returned to inform the participant that she/he had been randomly assigned as “direction giver” in the “no visual contact” condition. The participant was then led down a hallway to a different room in which an audio recording device was set up on a table.

The participant was given a manila folder containing a photo of the participant with whom they had been paired (either the older woman or the middle-aged woman), a Map Task
Survey (see Appendix I), and a map with a route drawn on it (see Appendix J). Participants were prompted to transfer the information from the top half of the map (bogus match information; participant number) to the top half of the Map Task Survey. The purpose of this step, in addition to the photo, was to ensure that the participant was aware of the age group to whom she/he was speaking.

The experimenter then introduced the task according to the experimental script (see Appendix E) and started the tape recorder. Upon completion of directions, participants filled out the second half of the Map Task Survey before completing the entire map task a second time. After completion of the second trial, participants filled out a demographic survey (see Appendix H) and were debriefed (see Appendix K).

Results

Explicit Ageism

It was hypothesized that students who worked with the elderly in a Service-learning (SL) context would express less explicit ageist attitudes on the Fraboni Scale of Ageism (FSA) compared to students who completed SL with children. Statements were reverse scored as needed and total FSA scores were calculated for each participant. Higher scores on the FSA correspond with more negative attitudes towards older adults.

An Independent Samples T-Test revealed no significant difference between the SL Elderly population (N = 10, M = 53.5, SD = 11.11) and the SL Children population (N = 20, M = 55.8, SD = 6.15) on the Fraboni Scale of Ageism, t(28) = .734, p = .469. Data from one participant was excluded from FSA analysis because the second half of the survey was left blank.

After examining the data, one additional participant’s FSA score was eliminated from the analysis due to the fact that the score was greater than two standard deviations away from the
mean. It was hypothesized that the participant may have misread the scale or did not pay attention to the task.

A subsequent Independent Samples T-Test revealed results that trended toward significance. SL Elderly participants tended to score lower (N = 9, M = 51.0, SD = 8.29) than SL Children participants (N = 20, M = 55.8, SD = 6.15) on the Fraboni Scale of Ageism, \( t(27) = 1.74, p = .093 \). A medium to large effect size (\( d = .66 \)) was calculated for the results.

While the difference between SL groups (Elderly versus Children) only trended toward significance, a statistically significant difference was found for gender. Males scored significantly higher (N = 5, M = 60.60, SD = 3.05) than females did (N = 24, M = 53.00, SD = 7.028); \( t(27) = -2.35, p < .05 \). However, such results should be interpreted with caution due to the small sample size (N=5) for males.

In order to determine whether or not participants’ ageist views were positive or negative, a One Sample T-Test was run to see if participant scores were significantly different than the midpoint of the Likert scale (2.5) (adapted from Lin et al., 2011). Results showed that participant scores (M = 1.90, SD = .28) were significantly lower than 2.5, which indicates that all participants actually had positive explicit ageist attitudes (they were more likely to disagree with the ageist statements than agree).

Overall, all participants were significantly more likely to disagree than to agree with statements on the Fraboni Scale of Ageism (statements such as, “I personally would not want to spend much time with an old person” and “I sometimes avoid eye contact with old people when I see them”). As hypothesized, students who worked with older adults in a service-learning context tended to have less negative attitudes toward older adults compared to those who
completed service-learning with children. Furthermore, males were found to have significantly more negative views towards the elderly than were females.

**Implicit Ageism**

It was hypothesized that students who worked with the elderly in a Service-learning (SL) context would not express significantly different implicit biases on the Implicit Associations Test (IAT) when compared to students who completed SL with children. Data from one participant was excluded from IAT analysis due to computer problems that prevented the participant from completing the task.

An Independent Samples T-Test revealed no significant difference between the SL Elderly population (N = 11, M = -.61, SD = .39) and the SL Children population (N = 19, M = -.64, SD = .42) in scores on the Implicit Associations Test, $t(28) = -.175, p = .863$. There was no significant difference in responses by males (N = 5, M = -.58, SD = .40) versus females (N = 24, M = -.87, SD = .36), $t(28) = 1.49, p = .14$.

A One-Sample T-Test was used to see if participants were more biased toward or against older adults. Negative $D$ values represented bias against older adults while positive $D$ values represented bias toward older adults. If participants were not biased, then a $D$ value of zero would have been achieved. Thus, the test value was set at zero. Results of a One-Sample T-Test showed that participant IAT scores (M = -.63, SD = .41) were significantly lower than zero, $t(29) = -8.52, p < .01$, which demonstrates a significant bias against older adults.

Overall, participant reaction times were significantly faster when the word “old” was paired with the word “bad” on the IAT test compared to when the word “old” was paired with the word “good.” This suggests that participants in the current study had implicit biases against older adults. As hypothesized, participants who completed service-learning with the elderly did
not have significantly different levels of implicit biases compared to participants who completed service-learning with children.

**Implicit versus Explicit Ageism**

Participants who expressed a lower degree of implicit bias (had more negative scores on the IAT) tended to score significantly lower on the FSA (representing less negative ageist attitudes). A Pearson’s correlation revealed that IAT responses were significantly correlated with FSA responses, $r = -.49$, $n = 27$, $p < .01$.

![Figure 1: Significant effect of IAT response on FSA response.](image)

Neither IAT scores nor FSA scores were found to correlate significantly with direction variables from the map task (mean length of utterance, words per minute, type-token ratio, mazes, number of pauses, or total number of utterances). This result was consistent when both trials (older woman, middle-aged woman) were included, when target trials were analyzed separately.
Referential Communications Map Task

It was hypothesized that speech samples from the Map Task would be significantly different in trials where the perceived recipient was an older adult compared to trials where the perceived recipient was a middle-aged adult.

As predicted, the communications map task elicited a significant speech modification in participants. Participants spoke more slowly when they thought they were speaking to an older woman than when they thought they were speaking to a middle-aged woman. A Repeated Measures ANOVA revealed a statistically significant difference in Words per Minute (WPM) by all participants when speaking to a senior citizen (M = 134.33, SD = 19.95) versus a middle-aged adult (M = 140.27, SD = 23.00); $F (1, 29) = 4.705, p < .05$.

While speaking rate differed based on perceived recipient (older woman, middle-aged woman), no significant differences were found in mean length of utterance, total number of utterances, type-token ratio, mazes, or pauses between trials, when participants were speaking to an older woman compared to trials when participants were speaking to a middle-aged woman (see Table 1). These results were consistent whether participants completed service-learning with older adults or with children. No significant interactions between SL Condition (Elderly, Children) and trial (perceived older woman, perceived middle-aged woman) were found. Since no interactions were found, the second hypothesis in the current study (that students who worked with older adults would modify speech to a greater degree) was not supported.
**TABLE (1)**

Repeated Measures ANOVA: Within-Subject Speech Sample Analysis

<table>
<thead>
<tr>
<th></th>
<th>Middle Aged Recipient</th>
<th>Elderly Recipient</th>
<th>F(1, 29)=</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MLU</strong></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>11.76</td>
<td>2.39</td>
<td>11.73</td>
<td>2.36</td>
</tr>
<tr>
<td>SL Children</td>
<td>13.22</td>
<td>2.75</td>
<td>13.02</td>
<td>2.83</td>
</tr>
<tr>
<td><strong>Total Utterances</strong></td>
<td>12.75</td>
<td>3.24</td>
<td>12.90</td>
<td>3.04</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>13.27</td>
<td>3.29</td>
<td>13.27</td>
<td>3.17</td>
</tr>
<tr>
<td>SL Children</td>
<td>12.75</td>
<td>3.29</td>
<td>12.70</td>
<td>3.03</td>
</tr>
<tr>
<td><strong>Type-Token Ratio</strong></td>
<td>.42</td>
<td>.08</td>
<td>.42</td>
<td>.06</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>.40</td>
<td>.07</td>
<td>.41</td>
<td>.06</td>
</tr>
<tr>
<td>SL Children</td>
<td>.43</td>
<td>.08</td>
<td>.43</td>
<td>.07</td>
</tr>
<tr>
<td><strong>Mazes</strong></td>
<td>5.39</td>
<td>5.86</td>
<td>5.74</td>
<td>6.10</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>6.36</td>
<td>7.51</td>
<td>7.36</td>
<td>8.38</td>
</tr>
<tr>
<td>SL Children</td>
<td>4.85</td>
<td>4.87</td>
<td>4.85</td>
<td>4.40</td>
</tr>
<tr>
<td><strong>Pauses</strong></td>
<td>1.16</td>
<td>2.07</td>
<td>1.42</td>
<td>2.01</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>1.00</td>
<td>1.95</td>
<td>1.18</td>
<td>2.36</td>
</tr>
<tr>
<td>SL Children</td>
<td>1.25</td>
<td>2.17</td>
<td>1.55</td>
<td>1.85</td>
</tr>
<tr>
<td><strong>Words Per Minute</strong></td>
<td>140.27</td>
<td>23.00</td>
<td>134.33</td>
<td>19.95</td>
</tr>
<tr>
<td>SL Elderly</td>
<td>147.17</td>
<td>27.69</td>
<td>138.04</td>
<td>20.48</td>
</tr>
<tr>
<td>SL Children</td>
<td>136.48</td>
<td>19.72</td>
<td>132.28</td>
<td>19.87</td>
</tr>
</tbody>
</table>

Note. MLU stands for Mean Length of Utterance. *p < .05. **p < .01

Although Mean Length of Utterance (MLU) did not differ based on the perceived recipient of the directions (older woman, middle-aged woman), between-subject results from a Repeated Measures ANOVA revealed a statistically significant difference in Mean Length of Utterance between SL Elderly participants (M = 13.13, SD = 2.79) and SL Children participants (M = 10.99, SD = 1.77); F (1, 29) = 8.357, p < .01. Essentially, those who completed service-learning with the elderly used more words to express themselves than did those who completed service-learning with children, independent of whether they thought they were speaking to an older woman or to a middle-aged woman.

Total utterances, type-token ratio, mazes, pauses and speaking rate did not differ significantly between SL Elderly participants and the SL Children participants (See Table 2) independent of perceived recipient (older woman, middle-aged woman). This suggests that
while SL Elderly participants did use more words per utterance, they did not use more utterances nor was their speech more complex.

### TABLE (2)

Repeated Measures ANOVA: Between-Subject Speech Sample Analysis

<table>
<thead>
<tr>
<th></th>
<th>SL Elderly M</th>
<th>SL Children M</th>
<th>F(1,29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLU</td>
<td>13.13</td>
<td>10.99</td>
<td>8.357**</td>
</tr>
<tr>
<td>Total Utterances</td>
<td>13.27</td>
<td>12.73</td>
<td>0.234</td>
</tr>
<tr>
<td>Type-Token Ratio</td>
<td>0.406</td>
<td>0.431</td>
<td>1.046</td>
</tr>
<tr>
<td>Mazes</td>
<td>6.86</td>
<td>4.85</td>
<td>0.841</td>
</tr>
<tr>
<td>Pauses</td>
<td>1.09</td>
<td>1.40</td>
<td>0.183</td>
</tr>
<tr>
<td>Words Per Minute</td>
<td>142.61</td>
<td>134.38</td>
<td>1.22</td>
</tr>
</tbody>
</table>

*Note. MLU stands for Mean Length of Utterance.*  *p < .05.  **p < .01

Overall, results from the map task revealed that the only speech modification that was made when participants thought they were speaking to an older woman (compared to a middle-aged woman) was that participants spoke significantly more slowly to the older woman than to the middle-aged woman. While one dimension of elderspeak (slower speech) was elicited on the map task, the hypothesis that SL Elderly participants would modify their speech for the perceived older woman recipient to a greater degree than SL Children participants would on the direction giving map task was not supported.

### Map Task Survey

Analysis of Likert scale ratings on the Map Task Survey revealed differences between the SL Elderly and the SL Children groups. Specific statements are recorded in Table 3. Responses did not significantly differ between task trials (elderly recipient versus middle-age recipient) for any of the four statements (See Table 4). However, a significant difference and trends toward significance were found between SL groups on three out of the four statements (See Table 5).
TABLE (3)
Map Task Survey Statements

Statement 1: “I felt uncomfortable giving directions to a stranger.”
Statement 2: “I found it challenging to verbalize the given route to my partner.”
Statement 3: “The recipient of my directions probably drew the correct route on his or her map.”
Statement 4: “The directions that I gave were clear and easy to follow.”

Statements were rated on a 5-point Likert Scale (Strongly Disagree (1) to Strongly Agree (5)).

TABLE (4)
Repeated Measures ANOVA: Within-Subject Speech Sample Analysis

<table>
<thead>
<tr>
<th></th>
<th>Middle Aged Recipient</th>
<th>Elderly Recipient</th>
<th>F(1,29)=</th>
<th>Interaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement 1</td>
<td>2.84 1.16</td>
<td>2.77 1.23</td>
<td>0.706</td>
<td>0.706</td>
</tr>
<tr>
<td>Statement 2</td>
<td>2.90 1.22</td>
<td>3.06 1.29</td>
<td>0.810</td>
<td>2.831</td>
</tr>
<tr>
<td>Statement 3</td>
<td>3.42 0.72</td>
<td>3.23 0.88</td>
<td>0.917</td>
<td>0.917</td>
</tr>
<tr>
<td>Statement 4</td>
<td>3.42 0.96</td>
<td>3.42 0.89</td>
<td>0.000</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Note. MLU stands for Mean Length of Utterance. *p < .05. **p < .01

TABLE (5)
Repeated Measures ANOVA: Between-Subject Speech Sample Analysis

<table>
<thead>
<tr>
<th></th>
<th>SL Elderly</th>
<th>SL Children</th>
<th>F(1,29)=</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statement 1</td>
<td>2.36</td>
<td>3.05</td>
<td>2.621</td>
</tr>
<tr>
<td>Statement 2</td>
<td>2.32</td>
<td>3.35</td>
<td>5.973**</td>
</tr>
<tr>
<td>Statement 3</td>
<td>3.64</td>
<td>3.15</td>
<td>3.865*</td>
</tr>
<tr>
<td>Statement 4</td>
<td>3.82</td>
<td>3.20</td>
<td>3.818*</td>
</tr>
</tbody>
</table>

Note. MLU stands for Mean Length of Utterance. *p < .06. **p < .05

As shown in Table 5, SL Children participants were significantly more likely to agree with Statement 2: *I found it challenging to verbalize the given route to my partner,* than were SL Elderly participants, *p < .05.* Additionally, differences in responses approached significance (*p < .06) for Statement 3: *The recipient of my directions probably drew the correct route on his or her map,* and for Statement 4: *The directions I gave were clear and easy to follow.* SL Elderly participants tended to agree more with Statement 3 and Statement 4 than did SL Children participants.
Demographic Survey

Participants were prompted to take a demographic survey (see Appendix H) at the end of the study in order to see if certain variables influenced the results – i.e., acted as potential confounds. Responses to the question “What best describes the type of interaction you have with the elderly?” revealed that more SL Elderly (N = 11) participants tended to report having contact with the elderly through service-learning than did SL Children (N = 0) participants, and more SL Children (N = 7) tended to report that they didn’t frequently interact with the elderly than did SL Elderly (N = 0) participants. Interestingly enough, SL Children (N = 11) participants tended to report having interactions with a grandparent more often than did SL Elderly (N = 4) participants.

An Independent Samples T-Test revealed that, according to responses to the question “In an average week, how frequently do you interact with the elderly,” students SL Elderly
participants did not report more contact frequency (M = 2.09, SD = .54) than did SL Children participants (M = 1.55, SD = 1.0), t (29) = -1.66, p = .108.

**Discussion**

**Explicit Ageism**

It was hypothesized that students who completed service-learning with older adults (SL Elderly) would express less ageist attitudes than students who completed service-learning with children (SL Children) on the explicit measure. Though SL Elderly and SL Children scores on the Fraboni Scale of Ageism (FSA) were not significantly different at the p < .05 level, SL Elderly participants tended to have lower scores on the FSA (representing more positive attitudes towards the elderly) than did SL Children participants.

It is possible that knowledge of aging contributed to the tendency for SL Elderly participants to have lower FSA scores than the SL Children participants. Previous research shows that knowledge of aging is significantly correlated with lower scores on the FSA (Stuart-Hamilton & Mahoney, 2003) and that as knowledge of aging increases, FSA scores decrease for both students and for health-care workers (Jackson et al., 2008). It is reasonable to predict that SL Elderly participants had a greater knowledge of aging than did SL Children participants at the time of the study due to the fact that they had SL-related papers and/or projects to complete as part of their service-learning experience or due to an intrinsic desire to study aging outside of class. This difference in knowledge may have played a role in the tendency for SL Elderly participants to express less negative attitudes towards older adults.

Another factor that may have contributed to lower FSA scores is the variety of older individuals to whom the SL Elderly participants were exposed. In a previous study by Djikic, Langer & Stapleton (2008), scores on Langer’s Mindfulness Scale (LMS) were significantly
correlated with lower FSA scores in older adult participants. Since SL Elderly students worked primarily in communities in which many older adults live together, SL Elderly participants likely had ample opportunity to make novel distinctions about each older adult they interacted with which may be related, by increased mindfulness, to their tendency to have lower FSA scores compared to those participants to who completed SL with children.

While FSA scores tended to be lower for SL Elderly participants, it is important to note that the scores did not differ significantly at the p < .05 level. There are several possible explanations for this result. To start, FSA scores in the current study, though not significantly different between SL conditions, tended to be lower overall than the mean established by Fraboni et al. (1990). It is possible that students who participated in service-learning projects in general (independent of population) have less negative attitudes towards older adults compared to the general population and therefore did not differ significantly from each other. It is also possible that contact with older adults through a grandparent or at work may have led the SL Children group to have experienced similar amounts of contact with older adults compared to the SL Elderly group. Additionally, the unique relationship that the College of Saint Benedict and St. John’s University have with Benedictine monastic communities may influence students’ explicit attitudes towards older adults in a way that is unique from the general population.

Secondly, the lack of significant difference between the groups could be due to the fact that the study was underpowered. While the null hypothesis cannot be rejected based upon a significance level of p = .09, the medium to large effect size suggests it is very possible that the results may have been significant if there had been more participants.

Finally, independent of SL condition, participants were significantly more likely to “Strongly Disagree” or to “Disagree” with the items on the FSA than they were to “Agree” or to
“Strongly Agree”. Since all participants were significantly more likely to disagree with the statements than to agree, it is possible that a floor effect washed out any potential differences between the groups.

**Implicit Ageism**

As was hypothesized, scores on the Implicit Associations Test (IAT) did not differ significantly between participants who completed SL with older adults compared to those who completed SL with children. This suggests that independent of service-learning exposure to older adults, all students expressed roughly the same degree of implicit age bias. This may be due to the fact that implicit biases are less malleable than explicit attitudes, especially in a high-status group.

While IAT scores did not differ significantly between SL groups, results did show an overall negative bias against the elderly. In light of previous research by Wurtele (2009), which showed that students typically view older adults according to the Disengagement Theory of Aging, it is reasonable to suppose that students in the current study also held views that were consistent with the idea that as adults age, they become more withdrawn from society. Since college students are frequently encouraged to emphasize busyness and involvement in community, it is likely that they also hold negative views towards those who withdraw from society and become less busy. These views could be responsible for students’ implicit preferences for youth and implicit biases against older adults. It is also possible that societal and cultural influences that are specific to the United States were responsible for the negative implicit ageist implicit biases found in the current study.

**Explicit Versus Implicit Ageism**
In the current study, participant scores on the implicit measure (the Implicit Associations Test) were significantly correlated with participant scores on the explicit measure (the Fraboni Scale of Ageism), even though neither IAT scores nor FSA scores were significantly correlated with SL Condition. The strong correlation between IAT and FSA scores is rather unexpected in light of previous research on stereotyping behavior, which shows that explicit and implicit measures are typically minimally or not at all significantly correlated (Lin et al., 2011; Angerstrom & Rooth, 2011; Nosek & Smith, 2007).

Results from Lin et al.’s 2011 study of ageism in first-year undergraduate psychology students at a university in Australia showed that implicit attitudes (measured with the IAT) were not significantly correlated with explicit measures. Given that the population in Lin et al.’s study was seemingly comparable to the population in the current study, the results of the current study are especially interesting. In the United States, ageism is commonly seen in humorous greeting cards and other media to a point where the general public may even be desensitized to it (McGuire et al., 2008). It is possible that because it is socially acceptable to express ageism in the United States, participants felt more comfortable responding honestly on the explicit measure in the current study when compared to the study conducted in Australia. If it were considered more socially acceptable to express ageist views, then participants would be expected to perform in ways that were less affected by social desirability and would theoretically respond in ways that are more reflective of their actual implicit biases.

The fact that lower degrees of implicit biases against the elderly were correlated with lesser reported negative explicit attitudes in the current study may prove supportive for the validity of the Fraboni Scale of Ageism when compared to other measures. Based on relationships with other scales that measure explicit ageism, Fraboni et al. (1990) suggests that
the FSA is unique in that it lacks influence from social desirability. If the IAT truly measures unconscious biases, then the results of the current study may suggest that implicit and explicit ageism may be more related that previously thought, and that it may be possible to get an idea about implicit biases using an explicit measure.

It is, however, important to note that all participants were significantly more likely to disagree with statements on the FSA than they were to agree with them, which may indicate a floor effect. It could be that all participants were hesitant to agree with the ageist statements due to the presence of the researcher in the room during the study, or the preconceived notion that the study had something to do with differing age groups, which may have caused participants to respond in a more socially desirable way.

It is interesting, then, that even if social desirability caused a floor effect in FSA responses, there were still significant correlations between the implicit and explicit measures. It could be that social desirability was not responsible for the tendency for participants to disagree with the ageist statements on the FSA. Rather, the presence of the monastic communities at the College of Saint Benedict and St. John’s University, and/or contact with older adults (through SL, work, and relationships with older family members), may have contributed to the students’ overall disagreement with the negative statements on the FSA. It could be that participants truly felt that negative attitudes towards older adults were not appropriate, and that implicit biases were related to the degree to which they felt these negative attitudes were inaccurate. It could be that implicit biases are more related to explicit attitudes when participants are asked to react to blatant negative ageism rather than when participants are asked to express prosocial behavioral intentions or to express agreement with positive stereotypes.

Referential Communication Map Task
It was hypothesized that the referential communication task (the map task) would prompt speech modification when direction givers (participants from the current study) were speaking to someone whom they perceived as an older woman, but not when direction givers were speaking to someone whom they perceived as a middle-aged woman. The results of the current study showed that participants spoke significantly more slowly when they thought they were speaking to an older woman compared to when they thought they were speaking to a middle-aged woman. Subsequent analyses revealed no other significant modifications of speech (mean length of utterance, type token ratio, mazes i.e., restarts, repeats, dropped utterances, total utterances) when participants were speaking to an older woman compared to when they were speaking to a middle-aged woman.

It was further hypothesized that the degree of speech modification would be greater for SL Elderly students than for SL Children students. There was no significant interaction for speaking rate, which suggests that students who worked with the elderly for service-learning did not modify their speech significantly more (by speaking more slowly) to the older woman recipient than did the students who completed service-learning with children. It could be that exposure to nurses in SL sites, and the desire to help older adults (which could influence students to modify speech based on good intentions), were not related to actual use of elderspeak in interactions with an older adult. However, while it is possible that SL contact was not related to actual discriminatory behavior, it seems more likely that the map task used in the current study failed to elicit an adequate number of components of elderspeak to be useful for comparison between SL groups.

Based on previous evidence, which shows that young adults will modify their speech even when the older adult is not able to ask for clarification or communicate verbally with the
younger adult (Kemper et al., 1996 as cited in Kemper et al., 1998), it was hypothesized that the map task in the current study would elicit components of elderspeak (simpler diction, slower speech, differing levels of verbal fluency, more pauses, more re-starts or repeats), even though no audio or visual contact was established between direction giver and direction receiver. In the current study, the only information that participants received about the recipient of their directions was a photo and an age group (“senior citizen” or “middle-aged adult”). It is possible that the map task used in the current study veered too far from the original map task and did not establish enough awareness of the direction receiver’s age to elicit significant speech modification (besides a slower speaking rate). It may be that it is necessary for the young adult who is acting as “direction giver” to establish more of a relationship with the recipient of her directions (perhaps by meeting and greeting the direction receiver) in order to elicit a full spectrum of speech modifications.

Another reason why significant speech modification (with the exception of speaking rate) was not elicited by the map task could be that participants (who were college-aged) may simply group “middle-aged adult” and “senior citizen” into one category: “older than me.” It is possible that the perceived age difference between the two direction receivers (older woman, middle-aged woman) was not great enough to elicit differences in speech modification. If the current study had also collected data for a perceived “college-aged” direction recipient, the variables of participant speech (MLU, TTR, pauses, mazes, total utterances, WPM) may have been significantly different when they thought they were speaking to an older or middle aged adult compared to when they thought they were speaking to a peer.

It is interesting to note that the only component of elderspeak that was elicited by the map task used in the current study was speaking rate. It could be that the idea of speaking more
slowly to older adults is so engrained in society that all participants significantly slowed their speech based on unconscious beliefs about audio comprehension abilities of older adults. These beliefs could be rooted in participant understanding of the physical needs of an older adult (perhaps slowed speech is beneficial to older adults who suffer from the natural hearing loss associated with aging), or they could be a result of societal influence (observing family members interactions with elderly, seeing interactions with the elderly in the media). Independent of the motivation for slowed speech, the results from the current study show that even when other forms of speech modification are not evoked, young adults speak more slowly when they are speaking to older adults. By significantly slowing speech, participants may be acting based on assumptions about a perceived recipient’s needs based on her age.

While it may be helpful in some cases to speak more slowly to older adults, it is important to note that modifying speech for older adults is, in fact, an act of discrimination. Slowed speech may cause an older adult to perceive herself as cognitively impaired, and this negative self-perception may lead to dissatisfaction intergenerational relationships, lack of confidence in older adults, and substantial belief by older adults that they are, indeed, cognitively impaired. The fact that slowed speech for older adults was elicited by the map task in the current study, even when other components of elderspeak were not elicited and even when there was no indication of hearing loss, is a testament to how tightly woven the idea that older adults benefit from slower speech (whether conscious or unconscious) is in our society.

Explicit Ageism, Implicit Ageism, and Discriminatory Ageist Behaviors

While participant scores from the explicit measure (the Fraboni Scale of Ageism) and the implicit measure (Implicit Associations Test) correlated significantly, no relationship was found between these measures and the actual discriminatory behavior of speech modification. Results
revealed that FSA scores were the only data that correlated significantly with IAT scores. The other speech variables (mean length of utterance (MLU), type-token ratio (TTR), total number of utterances, number of mazes, words per minute (WPM) and number of pauses) were not correlated with IAT scores. This was true when the direction variables from both trials (middle aged recipient and older recipient) were pooled for the correlation, as well as for when the speech components (i.e., mean length of utterance, speaking rate, etc.) were correlated with the IAT separately for each trial (middle-aged vs. older recipient). Additionally, FSA scores were not correlated with any of the direction variables (again, whether the trials were pooled for analysis or correlated separately).

It seems likely that the map task did not elicit enough of the discriminatory variable (speech modification) to be used for comparison. If the map task had elicited a wider spectrum of elderspeak components, a significant correlation may have been found between the FSA or IAT and the discriminatory behavior.

**Service-Learning Contact**

A substantial amount of evidence prompted the researcher to predict that contact with older adults, in the form of Service-learning, would increase positive attitudes towards the elderly, and would cause students who worked with the elderly in service-learning to modify their speech significantly more than students who worked with children. While differences between the two SL groups approached significance on the explicit measure (the Fraboni Scale of Ageism), the groups did not differ significantly in terms of IAT scores or the degree of speech modification during the map task. While previous research shows that higher levels of contact increase knowledge of aging and decrease levels of stereotypes (Hale, 1998), the current study
found that reported contact frequency with older adults was not related to differences in explicit or implicit stereotype behaviors.

As demonstrated Dorfman et al.’s 2004 study as well as by the current study, it is possible that the circumstances under which students come to work with older adults may have a mediating effect on whether or not the contact is successful at reducing negative attitudes toward older adults. It is likely that many factors could have contributed to the lack of difference between SL groups (SL Elderly versus SL Children). First, students may not have experienced a sufficient amount of direct contact with older adults to have an effect on their attitudes. The nature of the SL experience with the elderly may not have been one that fostered unique relationships with older adults, but may rather have been focused more on tasks that did not involve actual interactions with older adults. Along the same lines, it is also possible that students participated in activities (such as BINGO or bridge) which reinforced their ageist stereotypes rather than dispelling them. Finally, students were only required to spend 20 hours at their SL sites during the semester and it is possible that the frequency of interactions with older adults was not sufficient to dispel their ageist myths.

Since there was no baseline taken from the participants in the current study, a second reason that SL groups did not have significantly different explicit or implicit attitudes towards older adults could be attributed to different starting levels of ageism. It is possible that if the FSA and IAT were given to all participants at the beginning of the semester and then again at the end, results may have differed significantly for the SL Elderly group more so than for the SL Children group. It may also be that SL Elderly participants started off with a higher baseline FSA score and/or a higher baseline degree of implicit stereotypes. If this were the case, and ISL
contact did influence levels of ageism, then these changes would be washed out in comparison to the SL Children group (who would have, supposedly, started off with less ageism).

Following this train of thought, it is also important to note that there were only 31 participants in the current study. As previously discussed, in a less underpowered study it seems likely that differences in FSA scores between SL populations would be significant, particularly in light of a medium to large effect size.

Additional factors that may account for the seemingly nonexistent relationship between SL contact with the elderly and measures of explicit and implicit ageism are the enthusiasm of the site coordinator (this could peak or diminish student interest in establishing positive relationships with older adults), student time constraints (students who elected to work with the older adults may have done so only because time constraints prevented them from participating in other service-learning options), contact with grandparents (SL Children students tended to report having more contact with a grandparent than did SL Elderly students), and the lack of random assignment (there may be other factors that cause those who elect to work with older adults to be significantly different from those who work with children in confounding ways).

Finally, if students’ attitudes towards older adults are affected by their tendency to align with the idea that older adults withdraw from society as they age (Wurtele, 2009), then it is possible that service-learning with older adults in the context of long-term care facilities (where older adults are physically removed from society) actually contributes to ageist myths rather than dispelling them. Given this alignment with the Disengagement Theory of Ageism, as well as the “doddering, but dear” conception of older adults that has been established in the U.S. (Cuddy & Fiske, 2002), it could be that students would benefit more from ISL with older adults who are more active in society or with older adults who have higher independence, physical functioning,
and/or psychological functioning (because students’ stereotypes would ideally be challenged, and not supported.)

**Unexpected Findings**

Significant differences in participants’ mean length of utterance scores and in participant responses on the map task survey were found between SL groups, independent of the direction recipient (middle-aged woman or older woman). These findings imply that there may be an inherent difference, perhaps in personality, between students who elect to work with older adults compared to those who elect to work with children.

**Mean Length of Utterance (MLU):** Results from the referential communication map task revealed a significant difference in the way that SL Elderly students spoke (in mean length of utterance) compared to SL Children students (who used significantly fewer words to express the same idea), independent of who they were speaking to (perceived middle-aged versus older adult recipient). The notable difference in MLU scores between the SL groups indicates that students who elected to work with the elderly have significantly better verbal fluency (they use more words to express the same ideas) than do students who elected to work with children.

Since there was no control group in the current study, it is unclear whether the MLU scores for the SL Elderly participants were particularly high (compared to a norm established by a control group) or if the MLU scores for the SL Children participants were particularly low.

If it is the case that students who elect to work with the elderly have a significantly higher level of verbal fluency than other groups of students, an especially interesting connection may be established in light of previous research on positive aging. Previous studies show that older adults who have higher levels of verbal fluency live longer (Ghisletta et al., 2006) and that there is a relative stability of verbal fluency over a lifespan (Sutin et al., 2011). Previous research also
supports the idea that positive attitudes toward aging are correlated with a reduced risk for morbidity and mortality in older age (Vahia et al., 2011). Not only did students who worked with the elderly have higher levels of verbal fluency (which is a predictor of positive aging), but the students who worked with the elderly also tended to have more positive explicit attitudes about older adults (which is also a predictor of positive aging). This result may imply that there is a connection between verbal fluency and positive attitudes towards older adults, which may correlate with elected contact with older adults to contribute to more positive aging. A study by Sutin et al. (2011) revealed a predictive relationship between verbal fluency and certain personality traits. Participants who were more emotionally stable, open, and extroverted performed better on a verbal fluency task (Sutin et al., 2011). It is possible that certain personality traits influenced students who are, for example, more emotionally stable to have less fear of aging, more positive attitudes towards the elderly, and to be more likely to elect to work with an older population.

Map Task Survey: Participants were required to complete a brief 4-statement survey after each trial of the map task. Significant and near significant differences in responses to map task survey items were found between the two SL conditions (Elderly, Children). Independent of the perceived recipient of their directions, those who worked with children found the map task to be significantly more challenging (I found it challenging to verbalize the given route to my partner) than did SL Elderly participants, whereas SL Elderly participants tended to have more confidence in their directions (The directions I gave were clear and easy to follow.), and they tended to have more confidence in their recipient (The recipient of my directions probably drew the correct route on his or her map.) than did SL Children participants.
Just as personality may have been a mediating factor in the relationship between participant attitude and verbal fluency, it is possible that participants’ personalities may also have contributed to the differences in the way that SL Elderly students responded to map task survey questions as opposed to the way that SL Children students responded to such questions. It could be that SL elderly participants were more extroverted and therefore may have been more comfortable with the task. If the SL Elderly group was more comfortable with the task than the SL Children group due to differing levels of extroversion for example, it is likely that SL Elderly participants would tend to have more confidence in their directions (*The directions I gave were clear and easy to follow*), and would be significantly less likely to agree that the task was challenging (*I found it challenging to verbalize the given route to my partner*).

**Limitations and Future Research**

There were three primary limitations to the current study, the first of which was a lack of random assignment. Since participants self-selected to complete service-learning with either older adults or children, and were not randomly assigned to these service-learning conditions, the current study cannot be considered a true experiment. Given a lack of random assignment, it is likely that confounding variables were not washed out between the groups. Stemming from this lack of control over confounding variables and because the current study was not a true experiment, causation cannot be implied. If possible, future research should randomly assign undergraduate psychology students to SL conditions and control for confounding variables (contact with older adults in other contexts, interest in working with older adults, previous experience in similar caregiving contexts, etc.) in order to see if the differences found in the current study were caused by actual service-learning experiences, or if they were caused by inherent differences in the self-selected groups.
While lack of random assignment did prove to be the largest limitation of the study, the fact that participants were not randomly assigned did yield interesting results about differences between students who decided to work with older adults compared to those who decided to work with children. These results warrant future research into what types of personalities may predispose students to elect to work with older adults. Further research may also examine whether characteristics such as personality influence student views of the elderly and a willingness to interact with the elderly. Along the same lines, a lifespan study of individuals who elect to work with older adults may be used in the future to see if people who elect to work with older adults are more likely to experience positive aging than those who do not.

The second major limitation to the current study was a lack of baseline data. Had explicit and implicit measures been completed by participants, not only after the students’ service-learning experience, but also before, it is possible that significant pre- to posttest differences may have been found. It is also possible that contact with older adults, through service-learning, did actually affect explicit and implicit attitudes, but due to baseline differences between the SL condition groups (Elderly versus Children), the results were washed out. Future research should collect pre- and posttest data for all participants.

Finally, inter-rater reliability was not obtained in the current study. Due to time constraints during the data analysis, research assistants (RAs) were not able to transcribe more than the allotted number of trials and therefore transcriptions by differing RAs could not be compared for inter-rater reliability. While no formal calculation of inter-rater reliability was obtained, the researcher confidently predicts that the transcriptions produced by differing RAs were highly consistent due to the unique structure of the transcription process. RAs were required to work in pairs (one operated the recording device, the other typed; both reviewed the
accuracy of the transcription several times) and the pairs were randomized. Since each RA worked with the others and since all RAs received the same training (including practice transcriptions) it is predicted that the transcriptions were relatively consistent between the differing pairings of the three research assistants.

The current study yields an abundance of topics for future research. First, future research could explore the relationship found between the Fraboni Scale of Ageism and the Implicit Associations Test by comparing these measures with other implicit and explicit measures or by applying these measures to different populations. Secondly, if the study were run again in the future, establishing contact with the actual recipient of directions during the map task may elicit more components of elderspeak which may, then, be correlated with the FSA and IAT. Additionally, future research could look at different contexts in which contact occurs with older adults, which may prove more valuable at dispelling negative ageist attitudes. Finally, future research could look at whether or not completing SL over an entire semester is beneficial or whether three or four longer interactions with older adults would be more beneficial.

Conclusions

In closing, the current study found that explicit attitudes toward older adults were generally positive, while implicit attitudes towards older adults were generally negative. While certain components of elderspeak were not encountered (MLU, TTR, total utterances, number of pauses and number of mazes did not differ significantly when the participant thought he/she was speaking to an older woman versus a middle-aged woman), all participants did significantly slow their rate of speech when speaking to an older woman compared to a middle-aged woman. This may suggest that slowed speech is the most easily elicited and commonly used form of speech modification that younger adults use when speaking to older adults.
The current study also established a correlation between scores on the Fraboni Scale of Ageism and on the Implicit Associations Test. These results contradict the idea that explicit ageism and implicit ageism are usually unrelated. The correlation between these measures should be explored further.

Finally, results from the current study revealed significant differences in students who elected to complete service-learning with the elderly compared to students who elected to complete service-learning with children. The fact that students who elected to work with the elderly displayed significantly more verbal fluency and tended to have less negative attitudes toward the elderly than students who worked with children may imply that there is a certain personality type that is motivated to work with the elderly. This personality type, if linked with both verbal fluency and positive attitudes towards aging, may be more likely to experience positive aging (better health, longer life, less cognitive decline) in their own lifespan. This may be the first evidence to indicate a link between verbal fluency and positive attitudes towards aging, and this link should receive attention from future researchers.
Acknowledgements

I am humbled to have worked with and to have been influenced by several outstanding individuals during my honors thesis process. I would like to extend my warmest gratitude to:

… my thesis advisor, Stephen Stelzner for his continued support and guidance throughout the semester. My conversations with Steve undoubtedly fueled my passion for the topic and allowed me to think outside of the box, in order to consider the implications of my work.

… my thesis readers, Pam Bacon and Linda Tennison, who have not only helped integrally with the completion of my honors thesis project, but who have also had an enormous impact on my development in the field of psychology.

… the faculty in the Psychology Department at the College of Saint Benedict and Saint John’s university, especially Rodger Narloch and Janet Tilsta.

… my research assistants, Jill Lenzen, Nicole Alley, and Mike Fitzgerald, who kept smiles on their faces as they spent an inordinate amount of time transcribing and analyzing data.

… the staff at Home Instead Senior Care in St. Cloud, MN. I continue to be inspired by their passion for protecting the independence and dignity of older adults in the community and I am forever grateful for the opportunity that I have been given to work with older adults.

… my family and friends for being a constant source of support and love, especially: Patti, Hans, & Erin Hultgren, Larry & Marie Kelly, and Sue & Tom Tyksinski.
References


Appendix (A): Sample Transcriptions

O okay so head out of the holiday inn towards second street.
O take a left on second street towards thirty third avenue south.
O continue going straight until you reach twenty fifth avenue south.
O take a left on fifth avenue south.
O take a left on division street.
O take a right on twenty ninth avenue north.
O and take a right on fourth street north.
O take a left on twenty fifth avenue north where you’ll end up at northgate shopping center.

O starting at the holiday inn : you go south to second street, or county road seventy five.
O take that until you reach : Carlin playground.
O and (you’ll a right err or )you’ll take a left before you get there : onto twenty fifth avenue.
O ;
O and you’ll go on that until you reach west division street, or highway twenty three.
O And you’ll take that.
O until you take a right until twenty ninth avenue.
O and you’ll take that until you reach central park.
O where you’ll take a (umm) right onto fourth street north.
O and then a left onto fifth street which will take you to the north gate shopping center.
Appendix (B): Relevant Recruitment Information

Developmental students,

During these last few days before Christmas break, you will be given a unique opportunity to participate in research from three undergraduate students who are completing honors theses. You will be helping your fellow psychology students with data collection for these very important projects and you will also receive extra credit for your participation. In order to participate, please email Kristin Hultgren (kmhultgren@csbsju.edu) with the following information: Name, Developmental professor, Service-learning __ Yes __No, (If applicable) Service-learning site:, (If applicable) Service-learning population: (Children/Middle-Aged Adults/Senior Citizens).

All students who express interest will be matched with one of the three honors thesis projects and will receive extra credit upon the completion of the assigned research task. Tasks will take no longer than 30 minutes.

We thank you in advance for your participation. Email responses should be sent to Kristin Hultgren (kmhultgren@csbsju.edu) by Wednesday, December 14 at 5pm.

Appendix (C): Introduction to the IAT

In this brief computer task, you will be asked to match words and images with category words on the top left and top right hand sides of the screen. You are asked to quickly categorize the word or image into one of the two categories by pressing either the “i” or the “e” key. Speed does matter, so please respond as quickly as possible. Because you are moving fast, a few mistakes are expected, and ok.

Appendix (D): Introduction to the Map Task

In this section of the study, you will be randomly paired with another participant and asked to complete a simple map task. In this map task, one participant will be given a map with a specific route drawn on it and the other participant will be given a blank map. Each participant will be randomly assigned as either the giver or the receiver of the directions. The direction giver will verbally describe the route and the direction receiver will record the route on his or her own map with as much accuracy as possible.

Researchers are primarily interested in studying whether or not having visual contact between the direction giver and direction receiver affects proficiency at this task. Because of this, you will be randomly assigned to one of two conditions – visual contact or no contact. In the “visual contact” condition, you will be seated across from the participant you have been paired with for the duration of the map task. In the “no contact” condition, the direction giver will record directions on an audio recorder and the direction receiver will listen to this recording in a different room.

You will be asked to complete this task twice. You have been recruited for the “college-aged” group and you will be randomly paired with participants from two of the following age groups: school aged child, college student, middle-aged adult, and senior citizen. You will now be led to another classroom where you will complete the map task.

Appendix (E): Introduction to Recording Script

“Please set the survey and the manila folder aside. I will now start the audio recorder and I will introduce you by your participant number and age group. As soon as I have introduced you, you are free to begin whenever you feel ready. Please describe the route that has been drawn on your map to the participant with whom you have been paired. Do your best to ensure that the participant you have been paired with draws the route correctly.”
Appendix (F): *Fraboni Scale of Ageism*

**Feelings Toward the Elderly Survey**  
*Instructions:* Please circle the number that most accurately represents your personal level of agreement with the statements on the left. There are 29 items on this survey.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>2.</td>
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<td>6.</td>
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<td>7.</td>
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<td>8.</td>
<td>1</td>
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<tr>
<td>9.</td>
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<td>10.</td>
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<td>11.</td>
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<td>13.</td>
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<td>15.</td>
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<td>16.</td>
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<td>17.</td>
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<td>18.</td>
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<td>19.</td>
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<td>20.</td>
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<td>21.</td>
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<td>22.</td>
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<td>23.</td>
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<td>24.</td>
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<td>25.</td>
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<td>26.</td>
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<td>27.</td>
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<td>28.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>29.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>
### Feelings Toward School-Aged Children Survey

*Instructions:* Please circle the number that most accurately represents your personal level of agreement with the statements on the left. On this survey, “Child” and “Children” refer to school-aged children. There are 19 items on this survey.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Many children are reckless with their money and possessions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2. Many children are unable to share.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3. Many children just live in the present.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4. Most children can be trusted to take care of household pets.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5. Many children are happiest when they are with other children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6. Most children would be considered to be messy.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7. Most children can be irritating because they tell the same stories over and over again.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8. Children complain more than other people do.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9. I sometimes avoid eye contact with children when I see them.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10. I don’t like it when children try to make conversation with me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11. Interesting conversation cannot be expected from most children.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12. Feeling annoyed when around children is probably a common feeling.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>13. It is best that children play where they won’t bother anyone.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>14. The company of most children is quite enjoyable.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15. I personally would not want to spend much time with a child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>16. Most children should not share their ideas with adults.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>17. Children can be very creative.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>18. I would prefer not to live with a child.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>19. Most children are self-centered.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tbody>
</table>
Appendix (H): Demographic Survey

Demographic Survey: In this final survey, experimenters hope to gather background information about participants in order to control for confounding variables.

Age: 

Gender (circle one): Female / Male

1. In an average week, how frequently do you interact with school-aged children?  
   a. Less than once a week  
   b. 1 time a week  
   c. 2-3 times a week  
   d. 4-5 times a week  
   e. 6-7 times a week

2. What best describes the type of interaction you have with school-aged children? (Circle all that apply)  
   a. I do not frequently interact with school-aged children  
   b. Work-related  
   c. Service-learning  
   d. Sibling  
   e. Extended Family (Cousin, Aunt/Uncle)  
   f. Neighbor  
   g. Primary Caregiver  
   h. Other ____________________________________________

3. If you selected letter “a” for question #2, skip this question. If you answered b-h, please rate the degree to which you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I value my interactions with school-aged children.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I would describe the contact that I have with school-aged children as “high quality.”</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I have unique talents that make me especially talented at interacting with school-aged children.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>

4. In an average week, how frequently do you interact with the elderly?  
   a. Less than once a week  
   b. 1 time a week  
   c. 2-3 times a week  
   d. 4-5 times a week  
   e. 6-7 times a week

5. What best describes the type of interaction you have with the elderly? (Circle all that apply)  
   a. I do not frequently interact with the elderly  
   b. Work-related  
   c. Service-learning  
   d. Grandparents  
   e. Extended Family (Aunt/Uncle, Great Aunt/Great Uncle)  
   f. Neighbor  
   g. Caregiver  
   h. Other ____________________________________________

6. If you selected letter “a” for question number five, you are now finished with the survey. If you answered b-h, please rate the degree to which you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I value my interactions with the elderly</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I would describe the contact that I have with the elderly as “high quality.”</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I have unique talents that make me especially talented at interacting with the elderly.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
**Appendix (I): Map Task Feedback Survey**

*Map Task Feedback Survey ("Direction Giver" Version)*

This survey measures participants’ satisfaction with the Map Task. *Section one* should be completed before the map task and *section two* should be completed after the Map Task.

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### Section One: Participant Information

Participant Number: ________

**Age Group (Circle One):**

- School-aged child / college student / middle-aged adult / senior citizen

**Contact condition (Circle One):**

- Visual Contact / No Contact

Paired with Participant Number: ________

**Age Group (Circle One):**

- School-aged child / college student / middle-aged adult / senior citizen

**Contact condition (Circle One):**

- Visual Contact / No Contact

---

### Section Two: Map Task Feedback

Please rate the degree to which you agree with the following statements:

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I felt uncomfortable giving directions to a stranger.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>I found it challenging to verbalize the given route to my partner.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>The recipient of my directions probably drew the correct route on his or her map.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>The directions that I gave were clear and easy to follow.</td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
</tbody>
</table>
Participant number: ___
  Age Group: School-aged child/ college student/ middle-aged adult/ senior citizen
  Condition: No Contact

Direction Giver
Paired with Participant: 23
  Age Group: School-aged child/ college student/ middle-aged adult/ senior citizen
  Condition: No Contact

Direction Receiver
Debriefing Statement

Thank you for your participation in this study. The purpose of the current study was to see if contact with the elderly, through service-learning, has an effect on ageism. Ageism can be understood as “… negative or positive stereotypes, prejudice and/or discrimination against (or to the advantage of) elderly people on the basis of their chronological age or on the basis of a perception of them as being “old” or “elderly.” Ageism can be implicit or explicit and can be express on a micro-, meso- or macro-level.” (Iversen et al., 2009)

One of the most common forms of ageist behavior is speech modification for senior citizens, often referred to as “elderspeak.” Characteristics of elderspeak typically include simple diction, inappropriate use of intimate terms, inappropriate pluralism, and changes in pitch, tone, speed, sentence length, and volume. The current study aims at answering the following research questions: Does contact with the elderly, through service-learning, have an effect on ageism? Does contact with the elderly, in the context of service-learning, cause individuals to modify speech patterns when communicating with the elderly? Do explicit measures of ageism correlate with implicit measures of ageism?

In order to study these research questions, it was necessary to deceive you about the nature of the experiment. You were led to believe that the intention of the study was to investigate the way that different age groups give and receive audio directions. You were told that you were recruited to represent the “college-aged” group and that you were randomly assigned as “direction giver” in a “no contact condition.” In reality, all participants are college students and are asked to give directions using an audio recording device to both a middle-aged adult and to a senior citizen. Experimenters varied the order of which age group received directions first (middle-aged adults versus senior citizen) in order to ensure that any difference in speech patterns was in fact caused by differing perceived age. Participants were recruited from four sections of Psychology 360: Developmental Psychology with an optional service-learning component in order to ensure that knowledge of both aging and psychology were consistent among participants. If experimenters had not deceived participants in the current study, it is likely that participants would have responded in ways that they perceived to be “socially desirable.”

Your participation was important for several reasons. In comparing participant responses to both implicit and explicit measures of ageism, researchers will be able to gauge the prevalence of ageism in an undergraduate population of students and will further be able to examine the relationship between explicit and implicit measures of ageism. This data can be used to determine whether or not undergraduate students hold ageist views and can determine whether or not action should be taken to ensure contact between students and the elderly. Results from this study will prove useful for colleges and universities as well as for specific professors in determining the value of service-learning contact with the elderly for students. Beyond this, you were able to gain the firsthand experience of participating in a psychological study.

For the successful continuation of this study, which will continue for several weeks, please do not discuss the nature of this experiment with other students. It is essential that participants be deceived in order to get an accurate view of stereotyping behaviors and your confidentiality is vital. If you have any immediate questions about the current study, please ask the experimenter now. If questions should arise after you leave the experiment today, please contact Kristin Hultgren (kmhultgren@csbsju.edu) or Dr. Stephen Stelzner, the faculty adviser for this research (sstelzner@csbsju.edu).