

**Allophilia: Increasing college students' "liking" of older adults with dementia
through arts-based intergenerational experiences.**

By Lokon, E. , Li, Y., Kunkel, K.

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Abstract

This study evaluates whether an arts-based intergenerational experience, Opening Minds through Art (OMA), increases positive attitudes or allophilia ("liking for the other"—in this case, older adults with dementia) in students who joined the OMA program as compared with the control group. Pre- and post-tests of the Allophilia Scale were used to compare 216 students who participated in OMA and 499 students who did not. Hierarchical regression was used to investigate the association between OMA participation and students' Allophilia scores. After one semester, results showed that OMA participation is significantly positively associated with students' Affection, Comfort, Kinship, Engagement, and Enthusiasm toward older adults living with dementia. We conclude that increasing students' allophilia towards older adults living with dementia is necessary and possible through well-designed intergenerational experiences.

With the increase in the aging population and extended life expectancies, there is an expanded need for informal caregivers as well as formal services in aging, health care, and allied professions. Age is the primary risk factor in developing dementia. According to the World Alzheimer Report 2015, the incidence of dementia is estimated to double with every 6.3 years increase in age (Prince, et al., 2015). A recent nationally representative study in the United States estimates that for the cohort born in 1940, the lifetime risk of developing dementia at the age of 70 is 31% for males and 37% for females (Fishman, 2017). Unfortunately, young people tend to show negative attitudes toward older adults, and especially toward those who have dementia (e.g., Harris & Caporella, 2014; Roodin, Brown, & Shedlock, 2013). However, intergenerational experiences hold promise for breaking down intergenerational barriers that are based on differences in age and cognitive ability (Roodin et al., 2013).

Service learning educators have assessed the impact of intergenerational experiences on reducing students' negative attitudes. These studies show that indeed, intergenerational service learning experiences decrease students' negative attitudes toward well older adults (e.g., Kimbler & Ehman, 2014; Sheldon, 1998; Roodin, et al., 2013; Wurtele & Maruyama, 2013) as well as toward older adults with dementia (e.g., George, Stuckey, Dillon & Whitehead, 2011; Lokon, Li & Parajuli, 2017; Yamashita, Kinney, & Lokon, 2013).

While reduction of negative attitudes toward older adults is extremely important, it is equally important to build genuine liking of older adults that transcends mere tolerance or acceptance. This study focuses only on the impact of intergenerational programming on increasing students' positive attitudes toward people with dementia. While reducing negative attitudes may seem to be simply the flip side of increasing positive attitudes, the relationship between these constructs is more complex than it may seem.

Positive and negative attitudes are not opposite ends of the same continuum (Pittinsky, Rosenthal & Montoya, 2011a, 2011b). Banking and gardening metaphors (Pittinsky, 2009) are helpful here. Reducing debt and increasing income are two very different and separate tasks that contribute differently to financial security. Likewise, to raise a beautiful garden, one needs to plant seeds and pull out weeds. Although both tasks contribute to the overall results, they are not the opposite ends of the same continuum. (Pittinsky, 2007).

The complex relationships among positive and negative attitudes and positive and negative behaviors were empirically demonstrated by Pittinsky et al. (2011b); they found that positive attitudes predict positive behaviors and negative attitudes predict negative behaviors. The lack of negative attitudes does not predict positive behaviors. Using the Allophilia and Xenophobia Scales, Pittinsky and his colleagues (2011b) found that "liking a minority group is

not the same as not disliking that group. Positive and negative attitudes toward minority groups are functionally separable, exerting differential influences on behavior” (p. 141). They reached this conclusion by conducting studies that compare people’s Allophilia and Xenophobia scores with their decision to make charitable donations for scholarship funds and policies that support minority groups. High Allophilia scores predict support for minority groups while low xenophobic scores do not.

This research assesses students’ increase in positive attitude as a result of participating in an intergenerational art program with older adults with dementia called Opening Minds through Art (OMA). We compared students who participated in the OMA program with a group of students who did not participate in the program. Specifically, this research attempts to answer the following two questions:

This research attempts to identify the effect of OMA on within and across group differences and in a multivariate model.

Methods

The Intervention

The mission of Opening Minds through Art (OMA) program is to build bridges across age and cognitive barriers through abstract art. Grounded in person-centered care principles, OMA pairs people with moderate dementia (the artists) with the same students for 10-12 weeks. They meet weekly for 90 minutes, in small group settings. Prior to meeting their partners, students receive three sessions of 90-minute in-class training on the basics of dementia, the program's goals and expectations, and ways to communicate with people who live with dementia. During this training, students engage in a dementia simulation experience, learn Kitwood's (1997) concept of promoting the personhood of people with dementia and practice communication skills by analyzing videotapes and role-playing. They learn the importance of process over product. This means that the students passively assist (e.g., washing brushes, offering choice of paint colors), being careful not to make any aesthetic decisions or execute any steps themselves.

The art projects are inspired by abstract expressionism. They are designed with awareness of the diversity of interests and abilities of participants in the program. All projects have been piloted to be failure-free regardless of the artists' cognitive status. The weekly sessions culminate in an art show involving the artists' and the students' families to celebrate the creativity and the friendships that developed.

Sample

With the approval of the university's IRB (approval # 00005r), we contacted faculty members from education, gerontology, kinesiology, sociology, social work, and nursing departments and the honors program director at a university in the midwestern region of the United States to recruit study participants. These departments were selected based on existing personal connections. We visited selected classes in these departments at the beginning of the semester to invite students in these classes to participate in the study. Students in these courses also had the opportunity to sign up for the Opening Minds through Art (OMA) experiential learning program. The students' participation in the study and in the OMA program was voluntary and did not affect their grades in these courses. There were 182 students from these courses who chose to participate in the OMA program and 499 students in these courses that participated in the study as the comparison group. The comparison group consists of 499 students enrolled in these courses who did not elect to participate in the OMA program. These students completed the Allophilia Scale at the beginning and end of the 16-week semester. In addition, OMA students were also recruited from other sources such as community engagement and service fairs and word of mouth. There were an additional 34 students who

participated in OMA as a result of these additional recruitment efforts. So, in total, data were collected from 216 OMA participants. These 216 students completed the Allophilia pre-test at the beginning of the 16-week semester, before they received the OMA training described above. After the training, they served as a partner to someone with dementia for 10-12 weeks. All 216 students completed the entire training and served as a partner in OMA for the entire 10-12 weeks. (Some sites only met for 10 weeks because of cancellations due to weather, religious holidays, flu epidemic, etc.). At the end of the semester, they completed the Allophilia post-test. Adding these 216 students in the intervention group to the 499 students in the comparison group brings the total to 715 undergraduate students who took the pre- and post-tests between Spring 2010 and Fall 2014. Both intervention and comparison students participated in this study for one semester only.

This study only included students who completed both the pre- and post-Allophilia Scale, had no volunteer experience with the OMA program prior to responding to the pre-Allophilia Scale, and had demographic information for all variables included in the analysis (i.e., gender, academic rank, and previous experiences). Fifty-seven students were dropped from the analyses. Among them, 26 were dropped because they had previous volunteer experiences with OMA program, which might affect their pre-post perception changes; 9 were dropped due to missing information about their volunteer experiences; and 22 were dropped due to missing outcome measures and/or demographic information. Table 1 shows participants' demographic information as a whole group as well as the breakdown of OMA participants and the comparison group. Two-tailed results using Fisher's Exact test showed statistically significant differences between students who participated in OMA and students in the comparison group in terms of their gender and academic rank composition. Specifically, a higher percentage of OMA participants were female (85.6%) and in higher academic rank (67.6% Junior and above) than the comparison group (73.5% female and 52.5% Junior and above, Fisher's Exact Test $p < .001$ for both comparisons). There were no statistically significant differences between percentages of OMA participants and comparison students in terms of prior experiences in interacting with people who have dementia, employment at nursing homes, or participation in intergenerational programs.

Table 1. Participants' Demographic Information

	Total <i>n</i> = 715	OMA Participant <i>n</i> = 216	Comparison <i>n</i> = 499	<i>p</i> *
Gender				
Male	163 (22.8%)	31 (14.4%)	132 (26.5%)	< .001
Female	552 (77.2%)	185 (85.6%)	367 (73.5%)	
Academic Rank				
Freshman and Sophomore	307 (42.9%)	70 (32.4%)	237 (47.5%)	< .001
Junior and above	408 (57.1%)	146 (67.6%)	262 (52.5%)	
Had personal experience interacting with family members or friends who have dementia	280 (39.2%)	96 (44.4%)	184 (36.9%)	.07
Had volunteer or work experience at nursing homes or intergenerational programs	303 (42.4%)	102 (47.2%)	201 (40.3%)	.10
Had volunteer or work experience with dementia patients	138 (19.3%)	49 (22.7%)	89 (17.8%)	.15

Note. *p* values were two-tailed results using Fisher's Exact test for OMA Participants versus Comparisons.

Measures

The Allophilia Scale, first developed by Pittinsky and his colleagues (2011a), has been validated and widely used in race relations (Latino and African Americans as outgroups) and conflict resolution contexts (Palestinian-Israel, Northern Ireland, South Africa). When using the scale in different contexts, Pittinsky et al. (2011a) names the specific outgroup of interest in each of the 17 items in the scale. We did the same transformation using “individuals with dementia” as the outgroup. For example, “In general, I have positive attitudes about individuals with dementia” or “I am at ease around individuals with dementia.”

The Allophilia Scale contains 17 items on a 6-point rating scale with responses ranging from 1 (strongly disagree) to 6 (strongly agree); the scale measures individual’s attitudes toward people with dementia in subdomains of affection, comfort, kinship, engagement, and enthusiasm. The scale has been validated for use with people with dementia as the outgroup (Kinney, Yamashita, & Brown, 2016), using a subset of the data ($N = 465$) being analyzed for this study. The validation study authors conducted confirmatory factor analysis and multigroup analysis by gender and concluded that Allophilia is a valid instrument for measuring positive attitudes toward people with dementia.

We conducted an exploratory factor analysis using pre and post data separately, to examine the psychometric properties of the instrument and to see if it performs consistently between our sample and the data for the subset from the validation study. We used Principal Axis Factoring extraction and Oblimin rotation with Kaiser Normalization. Pattern and structure coefficients suggest that factor loadings performed very consistently using both pre and post data. Three factors loaded with eigenvalues greater than 1. Together they explained 70% of the total variance using pre data and 77% using post data. Pattern and structure coefficients suggest that four items have loaded on the “Affection” factor very similarly to what Kinney et al. (2016) reported. However, using our full sample, several items loaded differently resulting in a three-factor structure, which combines some of the five factors identified in the previous studies. Specifically, items about “Comfort” and two items about “Kinship” have loaded together on our second factor, while four items about “Engagement” and three items about “Enthusiasm” have loaded together on our third factor. Compared to the original validation study (Pittinsky et al., 2011a), this study have a larger sample size ($N = 715$, compared to $N = 222$ in the original study) and targeted at a different outgroup (i.e., individuals with dementia). In addition, although Kinney et al. (2016) conducted a confirmatory factor analysis to validate the invariance of the original 5-factor structure, they did not explore if the data could have fit into a different construct structure. Through the exploratory factor analysis, we found that a three-factor structure, i.e., “Affection,” “Comfort and Kinship,” and “Engagement and Enthusiasm,” is more appropriate to use for our subject population and outgroup. These three

factors and the overall Allophilia scores are used in the analysis. Item # 10, “I would like to be more like individuals with dementia,” did not load on any factors, therefore it has been excluded from future analyses.

By combining the subscales and renaming the outgroup, we follow Pittinsky’s (2011a) original definitions but modify them slightly as follows:

- Affection subscale: Positive affective evaluations of people with dementia.
- Comfort and Kinship subscale: A feeling of ease and closeness with people who have dementia.
- Engagement and Enthusiasm subscale: A tendency to seek to affiliate and interact with people who have dementia and to experience emotionally heightened positive attitudes about them.

Table 2 shows the list of items included in each factor. Cronbach’s alpha for the overall Allophilia scores is 0.94 using pre data and 0.96 using post data. Cronbach’s alpha for the Affection factor is 0.88 using pre data and 0.90 using post data. Cronbach’s alpha for the Comfort and Kinship factor is 0.91 using pre data and 0.93 using post data. Cronbach’s alpha for the Engagement and Enthusiasm factor is 0.91 using pre data and 0.94 using post data.

Table 2. Items by Factor

Factor	Item	Factor Loading	Communality
Affection	1. In general, I have positive attitudes about individuals with dementia.	.568	.692
	2. I respect individuals with dementia.	.572	.516
	3. I like individuals with dementia.	.447	.653
	4. I feel positively toward individuals with dementia.	.568	.762
Comfort and Kinship	5. I am at ease around individuals with dementia.	-.825	.732
	6. I am comfortable when I hang out with individuals with dementia.	-.870	.802
	7. I feel like I can be myself around individuals with dementia.	-.615	.512
	8. I feel a sense of belonging with individuals with dementia.	-.832	.756
	9. I feel a kinship with individuals with dementia.	-.801	.754
Engagement and Enthusiasm	11. I am truly interested in understanding the points of view of individuals with dementia.	.775	.545
	12. I am motivated to get to know individuals with dementia better.	.801	.680
	13. To enrich my life, I would try and make more friends who are individuals with dementia.	.804	.671
	14. I am interested in hearing about the experiences of individuals with dementia.	.802	.579
	15. I am impressed by individuals with dementia.	.682	.570
	16. I feel inspired by individuals with dementia.	.672	.592
	17. I am enthusiastic about individuals with dementia.		

Factor scores are calculated for the Affection, Comfort and Kinship, and Engagement and Enthusiasm factors with 4, 5, and 7 items, respectively. We used mean substitution for missing values on individual items within each factor. One hundred and thirty missing values for 34 items in pre- and post-surveys were substituted with mean scores, which represent 0.53% of the data used in this study. An overall Allophilia score is calculated as the total of all 3 factors. Factor scores range between 4 and 24 for the Affection factor, between 5 and 30 for the Comfort and Kinship, and between 7 and 42 for the Engagement and Enthusiasm factor. The overall Allophilia scores range between 16 and 96. Although pre- and post- factor and overall scores have significant Kolmogorov-Smirnov and Shapiro-Wilk normality test results ($p < .05$), a closer examination showed that these scores have Skewness values ranging from -0.81 to 0.06 and Kurtosis values ranging from -0.68 to 1.04, suggesting the data are normally distributed. The significant normality test results were likely due to the large sample size of this study. Therefore, parametric tests and OLS regression analyses were selected for the analysis and described in detail below.

Analysis Plan

First, to examine changes within the OMA group and the comparison group, paired-samples *t*-tests were used to examine the pre-post changes in factor and overall Allophilia scores for each group. Second, to assess the impact of OMA intervention, ordinary least squares (OLS) regression models were fit for each of the dependent variables: post-test factor scores on Affection, Comfort and Kinship, Engagement and Enthusiasm, as well as the overall Allophilia score. These models included controls for gender, year in school, prior experience with people with dementia, and baseline scores on the factors and the overall Allophilia score. Gender is included as a control because more female students sign up for learning experiences involving older adults and more women work in the aging industry, suggesting the possibility of a positive bias toward older adults and potentially people with dementia. Year in school is included to control for the possibility that the impact of the program is greater among the younger, more impressionable students compared to those further along in their academic development. Finally, we control for prior experience interacting with people with dementia to account for the possibility that those with prior experience may be more comfortable and knowledgeable about dementia.

For each of the dependent variables (factor scores and overall Allophilia score), control variables and the independent variable (OMA participation) are entered in different blocks. For each model, the first block consists of demographic variables, including Gender (Male = 0, Female = 1) and Years in College (Freshman and Sophomore = 0, Junior and above = 1), as well as three personal experience variables (Personal experience interacting with family members or friends who have dementia; Volunteer or work experience at nursing homes or

intergenerational programs; Volunteer or work experience with people who have dementia); each of these items is coded as No = 0, Yes = 1. The second block adds in the baseline score as a covariate. The third block looks at the impact of OMA participation (Comparison = 0, OMA Participation = 1).

All statistically significant results were reported at $p < 0.05$ level, unless otherwise specified. IBM SPSS Version 22.0 (IBM Corp., 2013) was used for all analyses.

Results

Figure 1 and Table 3 show mean pre- and post-factor scores for students participating in OMA and for the comparison group. In addition, Table 3 shows the mean difference between pre and post scores, as well as paired-samples *t*-test results and effect sizes for the two groups separately. As shown in Figure 1, students participating in OMA initially started with slightly higher scores in Affection, Comfort and Kinship, Engagement and Enthusiasm, and overall Allophilia scores than their peers in the comparison group. OMA students' scores showed much larger pre-post improvement than did comparison group students. As shown in Table 3, the paired-samples *t*-test results suggest that both OMA participant and comparison students had significantly higher post scores, comparing to their initial Allophilia scores. However, further investigation shows that the pre-post comparisons had moderate to large effect sizes on all factor and overall Allophilia scores for OMA participant students, with Cohen's *d* ranging from 0.56 to 1.07; the comparison group had much smaller effect sizes, with Cohen's *d* ranging from 0.09 to 0.15.

Figure 1. Student Pre-Post Scores by OMA Participation Status

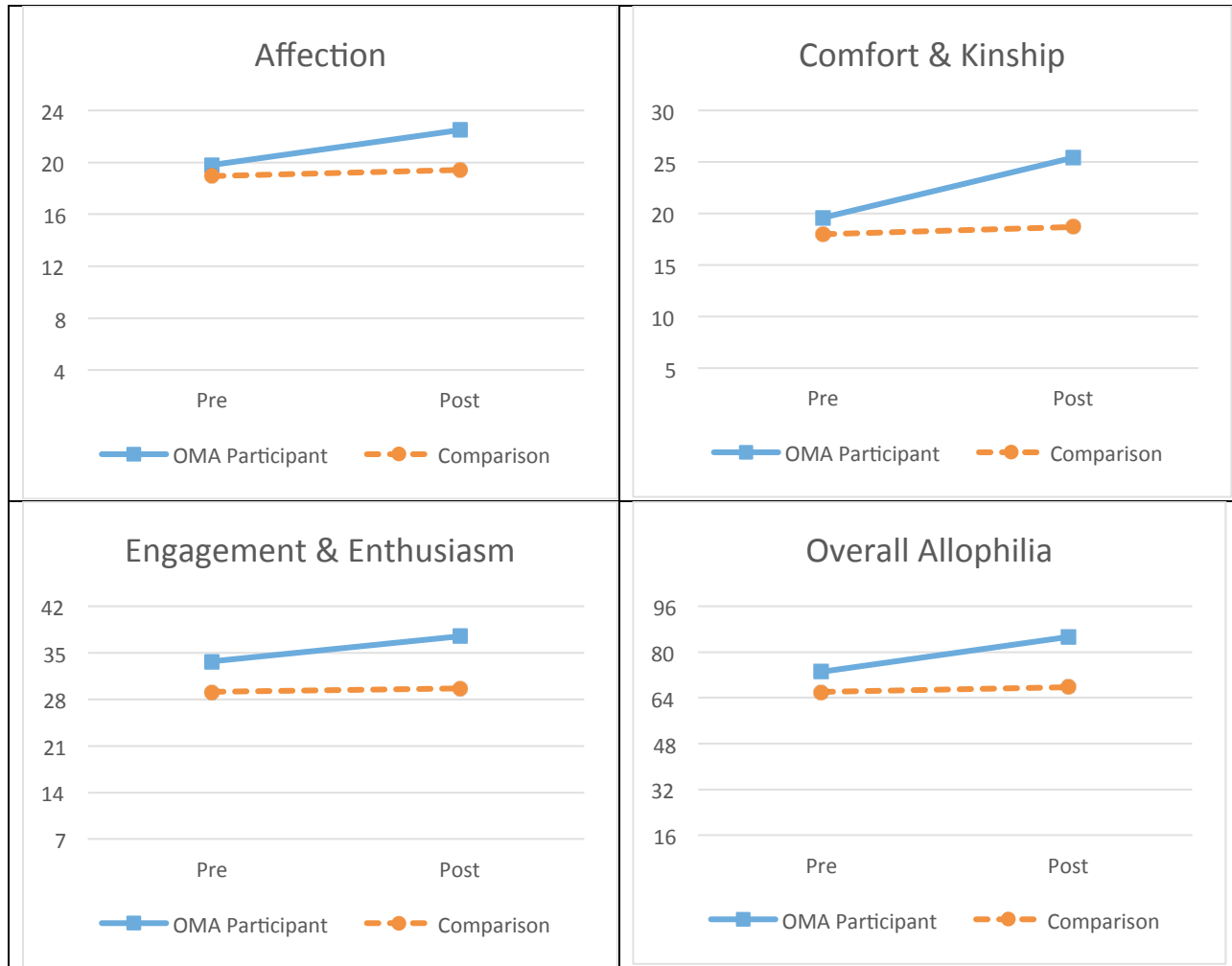


Table 3. Comparing Student Pre-Post Scores by OMA Participation Status

	OMA Participant (<i>n</i> = 216)				Comparison (<i>n</i> = 499)			
	Mean (SD)			Effect Size ¹	Mean (SD)			Effect Size ¹
	Pre	Post	Diff.		Pre	Post	Diff.	
Affection	19.80 (3.42)	22.51 (2.49)	2.71*** (3.60)	0.75	18.94 (3.46)	19.41 (3.28)	0.47*** (3.15)	0.15
Comfort & Kinship	19.59 (5.30)	25.43 (4.13)	5.84*** (5.44)	1.07	17.99 (5.30)	18.67 (5.16)	0.69** (4.76)	0.14
Engagement & Enthusiasm	33.71 (6.39)	37.44 (5.63)	3.73*** (6.66)	0.56	29.13 (6.74)	29.67 (7.02)	0.54* (5.76)	0.09
Overall Allophilia	73.10 (12.95)	85.38 (11.23)	12.28*** (13.44)	0.91	66.06 (13.50)	67.76 (13.64)	1.70*** (11.27)	0.15

* $p < .05$, ** $p < .01$, *** $p < .001$ based on paired-samples t -tests.

¹ Effect sizes were calculated based on Cohen's d .

Table 4 shows the hierarchical regression results for modeling each of the four dependent variables, i.e., factor or overall post-scores. The bolded p -values highlight the significant contribution of variables other than the pre-test scores.

Table 4. Regression Results for Post Factor and Overall Scores on Pre Scores, OMA Participation, Gender, Years in College, and Personal Experiences

Dependent Variables	Block	Independent Variables	Unstd. Coef.	SE	t	p	R^2
Affection post-score		Constant	10.71	0.59	18.05	< .001	
	1	Female	0.58	0.24	2.41	.016	0.05
		Junior and above	0.05	0.21	0.23	.82	
		PersDemen	0.23	0.21	1.07	.28	
		VolINH	-0.05	0.23	-0.23	.82	
		VolDementia	-0.04	0.30	-0.14	.89	
	2	Affection pre-score	0.43	0.03	14.60	< .001	0.26
3	OMA participation	2.64	0.22	11.87	< .001	0.38	
Comfort & Kinship		Constant	9.77	0.65	15.09	< .001	
	1	Female	0.32	0.38	0.84	.40	0.05

post-score	Junior and above		-0.15	0.32	-0.46	.65	
	PersDemen		0.48	0.33	1.43	.15	
	VolNH		0.15	0.35	0.42	.68	
	VolDementia		0.01	0.46	0.02	.98	
	2 Comfort & Kinship pre-score		0.47	0.03	15.52	< .001	0.28
	3 OMA participation		5.93	0.35	17.04	< .001	0.49
Engagement & Enthusiasm post-score	Constant		12.18	0.98	12.46	< .001	
	1 Female		0.78	0.49	1.58	.12	0.06
	Junior and above		0.02	0.42	0.05	.96	
	PersDemen		0.42	0.43	0.97	.33	
	VolNH		-0.12	0.46	-0.27	.79	
	VolDemen		-0.03	0.59	-0.04	.97	
	2 Eng. & Enthsm. pre-score		0.58	0.03	18.39	< .001	0.41
	3 OMA participation		5.01	0.47	10.73	< .001	0.49
Overall Allophilia post-score	Constant		29.09	2.13	13.67	< .001	
	1 Female		1.63	0.96	1.71	.09	0.06
	Junior and above		-0.09	0.81	-0.11	.92	
	PersDemen		1.00	0.84	1.19	.24	
	VolNH		-0.14	0.89	-0.16	.88	
	VolDementia		-0.44	1.17	-0.38	.70	
	2 Overall Allophilia pre-score		0.56	0.03	18.42	< .001	0.38
	3 OMA participation		13.42	0.89	15.00	< .001	0.53

Note.

PersDemen = Had personal experience interacting with family members or friends who have dementia.

VolNH = Had volunteering or work experience in nursing homes or in intergenerational programs.

VolDementia = Had volunteering or work experience with people who have dementia.

Affection

Gender, Affection pre-score, and OMA participation are the only significant explanatory variables in this model. The unstandardized coefficient for OMA participation is 2.64, meaning that participating in OMA results in 2.64 points increase in Affection post-scores holding students' gender, years in college, personal experiences, and pre-score constant. In block 1, demographic and personal experiences only explain 5% of the total variance in Affection post-score. By adding Block 2, Affection pre-score accounts for 21% of the total variance in Affection post-score and hence increased the R^2 to 0.26. By adding Block 3, i.e., OMA participation, into the model, R^2 increased from 0.26 to 0.38. That is, OMA participation accounts for an additional 12% of the Affection post-score variability. Female students had significantly higher Affection post-scores than their male peers holding all other variables (including OMA participation)

constant, but gender, together with other demographic and personal experience variables, only explained a very small amount of variance in this model. Taken together, these findings suggest a parsimonious and relatively strong explanatory model in which pre-test scores and OMA account for more than one-third of the variance in post-test Affection scores, holding constant gender, years in college, and personal experience with people with dementia.

Comfort & Kinship

Demographic and personal experiences, Comfort & Kinship pre-score, and OMA participation explain 49% of the total variance of Comfort & Kinship post-score, but OMA participation is the only significant explanatory variable in this model beyond the pre-test score. The unstandardized coefficient for OMA participation is 5.93, meaning that participating in OMA results in 5.93 points increase in Comfort & Kinship post-scores holding students' pre-scores, gender, years in college, and personal experiences constant. OMA participation explained 21% of the Comfort & Kinship post-score variability.

Engagement & Enthusiasm

Demographic and personal experiences, Engagement & Enthusiasm pre-score, and OMA participation explain 49% of the total variance of Engagement & Enthusiasm post-score. As with the other two components of allophilia, OMA participation is the only substantively and statistically significant explanatory variable in this model. Participating in OMA results in a 5-point increase in Engagement & Enthusiasm post-scores holding students' pre-scores, gender, years in college, and personal experiences constant. OMA participation adds 8% to the explained variance.

Overall Allophilia

The findings for the overall Allophilia score parallel those for the component scores. Demographic and personal experiences, the pre-test score, and OMA participation explain 53% of the total variance of overall Allophilia post-score, but OMA participation is the only significant explanatory variable beyond the pre-test score. The unstandardized coefficient for OMA participation is 13.42; participating in OMA results in 13.42 points increase in overall Allophilia post-scores holding students' pre-scores, gender, years in college, and personal experiences constant. OMA participation contributes an additional 15% of explained variance beyond the pre-test score.

Summary of Findings

Our findings suggest that 1) although both OMA participation and comparison students exhibited greater allophilia (i.e., affection, comfort & kinship, and engagement & enthusiasm) toward people with dementia at the end of the semester compared to their baseline, OMA

participation students' improvements were much larger than those for the comparison group, as evidenced by larger effect sizes; 2) Participation in OMA showed significant positive association with Affection, Comfort & Kinship, Engagement & Enthusiasm, as well as the overall Allophilia scores after controlling for gender, academic rank, and prior personal experiences with people with dementia. The demographic and personal experience variables do not alter the impact of OMA participation.

Discussion

This study investigates the impact of participation in OMA, an art-making intergenerational program, on students' positive attitude toward or liking (allophilia) of older adults with dementia as compared to students who did not participate in the OMA program. Other studies have investigated the effect of intergenerational experiences on students' attitudes toward older people (e.g., Blieszner & Artale, 2001; Dorfman, Murty, Ingram, & Evans, 2002; Dorfman, Murty, Ingram, Evans, & Power, 2004; Dorfman, Murty, Ingram, & Li, 2007), but they do not target students' attitudes toward older adults with dementia. Previous studies that do investigate the effect of intergenerational experiences on students' attitudes toward this population have been limited by small sample size (e.g., 16 students in Fruhauf, Jarrott, & Lambert-Shute, 2004; 13 students in Harris & Caporella, 2014; and 15 students in George, Stuckey, Dillon & Whitehead, 2011) and/or no comparison group (e.g., Lokon, Li, & Parajuli, 2017). While most studies investigate reduction in negative attitudes, this study looked at improved positive attitudes—a conceptually distinct outcome from reduction in negativity.

Participating in the OMA program significantly increased students' overall Allophilia score, and the component scores on Affection, Comfort and Kinship, and Engagement and Enthusiasm regardless of participants' previous personal experience with people who have dementia, nursing homes, or other intergenerational programs. The validity of these findings are enhanced by the use of a comparison group of students enrolled in classes within the same department who did not participate in the program. The comparison group did show very slight improvements that were significant partly due to the large sample size, but also perhaps due to the coverage of age-related issues in many of these courses.

The factor of Comfort and Kinship has the largest effect size after one semester of participating in OMA. In other words, students' participation in OMA created the greatest change in their feeling of being at ease and comfortable around those with dementia. These students also felt that they could be themselves, and they felt a sense of kinship and belonging with individuals who have dementia. This finding supports another evaluation of the OMA program (Lokon, et al., 2017) where students showed the greatest improvement in social comfort after one semester of weekly contact with elders with dementia in the OMA program.

In that study, using the pre-post comparison of 156 students' Dementia Attitude Scale (DAS) scores (O'Connor & McFadden, 2010), students in OMA felt more relaxed and less afraid around people with dementia, more comfortable touching them, more inclined to take care of them, less likely to avoid an agitated person with dementia, and found that working with them is rewarding. These were different students than the ones who participated in the present study, but they participated in the same OMA program.

Students' Affection, Engagement and Enthusiasm for those living with dementia also significantly increased after one semester of weekly art-making sessions. Their general affective evaluations of people with dementia became more positive and they increased their tendency to seek to affiliate and interact with people who have dementia. However, there may be a ceiling effect in measuring change in these factors since 55% of students who participated in OMA reached the maximum post-score in Affection and 33% reached the maximum post-score in Engagement and Enthusiasm. In comparison, only 15% of students in the comparison group had maximum Affection post-scores and 5% had maximum Engagement & Enthusiasm post-scores.

Limitations and future research

Ideally, it would be more informative to measure both students' reduction in negative attitudes and their increase in positive attitudes as a result of the same intervention in a single study. However, to limit the burden on the students, we focused only on investigating the impact of the intervention on students' positive attitudes.

Because students self-selected whether to participate in the OMA program, selection bias is potentially problematic. Students participating in OMA started with higher pre-scores than did students in comparison groups, as shown in Table 3. Even though the multivariate regression analyses accounted for the between-group pre-score differences, it is important to recognize the possibility of self-selection bias in our dataset. In addition, 20% of students who participated in OMA reached the maximum pre-scores in Affection and 9% reached the maximum pre-score in Engagement and Enthusiasm. In comparison, only 13% of students in the comparison group had maximum Affection pre-scores and 3% had maximum Engagement & Enthusiasm pre-scores.

A randomized control trial would be preferable to establish causal validity, but that design is not feasible for this program. Although other intergenerational studies, such as Experience Corps, have successfully employed randomized control trial design (e.g., Fried, Carlson, Freedman, Frick, Glass, Hill, McGill, Rebok, Seeman, Tielsch, Wasik, & Zeger, 2004; Gruenewald, Tanner, Fried, Carlson, Xue, Parisi, Rebok, Yarnell, & Seeman, 2016), it was not

possible for this study. OMA was set up as an option that students could voluntarily choose to join.

Another limitation in this study is our inability to separate the effect of art-making from the effect of the ongoing social interaction with elders with dementia on students' change in their attitudes. Both art-making and social engagement happened simultaneously on a weekly basis. It would be useful to conduct future studies using the Allophilia Scale to measure changes in students' attitudes toward people with dementia involving a completely different common focus, such as creating stories, songs, or poems. Does this common focus need to tap the elders' creativity or would a common focus such as learning how to use social media or other computer programs, doing puzzles, or playing board games together create the same effect on students' attitudes? Further studies should address these questions.

Finally, in this study it impossible to discern whether students' increase in their positive attitudes is due to the training they received prior to meeting the older adults with dementia or the combination of this training and the weekly experience engaging with them in the art-making activities. Future studies that compare students trained in person-centered dementia care with and without direct experience with people who have dementia would make a positive contribution to the service learning literature.

Implications

While more frequent and sustained positive social interaction between otherwise socially distant groups often reduces stereotyped and negative attitudes towards "the other," what we find in this research on allophilia is an equally important increase in positive attitudes toward older adults that may lead to actions toward this population that go beyond passive acceptance and tolerance. Increased feelings of kinship and enthusiasm for engagement with older adults can lead to more activist forms of career and civic commitment to the wellbeing of this population generally.

At the same time, the experience of autonomy, choice and friendship provided by the sustained pairing of young and old around productive creativity casts the older adults in the program as artists and their students as supporters. It is a clear instance of recasting the roles of older adults, with and without dementia, from custodial care recipients to still active and important participants in society with an important part to play in the transformative learning experiences of young adults. More opportunities with this mindset need to be included in the gerontology curriculum to develop students who have the ability to see elders with dementia as full human beings with the ability to express themselves and to connect with others.

But there are also broader constituencies that stand to benefit from this innovation in allophilic social learning. There are the future old (which includes most of us) who justifiably fear the loss of the quality of social life that comes from being separated from mainstream society by health care needs that require nursing home residence. There are also the relatives of those in homes for older adults who worry about the quality of their loved one's social life once they are placed in care facilities which can be located far from them. And there are facilities that see the health benefits of activities based on socially well-structured creative experiences as in OMA for all residents, especially those afflicted with dementia.

Given the fact that there will be more and more older adults in all segments of society, it is important that we teach young people to value older adults and develop effective interaction skills. Older adults, regardless of cognitive status, have the ability to contribute to society. As shown in this study, college students learned to befriend and like older adults with dementia, a population that is outside their usual circle of friends. The people with dementia in the OMA program contributed directly to this expansion of students' social circle. While it is important to reduce ageism, increasing allophilia towards older adults will help create a more inclusive society where everyone, regardless of age, is valued and invited to contribute to the greater good.

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