

## Using art in an intergenerational program to improve students' attitudes toward people with dementia

Elizabeth Lokon, Yue Li & Jyotsana Parajuli

To cite this article: Elizabeth Lokon, Yue Li & Jyotsana Parajuli (2017): Using art in an intergenerational program to improve students' attitudes toward people with dementia, Gerontology & Geriatrics Education, DOI: [10.1080/02701960.2017.1281804](https://doi.org/10.1080/02701960.2017.1281804)

To link to this article: <http://dx.doi.org/10.1080/02701960.2017.1281804>



Accepted author version posted online: 19 Jan 2017.  
Published online: 19 Jan 2017.



Submit your article to this journal [↗](#)



Article views: 21



View related articles [↗](#)



View Crossmark data [↗](#)

## Using art in an intergenerational program to improve students' attitudes toward people with dementia

Elizabeth Lokon<sup>a</sup>, Yue Li,<sup>b</sup> and Jyotsana Parajuli<sup>c</sup>

<sup>a</sup>Scripps Gerontology Center, Miami University, Oxford, Ohio, USA; <sup>b</sup>Discovery Center for Evaluation, Research, and Professional Learning, Miami University, Oxford, Ohio, USA; <sup>c</sup>Department of Sociology and Gerontology, Miami University, Oxford, Ohio, USA

### ABSTRACT

This study explored the effects of participating in an intergenerational service learning program called Opening Mind through Arts (OMA) on college students' attitudes toward people with dementia. In this program, students were paired one-on-one with elders who have dementia to support the elders' creation of visual art projects. They met weekly for one semester. The Dementia Attitude Scale was administered at the beginning and end of the semester to measure changes in students' attitudes. The study included 156 students participating in OMA and assessed if their participation makes a difference in the degree of change in overall attitudes, knowledge, and comfort level toward people with dementia. Results revealed a significant improvement in students' overall attitudes, comfort level, and attitude toward people with dementia. The results highlight the importance of intergenerational service learning in improving college students' overall attitudes and increase their confidence and comfort working with people with dementia.

### KEYWORDS

Service-learning;  
intergenerational; attitudes;  
college students; dementia;  
older adult

## Introduction

The number of people with Alzheimer's disease and dementia is escalating worldwide and is currently a public health priority. This tremendous increase suggests an increased need of caregivers to care for and interact with people with dementia. However, we as a society are not prepared to deal with this disease. Fear of Alzheimer's disease and related dementias often results in avoidance or negative stereotypes of people with dementia.

Many intergenerational programs that place students in nursing homes to interact with elders who have dementia are designed to address these fears and stereotypes. The purpose of this article is to assess the impact of such service-learning (SL) experience on students' attitudes toward aging in general and toward people who have dementia in particular. Although there have been many studies assessing the impact of SL programs, most of these studies did not focus on an arts-based SL experience. As the body of evidence grows on the health and psychosocial benefits for people with dementia who engage in the arts (e.g. Gross, Danilova, Vandehey, & Diekhoff, 2015; Kinney & Rentz, 2005; Rowe, Fowell & Montgomery, 2006; Rusted, Shepard, & Waller, 2006; Sauer, Fopma-Loy, Kinney & Lokon,

**CONTACT** Elizabeth Lokon ✉ [lokonej@MiamiOH.edu](mailto:lokonej@MiamiOH.edu) 📍 Scripps Gerontology Center, Miami University, 396 Upham Hall, Oxford, OH 45056.

Color versions of one or more of the figures in the article can be found online at [www.tandfonline.com/wgge](http://www.tandfonline.com/wgge).

© 2017 Taylor & Francis Group, LLC

2016), it is important that we also assess the impact of arts-based SL experience on students' attitudes. In this article, we assess the impact of Opening Minds through Art (OMA)—an intergenerational visual art program for people with dementia—on students' attitude toward people with dementia.

### ***Negative stereotypes toward people with dementia***

Several studies show that younger people have negative stereotypes toward people with dementia (Brodaty, Draper, & Low, 2003; Nelson, 2005). These stereotypes include notions that people with dementia are anxious, unpredictable, incapable of expressing themselves creatively, and difficult to deal with. They are assumed to have different physical problems, decreased intellectual and cognitive functioning. These tend to lead to overaccommodation, that is, becoming overcourteous, speaking slowly and loudly with high pitched voice, and using simpler sentences when interacting with older adults (Nelson, 2005). Often times, negative stereotypes are augmented by social environment that portrays older people as functionless, unreliable, and unable to take proper care of themselves (Scholl & Sabat, 2008).

Brodaty, Draper, and Low (2003) investigated nursing home staff members' attitudes toward residents with dementia. They found that the staff members believe that residents with dementia were impulsive, lonely, and vulnerable and did not have control over their challenging behavior. They also said that they had difficulty coping with the residents' violent and hostile behaviors. Similarly, Baillie, Cox, and Marrit (2012) examined adult nursing students' experiences of caring older people with dementia. The students revealed that some of the staff disliked working with people with dementia, regarded them as second-class citizens, and failed to respect personhood of people with dementia. Deficit knowledge about dementia has been noted in nurses working in the residential aged-care environment ultimately affecting their ability to identify and meet needs of people with dementia. A study conducted in undergraduate nursing students found deficit knowledge about dementia among the students. The students did not know that dementia is a terminal illness and is a life-limiting condition (Eccleston et al., 2015).

To address these negative attitudes and improve knowledge about dementia, some college courses were designed to provide students with meaningful interactions with people with dementia. Tapping into the SL requirements, these courses are aimed at fostering more positive attitudes toward older people in general and people with dementia in particular (Lokon, Kinney, & Kunkel, 2012; O'Connor & McFadden, 2010).

### ***Service-learning***

“Service learning (SL) is defined as a form of experiential education in which students become actively engaged in a community service-project that helps them connect theory to practice” (Yamashita, Kinney, & Lokon, 2013, p. 140). Most of the intergenerational SL programs are created to help students better understand the aging process, have a positive outlook toward older adults, and increase their comfort in working with older adults (Natvig, 2007). Previous studies have suggested that intergenerational SL programs have mixed effects (negative and positive) on students'

attitudes toward people with dementia (Beiling, 2003; Blieszner & Artale, 2001; Brown & Roodin, 2001; Chung, 2009; Dorfman, Murty, Ingram, & Evans, 2003; Knapp & Stubblefield, 2000; Robinson & Cubit, 2007)

There are several studies that revealed that participation in an intergenerational SL program improves student's attitude toward aging and older people in general, including people with dementia. For example, Blieszner and Artale (2001) investigated the effect of intergenerational SL experiences on students' attitudes and found that students enhanced their attitudes toward aging, experienced better understanding of their course content, and reinforced their career choices. Brown and Roodin's (2001) analysis of undergraduate students who visited older adults showed that students gained an appreciation of diversity among older people, the importance of respect toward older adults, and were able to integrate their coursework with the service learning experience. Knapp and Stubblefield (2000) found that an intergenerational SL course increased students' knowledge of the aging processes and improved their perceptions of older adults. Chung (2009) found that an intergenerational reminiscence group for older adults with early dementia helped students gain a better understanding of and a meaningful relationship with people with dementia. Similarly, Dorfman et al. (2003) compared SL and non-SL students' attitudes toward aging. Results revealed that though they had similar attitudes at the start of the course, SL students showed more positive attitudes toward their own aging, lessened fear of aging, and an increased interest in a career related to aging. Similarly, Fruhauf, Jarrott, and Lambert-Shute (2004) found that though there was no significant difference between SL and non-SL students at pretest, at posttest SL students perceived greater comfort working with people with dementia than non-SL students. Greene (1998) examined the effects of an oral history program on occupational therapy students. The students reported that the visits reduced their stereotypes related to older adults and increased their awareness about the daily issues and needs of older adults in a nursing home.

Kimble and Ehman (2014) compared psychology students' learning assigned to do SL with older adults (gerontology-focused service learning or GFSL) versus with younger people (youth-focused service learning or YFSL). The results revealed that in the beginning of the project, the GFSL students had more negative expectations about their SL experience when compared to YFSL expectations. However, analysis of their final reflection papers revealed that students in the GFSL had more positive experiences with older adults and increased understanding of course contents compared to YFSL students.

In contrast, some research has revealed negative effects of SL. For example, Robinson and Cubit (2007) examined the experiences of nursing students who interacted with people with dementia in residential care facilities in their clinical placements. They found that regardless of some previous knowledge about dementia, the students did not know how to react to people with dementia and felt overwhelmed by the experience. Lack of previous experience working in dementia units and lack of adequate instruction and training prior to caring for people with dementia can lead to students' reluctance to deal with people with dementia and may even increase negative attitude toward them (Yamashita et al., 2013). Dorfman (2004) reported mixed results when she compared attitude change in five successive cohorts of students enrolled in an introductory gerontology course and participated in intergenerational SL. Of the five cohorts, only the first two showed significant positive change at posttest in overall attitude toward older adults. Although Blieszner and Artale (2001) found positive

aspects of SL, they also found no significant improvement in students' general social values and civic attitudes. Leung (2012) found that a 10-week intergenerational SL program did significantly increase the medical and nursing students' knowledge about aging and improved their attitude toward older adults. However, they found that one month after the completion of the program, nursing students experienced a significant decrease in positive attitude and their attitude scores were even lower than those in the comparison groups. This raises the question of sustainability of the positive effect of SL experiences over the long run.

This review of literature suggests that association between intergenerational SL programs and attitude toward people with dementia is complex. The impact of SL experience on students' attitude is determined by the structure of SL program, adequate training, student's characteristics, education and experiential background interacting with people with dementia, duration of contact between the students and the people with dementia, the facilities where the SL takes place, and the support the students receive during the SL program. For SL programs to create a positive impact, there needs to be a clear conceptualization of the SL goals and effective management of the SL program, including supervision and evaluation of the experience (Cavanaugh, 2010).

### **Gaps in existing literature**

As shown above, there have been many studies assessing the impact of SL experiences on students' attitude toward older adults, and some of these studies specifically focused on students' SL experience with older adults with dementia. However, most of these studies did not use instruments that were designed to assess students' experiences with people with dementia. And none focused on the arts as the center of their SL experience. For example, Kaf, Barboa, Fisher, and Snavelly (2011) compared audiology and speech language pathology SL and non-SL students' attitudes toward people with dementia. The SL students socially interacted or conducted hearing evaluation of people with dementia. At posttest the SL students showed more positive attitudes toward people with dementia than the non-SL students. However, the students' attitude was measured using Kogan's Attitude toward Old People Scale (Kogan, 1961), which consists of 34 survey items. The Kogan's scale is designed to measure attitude toward older people in general and not specifically toward people with dementia.

An earlier study by Yamashita et al. (2013) examined the effects of the same Opening Minds through Art (OMA) program involving different populations of older adults with dementia and student volunteers. In this study they used the Student Assisted Independent Living (SAIL) questionnaire. The SAIL questionnaire is an instrument that measures attitude toward older adult in general and not toward people with dementia. "The questionnaire includes 29 questions that address attitudes toward: a) older adults, b) community service, c) working with the elderly who are chronically ill or disabled and d) working with geriatric patients and individuals with chronic disease" (p. 145). The researchers slightly modified the instrument to make it suitable for their study, by replacing the term *chronic illness* with *dementia* and *older adult* with *older adult with dementia*. The SAIL instrument was not psychometrically analyzed to examine students' attitudes toward people with dementia.

Only two published studies so far assessed the impact of an arts-based SL experience using an instrument that was specifically designed to measure attitudes toward people with dementia, the Dementia Attitude Scale (DAS). These studies were conducted by George, Stuckey, and Whitehead (2013) and Roberts and Noble (2015). Medical students in the study by George et al. participated in a Timeslips<sup>1</sup> program, a creative group-based storytelling program involving persons with dementia. And the medical students in the study by Roberts and Noble participated in an art museum-based program. In both studies, students improved their knowledge and comfort level in interacting with people with dementia. However, both studies have a small sample size, 22 and 19, and both studies were confined to people with dementia from one residential facility.

Therefore, the purpose of this study is to contribute to the existing literature by investigating if participating in an intergenerational SL program called OMA (a highly structured visual arts program designed specifically for people with dementia) improves students' attitudes toward people with dementia.

### ***Arts and dementia***

Numerous studies have suggested that engaging in art activities improve well-being and quality of life of older adults including people with dementia (Chancellor, Duncan, & Chatterjee, 2014; Johnson & Sullivan Marx, 2006; Kinney & Rentz, 2005). People with dementia use arts to express themselves creatively, interact with their caregivers, express themselves, and be optimistic about the future (Basting, 2006). Findings of several case studies revealed that art therapy helps to increase attention span of people with dementia and improves their social engagement and self-esteem (Chancellor et al., 2014). An art program for people with dementia Memories in the Making found similar results. Individuals who participated in the program showed an increase in level of attention, pleasure, and self-esteem during the program (Kinney & Rentz, 2005). Similarly, a group therapy program called The Feelings Art Group (an art-based group therapy program) designed for people with Alzheimer's disease and other dementias in a nursing home revealed that residents were able to better identify their emotions and experienced an increase in social interaction with other members of the group (Bober, McLellan, McBee & Westre, 2002). Further, getting involved in creative activities encourages people with dementia to express their strengths and increase their resilience (McFadden & Basting, 2010).

OMA is an intergenerational art-making program for people with dementia developed by Lokon (2008)<sup>2</sup>. The program is aimed at promoting the social engagement, autonomy, and dignity of people with dementia through the experience of creative self-expression. It is grounded in person-centered ethics and founded on the fact that people with dementia are capable of expressing themselves creatively. Utilizing structured art-making processes, OMA allows people with dementia to access their creativity. In OMA, people with dementia are paired with the same volunteers for 10 to 12 weeks. The program takes place in special care, skilled nursing, and assisted living settings in long-term care facilities as well as in adult day centers. Prior to going to these sites, student volunteers receive 3- to 5-hour training on ways to facilitate the elders' creative expression without doing the art for them. The in-class training includes (1) a dementia simulation experience where volunteers' sensory perceptions are artificially impaired followed by instruction to

complete menial tasks such as buttoning a shirt or finding a telephone number in a phone book; (2) lectures on the scientific background on dementia, (3) orientation on program philosophy and person-centered care expectations, (4) an interactive analysis of a series of video clips of volunteers and people with dementia interacting during the OMA program, and (5) role-plays of providing support and feedback to people with dementia. These training sessions are conducted by gerontologists with deep knowledge of the OMA program.

The program is implemented in small group sessions, typically about 12 to 15 people with dementia with 12 to 15 volunteers working one-on-one on a weekly basis. Typical art projects include painting using watercolors, acrylics, inks, dyes; collage building using mixed-media elements; and printmaking using various tools and processes. Each art project consists of multiple subprocesses to accommodate varying degrees of abilities and interests. People who are more advanced in their disease progression may complete only the first few subprocesses whereas others may be able to complete the entire process. Whenever possible, tools are adapted to meet the needs of particular participants. The art-making sessions culminate in a gallery exhibition celebrating the artists' accomplishments, the friendships formed between people with dementia and the volunteers, while educating the public about the creative capacities of people with dementia.

Staff members at the seven participating sites for this study discussed among themselves and nominate their clients that would benefit from the OMA program. The only requirement is that the selected participants have been formally diagnosed with dementia. The specific diagnosis is not shared with us to protect the participants' privacy. Verbally we recommend that they nominate clients that are in moderate to later stages of dementia and those that are isolated and have a tendency not to participate in any activity at all.

By ensuring adequate sample size and number of participating residential facilities (156 students in seven facilities) and using an instrument specifically designed for use in interaction with people with dementia (the DAS), we addressed the following research questions.

### **Research questions**

To address the gaps in the literature, this study's goal was to answer the three research questions: (1) Does participation in an intergenerational SL program (OMA) improve students' overall attitudes, knowledge about, and comfort level toward people with dementia? (2) Do demographic variables, that is, gender, years in college, and academic discipline make a difference in the degree of change in overall attitudes, knowledge, and comfort level toward people with dementia? (3) Does previous personal experience with people with dementia make a difference in the degree of change in overall attitudes, knowledge, and comfort level toward people with dementia?



## Method

### Research design

This quantitative study employed a pre–post design to measure undergraduate students' self-reported change in attitudes and beliefs toward people with dementia before and after participating in the OMA program using the DAS instruments.

Institutional Review Board (IRB) approval was obtained prior to data collection. Students voluntarily signed an informed consent form before participating in the study. Consents for participation by people with dementia were sought from the primary caregivers who have legal authority to provide consents. On the day of data collection, we asked participants for their assent to take part in this study.

### Participants

This study includes 156 students who completed the DAS at the beginning and end of the semester between August 2013 and May 2015 (four semesters). Participants are undergraduate students in various academic disciplines with ages ranging from 18 to 45 years and had no prior volunteering experience with the OMA program. Students are recruited from the Honors program with students from various majors; gerontology, social work, and education classes; and through service learning and extracurricular activity fairs on campus. Students self-select to participate in the OMA program. Some students receive 1 credit hour for their weekly participation in OMA; some students join OMA as SL component of a larger course; other participate in OMA as an extracurricular activity. Once they join OMA, no distinction is made between those that receive credit and those that do not. No one receives a letter grade for his or her participation in OMA. Those who

**Table 1.** Participants' demographic information

	Total <i>N</i> = 156 <i>M</i> ( <i>SD</i> )	Female <i>n</i> = 133 <i>M</i> ( <i>SD</i> )	Male <i>n</i> = 23 <i>M</i> ( <i>SD</i> )
Age (years)	21.30 (4.35)	21.26 (4.30)	21.52 (4.74)
Enrollment status			
Freshman	12 (9.3%)	11 (10%)	1 (5.3%)
Sophomore	41 (31.8%)	34 (30.9%)	7 (36.8%)
Junior	30 (23.3%)	25 (22.7%)	5 (26.3%)
Senior or higher	46 (35.7%)	40 (36.4%)	6 (31.6%)
Academic discipline			**
Math, science, & engineering	33 (26.2%)	23 (21.5%)	10 (52.6%)
Business	34 (27%)	27 (25.2%)	7 (36.8%)
Humanities	13 (10.3%)	13 (12.1%)	0 (0.0%)
Social & behavioral sciences	20 (15.9%)	19 (17.8%)	1 (5.3%)
Health science & nursing	26 (20.6%)	25 (23.4%)	1 (5.3%)
Had personal experience interacting with family members or friends who have dementia	62 (47.7%)	53 (47.7%)	9 (47.4%)
Had volunteer or work experience at nursing homes or intergenerational programs	58 (44.6%)	47 (42.3%)	11 (57.9%)
Had volunteer or work experience with dementia patients	24 (18.5%)	22 (19.8%)	2 (10.5%)

*Note.* Data collected in Spring 2015 semester (*n* = 26) did not include enrollment status, discipline, and previous experience information. In addition, missing data on enrollment and discipline also caused different numbers of responses on these two questions.

\**p* < .05, \*\**p* < .01, \*\*\**p* < .001 (*t* test for age, and  $\chi^2$  test for others—females vs. males).



participate for credit receive a pass/fail grade based on attendance and completion of reflection journals. They receive the same training and support and commit the same amount of time to the program as the students who participate in OMA for no credit.

Table 1 shows participants' demographic information as a whole group and by gender.

### ***Procedure of recruiting people with dementia***

A majority (95%) of the older adults who participated in the OMA program for this study were people with dementia residing in skilled nursing and special care units at seven long-term care facilities. The remaining 5% of participants were people with dementia who resided in the community and participated in the OMA program at two adult day centers. Selection of the older adults in the long-term care facilities is based on staff members' recommendations. The criteria for participation are (1) they have been diagnosed with some form of dementia, (2) a signed consent was received, and (3) they agreed to participate on the day of the event. Due to HIPAA regulations, specific diagnoses were not available. We did, however, recommend that staff members select residents with dementia who would benefit from the 1:1 structure of the program. This includes residents with dementia who were less likely to participate in large-group activities for whatever reason and those that were at moderate or later stages of dementia and needed the personalized support. At the adult day centers, clients with dementia self-elected to participate in the program. Consent forms were also received from these clients. A majority of the participants were female and in their eighties. Because this study focused on the impact of the program on the students, no additional details were collected on the older adult participants.

### ***Instrument***

The DAS instrument was developed and validated by O'Connor and McFadden (2010). It contains 20 items on a 7-point rating scale with responses ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), which measures cognitive and affective/behavioral domains of attitudes toward people with dementia. O'Connor and McFadden (2010) validated the 20-item instrument using responses from 160 undergraduate psychology students. In their validation study of the DAS instrument, O'Connor & McFadden (2010) calculated DAS correlation with five other measurement scales, that is, Kogan Attitudes toward Old People Scale, Fraboni Scale of Ageism, Attitudes toward Disabled Persons Scale, Interaction with Disabled Persons Scale, and Marlowe-Crowne Social Desirability Scale; as well as confirmatory factor analysis (CFA). Cronbach's alpha for the overall DAS score was 0.83 using this sample (O'Connor & McFadden, 2010).

### ***Factor analysis***

First, CFA was conducted using pre- and postdata, separately to examine the psychometric properties of the instrument and to see if it performs consistently between our sample and the data from O'Connor and McFadden study (2010). We used principal axis factoring extraction and Oblimin rotation with Kaiser normalization, which is the same method as what is reported in O'Connor and McFadden's study, and limited the number of factors to two. Internal consistency reliabilities are reported for pre- and post-DAS factor and

overall scores using Cronbach's alpha values. DAS factor scores are calculated for the Social Comfort and Dementia Knowledge factors as the total scores of each of the 10 items in the factor with the negatively worded items reverse coded. An Overall DAS score is calculated as the total of all 20 DAS items. Factor scores range between 10 and 70, and the Overall DAS score ranges between 20 and 140.

After validation and reliability testing, two types of analyses are conducted to answer the research questions. First, pre-post paired-samples comparisons are conducted to examine if participation in an intergenerational SL program (OMA) improves students' overall attitudes, knowledge about, and comfort level toward people with dementia. Shapiro-Wilk normality tests indicated that none of the individual items were normally distributed using either pre- or postdata. Therefore, Wilcoxon Signed Ranks Tests are used for pair-samples comparisons. Next, repeated-measures two-way ANOVA is used to determine if gender, academic discipline, years in college, and previous personal experience with people with dementia make a difference in the degree of change in overall attitudes, knowledge, and comfort level toward people with dementia. Shapiro-Wilk normality tests indicated that pre-DAS factor and overall scores were normally distributed; however, post-DAS factor and overall scores were left skewed (skewness  $-.769$  for Social Comfort postfactor scores,  $-.812$  for Dementia Knowledge postfactor scores, and  $-.636$  for overall DAS postscores, with standard errors =  $.194$  for all three variables). This suggests that this instrument might have a ceiling effect for students participating in OMA and the real effect of OMA could be even larger than what we can measure using the DAS instrument. Although the postfactor and overall scores did not meet the normality assumption, we choose ANOVA test over nonparametric alternative because (1) the prescores are normally distributed and (2) ANOVA test is relatively robust to violations of the normality assumption.

IBM SPSS version 22.0 (IBM Corp, 2013) was used to conduct all analyses for this article.

## Results

### *Validity and reliability testing*

Pattern and structure coefficients based on the CFA suggest that factor loadings performed very similarly to what O'Connor and McFadden (2010) reported with only one exception. The two factors were labeled Social Comfort and Dementia Knowledge as suggested by O'Connor and McFadden. Together they explained 36% of the total variance using predata and 35% using postdata. The only inconsistency is that Item 1 loaded on the Dementia Knowledge factor using pre- and postdata, yet it loaded on the Social Comfort factor in O'Connor and McFadden's study. However, the content of this item is closely related to the Social Comfort factor, and we decided to follow O'Connor and McFadden's suggestion to include it in the Social Comfort factor. Table 2 shows the list of items included in each factor. Cronbach's alpha for the Overall DAS scores is 0.83 using predata and 0.74 using postdata. Cronbach's alpha for the Social Comfort factor is 0.82 using predata and 0.66 using postdata. Cronbach's alpha for the Dementia Knowledge factor is 0.72 using predata and 0.71 using postdata.

**Table 2.** Items by DAS factor.

Factor 1. Social comfort	Factor 2. Dementia knowledge
1. It is rewarding to work with people who have ADRD.	3. People with ADRD can be creative.
2. I am afraid of people with ADRD. <sup>a</sup>	7. Every person with ADRD has different needs.
4. I feel confident around people with ADRD	10. People with ADRD like having familiar things nearby.
5. I am comfortable touching people with ADRD.	11. It is important to know the past history of people with ADRD.
6. I feel uncomfortable being around people with ADRD. <sup>a</sup>	12. It is possible to enjoy interacting with people with ADRD.
8. I am not very familiar with ADRD. <sup>a</sup>	14. People with ADRD can enjoy life.
9. I would avoid an agitated person with ADRD. <sup>a</sup>	15. People with ADRD can feel when others are kind to them.
13. I feel relaxed around people with ADRD.	18. I admire the coping skills of people with ADRD.
16. I feel frustrated because I do not know how to help people with ADRD. <sup>a</sup>	19. We can do a lot now to improve the lives of people with ADRD.
17. I cannot imagine taking care of someone with ADRD. <sup>a</sup>	20. Difficult behaviors may be a form of communication for people with ADRD.

Note. ADRD = Alzheimer's Disease and Related Dementias.

a. The item is reverse coded for reliability analysis and for creating factor and Overall DAS scores.

### **Pre-post comparisons**

The findings show strong relationships among OMA participation, students' comfort level in interacting with people with dementia, and the students' knowledge about people with dementia (Table 3; Figure 1). Both factors (Social Comfort and Dementia Knowledge), the Overall DAS score, and 19 of 20 items showed statistically significant improvement. The only item that did not show statistically significant difference after the session is item 11, "It is important to know the past history of people with Alzheimer's disease and related dementias." The Social Comfort factor, the Overall DAS score, and five items had large effect sizes (indicated with "L" on Table 3 below); whereas the Dementia Knowledge factor and five items had moderate effect sizes (indicated with "M" on Table 3 below).

### **Pre-post comparisons of DAS factor and overall scores by student demographics**

Pre-post DAS factor and overall scores were also compared based on students' gender, college rank, and academic disciplines (Table 4). The Social Comfort factor showed significant main effects of gender but no interaction effect of pre-post change and gender. Female and male students had different prescores to begin with and landed on different levels of postscores, yet the amounts of change are not significantly different. Thus, the OMA program had a similar degree of positive associations with male and female students' comfort level in interacting with people with dementia.

No statistically significant interaction or main effect of college rank was found on DAS factor or overall scores, indicating the degree of positive change among freshmen or sophomores is similar to students in junior year or above.

The Social Comfort factor score and the Overall DAS score showed significant interaction effect of pre-post change and academic disciplines. Students in health sciences and nursing majors had higher Social Comfort factor and Overall DAS scores before they participated in the OMA program than did students in other majors. The postscores for

**Table 3.** Pre–post pair-samples Wilcoxon signed ranks test comparisons ( $N = 156$ )

DAS Item	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Mean Difference ( <i>SD</i> ) <sup>a</sup>	Effect Size <i>r</i>
1. It is rewarding to work with people who have ADRD.	5.72 (1.14)	6.71 (0.50)	0.98 (1.11)	–0.48 (M)***
2. I am afraid of people with ADRD.	3.10 (1.41)	1.65 (0.89)	–1.46 (1.48)	–0.50 (L)***
3. People with ADRD can be creative.	6.01 (0.90)	6.78 (0.44)	0.77 (0.94)	–0.46 (M)***
4. I feel confident around people with ADRD.	4.48 (1.19)	6.11 (0.80)	1.63 (1.27)	–0.54 (L)***
5. I am comfortable touching people with ADRD.	4.70 (1.40)	6.25 (0.87)	1.55 (1.49)	–0.51 (L)***
6. I feel uncomfortable being around people with ADRD.	3.28 (1.40)	2.32 (1.80)	–0.96 (2.26)	–0.29***
7. Every person with ADRD has different needs.	6.41 (0.74)	6.71 (0.47)	0.29 (0.79)	–0.27***
8. I am not very familiar with ADRD.	4.62 (1.84)	2.35 (1.12)	–2.27 (1.98)	–0.52 (L)***
9. I would avoid an agitated person with ADRD.	4.43 (1.39)	3.15 (1.33)	–1.28 (1.53)	–0.45 (M)***
10. People with ADRD like having familiar things nearby.	5.54 (1.09)	6.11 (0.85)	0.56 (1.30)	–0.29***
11. It is important to know the past history of people with ADRD.	5.74 (1.07)	5.52 (1.28)	–0.22 (1.43)	–0.10
12. It is possible to enjoy interacting with people with ADRD.	6.38 (0.86)	6.79 (0.44)	0.40 (0.90)	–0.32 (M)***
13. I feel relaxed around people with ADRD.	4.38 (1.24)	6.13 (0.73)	1.75 (1.26)	–0.56 (L)***
14. People with ADRD can enjoy life.	6.05 (0.94)	6.67 (0.52)	0.62 (0.98)	–0.40 (M)***
15. People with ADRD can feel when others are kind to them.	6.40 (0.83)	6.87 (0.36)	0.47 (0.82)	–0.37 (M)***
16. I feel frustrated because I do not know how to help people with ADRD.	4.47 (1.32)	2.86 (1.46)	–1.61 (1.75)	–0.48 (M)***
17. I cannot imagine taking care of someone with ADRD.	3.46 (1.55)	2.92 (1.48)	–0.54 (1.69)	–0.21***
18. I admire the coping skills of people with ADRD.	5.58 (0.96)	6.24 (0.81)	0.66 (1.06)	–0.37 (M)***
19. We can do a lot now to improve the lives of people with ADRD.	5.92 (1.04)	6.42 (0.80)	0.50 (1.26)	–0.29***
20. Difficult behaviors may be a form of communication for people with ADRD.	5.38 (1.10)	5.87 (1.12)	0.48 (1.24)	–0.27***
Social Comfort	43.94 (8.58)	57.95 (5.78)	14.01 (8.26)	–0.60 (L)***
Dementia Knowledge	59.44 (5.11)	63.97 (4.06)	4.53 (5.19)	–0.48 (M)***
Overall DAS Score	103.37 (11.68)	121.92 (8.15)	18.54 (11.31)	–0.60 (L)***

Note. ADRD = Alzheimer's Disease and Related Dementias; (M) = moderate effect size with  $r$  smaller or equal to  $-0.3$  but larger than  $-0.5$ ; (L) = large effect size with  $r$  smaller or equal to  $-0.5$

a. Mean difference is calculated based on post- scores minus prescores.

Response for each individual item ranges between 1 (*strongly disagree*) and 7 (*strongly agree*). Individual item means presented in this table were not reverse coded for the negatively worded items. Responses ranges between 10 (*less agreement*) and 70 (*more agreement*) for each DAS (Dementia Attitude Scale) factor score and ranges between 20 (*less agreement*) and 140 (*more agreement*) for the overall DAS score. Higher DAS factor and overall scores indicate more positive views toward people with dementia. Items 2, 6, 8, 9, 16, and 17 were reverse coded when calculating the factor and overall scores.

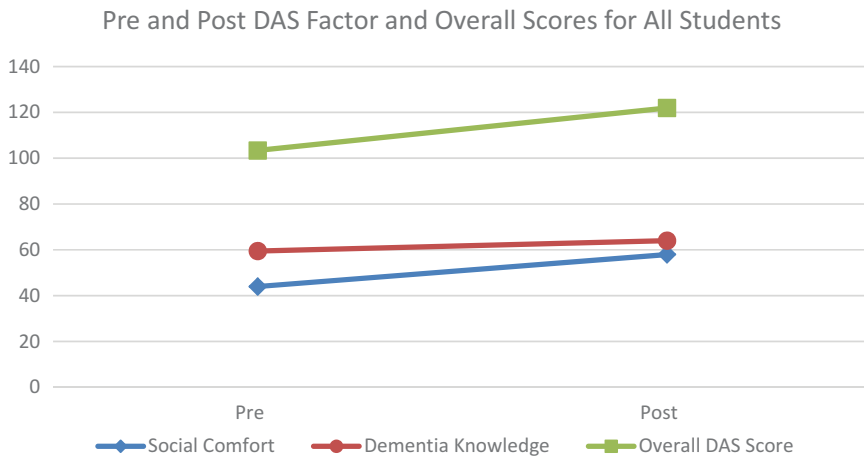
\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$  for asymptotic 2-tailed Wilcoxon Signed Ranks Test.

Social Comfort and Overall DAS were higher after participating in the program for all students, but the scores for students in health science and nursing majors did not increase as much as did students in other majors.

### **Pre–post comparisons of factor and overall scores by student experiences**

Pre–post factor and overall scores were also compared based on students' prior personal experience interacting with family members or friends who have dementia, prior volunteer or work experience at nursing home or intergenerational programs, and prior volunteer or work experience with people who have dementia, as shown in Table 5.

Social Comfort and Dementia Knowledge factors and the Overall DAS scores showed significant main effect of having prior personal experience with family members or friends who have dementia, but no interaction effect of pre–post change and personal experience.



**Figure 1.** Pre- and post- DAS factor and overall scores for all students.

**Table 4.** Pre–post comparison by gender, college rank, and academic discipline

DAS	<i>M (SD)</i>				Main Effect Size for Pre–Post	Main Effect Size for Gender	Interaction Effect Size for Pre–Post and Gender
	Pre Female ( <i>n</i> = 133)	Post	Pre Male ( <i>n</i> = 23)	Post			
Comfort	43.35 (8.71)	57.61 (5.99)	47.30 (7.04)	59.91 (3.88)	0.57 (L)***	0.03*	0.01
Knowledge	59.56 (4.98)	63.86 (4.01)	58.74 (5.90)	64.61 (4.43)	0.33 (L)***	< 0.01	0.01
Overall	102.91 (11.74)	121.47 (8.26)	106.04 (11.19)	124.52 (7.12)	0.58 (L)***	0.02	< 0.01
DAS	Freshman/Sophomore ( <i>n</i> = 53)		Junior and Above ( <i>n</i> = 76)		Main Effect Size for Pre–Post	Main Effect Size for Rank	Interaction Effect Size for Pre–Post and Rank
	Pre	Post	Pre	Post			
Comfort	42.17 (8.46)	57.64 (5.54)	44.55 (8.63)	58.09 (6.13)	0.76 (L)***	0.01	0.01
Knowledge	60.00 (5.22)	64.34 (3.78)	58.87 (5.31)	63.38 (4.54)	0.39 (L)***	0.02	< 0.01
Overall	102.17 (11.41)	121.98 (7.44)	103.42 (12.00)	121.47 (9.05)	0.73 (L)***	< 0.01	0.01
DAS	Other Majors ( <i>n</i> = 100)		Health Sciences & Nursing ( <i>n</i> = 26)		Main Effect Size for Pre–Post	Main Effect Size for Discipline	Interaction Effect Size for Pre–Post and Discipline
	Pre	Post	Pre	Post			
Comfort	43.16 (8.62)	58.27 (5.52)	44.42 (7.67)	55.88 (6.70)	0.65 (L)***	< 0.01	0.03*
Knowledge	59.24 (5.05)	63.98 (4.04)	59.58 (6.29)	62.96 (5.11)	0.27 (L)***	< 0.01	0.01
Overall	102.40 (11.56)	122.25 (8.1)	104.00 (11.63)	118.85 (9.38)	0.61 (L)***	< 0.01	0.03*

Note. DAS = Dementia Attitude Scale; (M) = moderate effect size with partial  $\eta^2$  greater or equal to 0.06 but smaller than 0.14; (L) = large effect sizes with partial  $\eta^2$  greater or equal to 0.14.

Main and interaction effect sizes are calculated using partial  $\eta^2$ .

Data collected in Spring 2015 semester (*n* = 26) did not include enrollment status and discipline information. In addition, missing data on enrollment and discipline also caused different numbers of responses on these two questions.

\* $p$  < .05, \*\* $p$  < .01, \*\*\* $p$  < .001 for  $F$  statistics.

Students with or without such personal experience had different prescores to begin with and landed on different levels of postscores, yet the amounts of change are not significantly different. Thus, though there were differences on factor and overall scores based on personal experience, the OMA program had strong positive associations with both groups to a similar extent.

Social Comfort and Dementia Knowledge factors and the Overall DAS scores showed significant interaction effect of pre–post change and students' volunteer or work

**Table 5.** Pre–post comparison by student experiences

	<i>M (SD)</i>				Main Effect Size for Pre–Post	Main Effect Size for Personal Exp.	Interaction Effect Size for Pre–Post and Personal Exp.
	Pre	Post	Pre	Post			
DAS	No Personal Exp. ( <i>n</i> = 68)		With Personal Exp. ( <i>n</i> = 62)				
Comfort	42.10 (8.02)	56.79 (5.48)	45.27 (8.95)	58.95 (6.25)	0.75 (L)***	0.05*	< 0.01
Knowledge	58.29 (5.61)	62.75 (4.03)	60.52 (4.63)	64.90 (4.20)	0.39 (L)***	0.08 (M)***	< 0.01
Overall	100.40 (11.55)	119.54 (7.92)	105.79 (11.32)	123.85 (8.44)	0.72 (L)***	0.08 (M)***	< 0.01
	No Volunteer at Nursing Home ( <i>n</i> = 72)		Volunteer at Nursing Home ( <i>n</i> = 58)		Main Effect Size for Pre–Post	Main Effect Size for Vol. at Nursing Home	Interaction Effect Size for Pre–Post and Vol. at Nursing Home
Comfort	42.13 (8.64)	57.63 (5.40)	45.47 (8.23)	58.07 (6.58)	0.75 (L)***	0.02	0.03*
Knowledge	58.63 (4.98)	63.99 (3.92)	60.26 (5.51)	63.52 (4.63)	0.39 (L)***	0.01	0.04*
Overall	100.75 (11.92)	121.61 (7.66)	105.72 (10.92)	121.59 (9.35)	0.73 (L)***	0.02	0.05*
	No Volunteer with People with Dementia ( <i>n</i> = 106)		Volunteer with People with Dementia ( <i>n</i> = 24)		Main Effect Size for Pre–Post	Main Effect Size for Vol. with People with Dementia	Interaction Effect Size for Pre–Post and Vol. with People with Dementia
Comfort	43.11 (8.17)	57.87 (5.29)	45.83 (10.12)	57.63 (8.36)	0.61 (L)***	0.01	0.02
Knowledge	59.12 (5.33)	63.92 (4.05)	60.38 (4.92)	63.13 (5.03)	0.23 (L)***	< 0.01	0.02
Overall	102.24 (11.27)	121.79 (7.72)	106.21 (13.25)	120.75 (11.18)	0.58 (L)***	< 0.01	0.03

Note. DAS = Dementia Attitude Scale; Exp. = Prior experience with people who have dementia; Vol. = Prior experience of volunteering in a nursing home; (M) = moderate effect size with partial  $\eta^2$  greater or equal to 0.06 but smaller than 0.14; (L) = large effect sizes with partial  $\eta^2$  greater or equal to 0.14.

Main and interaction effect sizes are calculated using partial  $\eta^2$ .

Data collected in Spring 2015 semester (*n* = 26) did not include previous experience information; therefore, only 130 students were included in this analysis.

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$  for *F* statistics

experience at nursing homes or intergenerational programs. Students without nursing home experience generally had lower starting points on factors and overall scores than did students with prior experience. The postvalues of factors and overall scores were similar for students with and without prior experience, indicating that students in both groups benefited from participating in the OMA program. Particularly, students without prior experience showed much bigger improvement toward the desired direction than did students with prior experience. However, effect sizes of these interaction effects were all relatively small.

No statistically significant interaction or main effect of having prior volunteer or work experience with people who have dementia was found on either factors or overall scores, indicating that the OMA program had strong positive associations with both groups to a similar extent.

## Discussion

Although there have been studies assessing the impact of SL on students' attitudes toward older people with dementia, most did not use instruments that were designed to assess students' experiences with them. There are even fewer studies that assess the impact of students' SL experiences with people with dementia in creative expression programs.

These studies tended to have small sample sizes involving SL students at a single site. This study addresses the above limitations by using the validated DAS instrument with 156 students engaged in SL with people with dementia in the OMA program at seven different long-term care facilities. Students completed the DAS questionnaire at the beginning and end of the 16-week semester.

Pre-post comparisons of students' DAS scores show that OMA was significantly associated with improved students' overall scores as well as their comfort level in interacting with and knowledge about people with dementia. In particular, students' comfort level increased greatly after the weekly interaction with people with dementia in the OMA program. This suggests that the OMA service learning experience did reduce students' fear and frustration and increased their confidence and comfort in interacting with people with dementia. Students were more likely to engage and care for people with dementia and found this experience rewarding. Students also learned that people with dementia are diverse, can be creative, can enjoy life, and can feel others' kindness. Students began to realize that it is possible to enjoy interacting with people with dementia and admired the elders' coping skills. We attribute the above positive change in students' attitudes and knowledge to a couple of factors. First, students were given adequate training (i.e., three class sessions lasting 90 minutes each) prior to the SL experience and ongoing support during the SL experience. Secondly, students were partnered with the same person with dementia throughout the entire semester to promote relationship building.

Further comparison of the effect of OMA across students' gender shows that males and females improved their attitudes and knowledge to a similar extent. Likewise, a comparison of first- and second-year students with older students shows that all students improved their attitudes and knowledge to a similar degree regardless of where they were in their college career.

Students in health sciences and nursing had higher comfort level, knowledge, and overall scores prior to the OMA experience when compared with students in all other majors. The higher pretest scores suggest that health sciences and nursing students were more exposed to people with dementia than students in other majors prior to participating in the OMA program. Although health sciences and nursing students significantly improved their scores after the OMA experience, students in the other majors improved significantly more than students in health sciences and nursing at the end of the semester. The health sciences and nursing students' lower postscores when compared with students in the other majors at the end of the semester is more difficult to explain. It may be possible that students who are trained to be medical providers come to assume a professional identity that undermines their capacity for learning from their "patients." This is an area that needs to be explored further in future research.

We investigated the effect of students' prior experience on their change in attitude and knowledge. At the end of the semester, all students expressed more comfort and knowledge, regardless of whether they had prior experience with people with dementia at home or in nursing homes or in other intergenerational programming. Naturally, students with prior experience had higher pretest scores than students without such experience, but everyone significantly improved in all aspects of the scale by the end of the term.

It is interesting to note, however, that with the more generalized question of prior experience of volunteering/working in nursing homes or intergenerational programming, without specifying people with dementia, we saw slightly different results. Both groups



significantly improved their comfort levels, knowledge, and overall scores. However, the group without such prior experience improved to a greater degree than the group with the experience. By the end of the semester, the gap between the two groups is practically eliminated. In other words, in a single semester, students participating in OMA are able to compensate for their lack of prior experience and arrive at the same level of growth as students with prior nursing home/intergenerational programming experience.

### **Limitation**

Although the findings of this study provide important insights into the value of the OMA program as a service learning experience, it is limited in several ways. We were not able to collect control group data to compare the impact of students' comfort level and knowledge with and without the OMA experience. Therefore, though it is likely that the positive changes in student attitudes were a result of the OMA program, we cannot rule out the history, testing effects, or social desirability as possible explanations. With greater resources, future studies would also benefit from including other SL and creative arts programming with people with dementia. Another limitation is that, although the pre-DAS factor and overall DAS scores normally distributed, the post-DAS factor and overall DAS scores are left skewed (skewness  $-.769$  for Social Comfort postfactor scores,  $-.812$  for Dementia Knowledge postfactor scores, and  $-.636$  for Overall DAS postscores, with standard errors =  $.194$  for all three factors). This suggests that this instrument might have a ceiling effect for students participating in OMA and the real effect of OMA could be even larger than what we can measure using the DAS instrument. Therefore, the ANOVA analyses reported in this study need to be interpreted with caution.

### **Conclusion**

To conclude, this study shows that OMA as a SL experience is associated with improved students' knowledge and attitudes toward people with dementia, regardless of gender, major, year in college, or prior experience. Although the study was limited by the lack of a control group, the improvement in students' pre-post test scores on the DAS are statistically significant with mostly moderate to large effect sizes across the board. OMA is designed to build bridges across age and cognitive barriers through art. The relationships built between each pair of students and elders with dementia lies at the foundation of the students' improved knowledge and attitudes. Findings from this study empirically show that with adequate training, structure, support, and regular interactions, students can improve their attitude toward aging and toward people with dementia. More specifically, students in OMA benefitted from completing the 3- to 5-hour training prior to interacting with people with dementia. Clearly articulated person-centered philosophy and experiential learning opportunities are critical elements in this training. Interacting with the same partner on a weekly basis for an entire semester is essential in positive relationship building. Finally, having a common task or focus (in this case, creating artwork) is another contributing element in this relationship-building process. Although it is impossible to replicate the OMA program without the intensive training on the program's methodology, the above factors (adequate training; program frequency, length, and structure; and having

a common task/focus) can be replicated in other intergenerational programming in an effort to change students' attitudes toward adults with dementia.

## Note

1. TimeSlips is a collective story creation process where a small group of people with dementia is provided with a copy of the same photograph and a facilitator raises questions about the photograph. Participants' contribution is collected to create the group's story about that photograph. For more information, please go to [www.TimeSlips.org](http://www.TimeSlips.org).
2. Opening Minds through Art (OMA) is a copyrighted art program developed at Scripps Gerontology Center at Miami University. It is the same program reviewed by Yamashita et al. (2013).

## Acknowledgment

The authors would like to acknowledge Dr. Suzanne Kunkel for reviewing an earlier version of this article. She also served as the chair of Jyotsana Parajuli's master's thesis committee. An earlier version of the introduction section of this article is part of this thesis.

## References

- Baillie, L., Cox, J., & Merritt, J. (2012). Caring for older people with dementia in hospital part one: Challenges: Lesley Baillie and colleagues explore students' experiences during practice placements as part of their university course. *Nursing Older People*, 24(8), 33–37. doi:10.7748/nop2012.10.24.8.33.c9312
- Basting, A. D. (2006). Arts in dementia care: 'This is not the end... it's the end of this chapter.' *Generations*, 30(1), 16–20.
- Beling, J. (2003). Effect of service-learning on knowledge about older people and faculty teaching evaluations in a physical therapy class. *Gerontology & Geriatrics Education*, 24(1), 31–46. doi:10.1300/J021v24n01\_03
- Blieszner, R., & Artale, L. M. (2001). Benefits of intergenerational service learning to human services majors. *Educational Gerontology*, 27(1), 71–87. doi:10.1080/036012701750069058
- Bober, S. J., McLellan, E., McBee, L., & Westreich, L. (2002). The feelings art group: A vehicle for personal expression in skilled nursing home residents with dementia. *Journal of Social Work in Long-Term Care*, 1(4), 73–86. doi:10.1300/J181v01n04\_06
- Brodaty, H., Draper, B., & Low, L. F. (2003). Nursing home staff attitudes toward residents with dementia: Strain and satisfaction with work. *Journal of Advanced Nursing*, 44(6), 583–590. doi:10.1046/j.0309-2402.2003.02848.x
- Brown, L. H., & Roodin, P. A. (2001). Service-learning in gerontology: An out-of-classroom experience. *Educational Gerontology*, 27(1), 89–103. doi:10.1080/036012701750069067
- Cavanaugh, J. C. (2010). Learning and doing: The importance of service learning in gerontology. *Educational Gerontology*, 27(1), 117–124. doi:10.1080/036012701750069085
- Chancellor, B., Duncan, A., & Chatterjee, A. (2014). Art therapy for Alzheimer's disease and other dementias. *Journal of Alzheimer's Disease*, 39(1), 1–11.
- Chung, J. C. C. (2009). An intergenerational reminiscence programme for older adults with early dementia and youth volunteers: Values and challenges. *Scandinavian Journal of Caring Sciences*, 23(2), 259–264. doi:10.1111/j.1471-6712.2008.00615.x
- Dorfman, L. T., Murty, S. A., Ingram, J. G., & Evans, R. J. (2003). Incorporating intergenerational service-learning into an introductory gerontology course. *Journal of Gerontological Social Work*, 39(1/2), 219–240. doi:10.1300/J083v39n01\_18

- Dorfman, L. T., Murty, S. A., Ingram, J. G., Evans, R. J., & Power, J. R. (2004). Intergenerational service-learning in five cohorts of students: Is attitude change robust? *Educational Gerontology*, 30(1), 39–55. doi:[10.1080/03601270490248446](https://doi.org/10.1080/03601270490248446)
- Eccleston, C. E., Lea, E. J., McInerney, F., Crisp, E., Marlow, A., & Robinson, A. L. (2015). An investigation of nursing students' knowledge of dementia: A questionnaire study. *Nurse Education Today*, 35(6), 800–805. doi:[10.1016/j.nedt.2015.02.019](https://doi.org/10.1016/j.nedt.2015.02.019)
- Fruhauf, C. A., Jarrott, S. E., & Lambert-Shute, J. J. (2004). Service-learners at dementia care programs. *Gerontology & Geriatrics Education*, 25(1), 37–52. doi:[10.1300/J021v25n01\\_03](https://doi.org/10.1300/J021v25n01_03)
- George, D. R., Stuckey, H. L., & Whitehead, M. M. (2013). An arts-based intervention at a nursing home to improve medical students' attitudes toward persons with dementia. *Academic Medicine*, 88(6), 837–842. doi:[10.1097/ACM.0b013e31828fa773](https://doi.org/10.1097/ACM.0b013e31828fa773)
- Greene, G. (1998). Reciprocity in two conditions of service learning. *Educational Gerontology*, 24(5), 411–424. doi:[10.1080/0360127980240501](https://doi.org/10.1080/0360127980240501)
- Gross, S. M., Danilova, D., Vandehey, M. A., & Diekhoff, G. M. (2015). Creativity and dementia: Does artistic activity affect well-being beyond the art class? *Dementia*, 14(1), 27–46. doi:[10.1177/1471301213488899](https://doi.org/10.1177/1471301213488899)
- IBM Corp. (2013). *IBM SPSS statistics for windows. Version 22.0*. Armonk, NY: Author.
- Johnson, C. M., & Sullivan-Marx, E. M. (2006). Art therapy: Using the creative process for healing and hope among African American older adults. *Geriatric Nursing*, 27(5), 309–316. doi:[10.1016/j.gerinurse.2006.08.010](https://doi.org/10.1016/j.gerinurse.2006.08.010)
- Kaf, A. W., Barboa, L. S., Fisher, J. B., & Snively, A. L. (2011). Effect of interdisciplinary service learning experience for audiology and speech-language pathology students working with adults with dementia. *American Journal of Audiology*, 20, S241–249. doi:[10.1044/1059-0889\(2011/10-0025\)](https://doi.org/10.1044/1059-0889(2011/10-0025))
- Kimbler, K. J., & Ehman, A. C. (2014). Gerontology and youth-focused service learning: The relation between service recipient age and student responses. *Gerontology & Geriatrics Education*, 36(4), 384–395. doi:[10.1080/02701960.2014.925890](https://doi.org/10.1080/02701960.2014.925890)
- Kinney, J. M., & Rentz, C. A. (2005). Observed well-being among individuals with dementia: Memories in the Making, an art program, versus other structured activity. *American Journal of Alzheimer's Disease and Other Dementias*, 20(4), 220–227. doi:[10.1177/153331750502000406](https://doi.org/10.1177/153331750502000406)
- Knapp, J. L., & Stubblefield, P. (2000). Changing students' perceptions of aging: The impact of an intergenerational service learning course. *Educational Gerontology*, 26 (7), 611–621.
- Kogan, N. (1961). Attitudes toward old people: The development of a scale and examination of correlates. *Journal of Abnormal and Social Psychology*, 62(1), 44–54. doi:[10.1037/h0048053](https://doi.org/10.1037/h0048053)
- Leung, A. Y. M., Chan, S. S. C., Kwan, C. W., Cheung, M. K. T., Leung, S. S. K., & Fong, D. Y. T. (2012). Service learning in medical and nursing training: A randomized controlled trial. *Advances in Health Science Education*, 17, 529–545. doi:[10.1007/s10459-011-9329-9](https://doi.org/10.1007/s10459-011-9329-9)
- Lokon, E., Kinney, J. M., & Kunkel, S. (2012). Building bridges across age and cognitive barriers through art: College students' reflections on an intergenerational program with elders who have dementia. *Journal of Intergenerational Relationships*, 10(4), 337–354. doi:[10.1080/15350770.2012.724318](https://doi.org/10.1080/15350770.2012.724318)
- Lokon, E. J. (2008). *Opening Minds through Art (OMA): An art program for people with dementia* (Master's thesis). Retrieved from Ohio Link (OCLC No. 299163515)
- McFadden, S. H., & Basting, A. D. (2010). Healthy aging persons and their brains: Promoting resilience through creative engagement. *Clinics in Geriatric Medicine*, 26(1), 149–161. doi:[10.1016/j.cger.2009.11.004](https://doi.org/10.1016/j.cger.2009.11.004)
- Natvig, D. (2007). Meeting intergenerational needs through service learning. *Educational Gerontology*, 33(7), 573–586. doi:[10.1080/03601270701410934](https://doi.org/10.1080/03601270701410934)
- Nelson, T. D. (2005). Ageism: Prejudice against our feared future self. *Journal of Social Issues*, 61(2), 207–221.
- O'Connor, M. L., & McFadden, S. H. (2010). Development and psychometric validation of the dementia attitudes scale. *International Journal of Alzheimer's Disease*, 10. doi:[10.4061/2010/454218](https://doi.org/10.4061/2010/454218)

- Roberts, H. J., & Noble, J. M. (2015). Education research: Changing medical student perceptions of dementia. *Neurology*, 85, 739–741. doi:[10.1212/WNL.0000000000001867](https://doi.org/10.1212/WNL.0000000000001867)
- Robinson, A., & Cubit, K. (2007). Caring for older people with dementia in residential care: Nursing students' experiences. *Journal of Advanced Nursing*, 59(3), 255–263. doi:[10.1111/j.1365-2648.2007.4304.x](https://doi.org/10.1111/j.1365-2648.2007.4304.x)
- Rowe, J. M., Fowell, H. L., & Montgomery, R. J. V. (2006, November). *Impact of creative activities at an adult day center*. Paper presented at the annual conference of the Gerontological Society of America, Dallas, TX.
- Rusted, J., Sheppard, L., & Waller, D. (2006). A multi-center randomized control group trial on the use of art therapy for older people with dementia. *Group Analysis*, 39(4), 517–536. doi:[10.1177/0533316406071447](https://doi.org/10.1177/0533316406071447)
- Sauer, P. E., Fopma-Loy, J., Kinney, J. M., & Lokon, E. (2016). “It makes me feel like myself”: Person-centered versus traditional visual arts activities for people with dementia. *Dementia*, 15(5), 895–912.
- Scholl, J. M., & Sabat, S. R. (2008). Stereotypes, stereotype threat and ageing: Implications for the understanding and treatment of people with Alzheimer's disease. *Ageing and Society*, 28(01), 103–130. doi:[10.1017/S0144686X07006241](https://doi.org/10.1017/S0144686X07006241)
- Yamashita, T., Kinney, J. M., & Lokon, E. J. (2013). The Impact of a gerontology course and a service-Learning program on college students' attitudes toward people with dementia. *Journal of Applied Gerontology*, 32(2), 139–163. doi:[10.1177/0733464811405198](https://doi.org/10.1177/0733464811405198)