Center for Social Development

GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Evaluation Report of Vital Visionaries

Medical Student and Older Adult Outcomes

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Participating in Vital Visionaries allowed me to explore the dynamic between art and its role in understanding human nature. Working with senior citizens gave me a greater appreciation for their role as active citizens who have made and will continue making an important contribution to society. I thoroughly enjoyed working with my partner on different art projects and see what common interest we share and also how we differ in our worldview. Expressing ourselves through artwork allows you to reveal your perspective on not just artwork, but on humanity and what appeals to us as sentient beings. As a future physician, this has further solidified my long standing interest in working with the elderly population as a career choice. Whether that leads me to geriatrics, neurology, or any other field, I know I can look back on this experience to remind me that the elderly are vibrant, wise, and bring a perspective as a patient that is unique and inspiring.

Given the health care disparities that exist in our current health care system, it is important to remember that as the baby boomer generation and our elderly population increases exponentially, we need caring and compassionate physicians that can transcend the generational divide and provide optimal health care. Programs like Vital Visionaries inspire future health care providers to be sympathetic and open to the perspectives that senior citizens provide and cater to their particular needs and aspirations. The Harn Museum is the perfect venue to bring together two generations of individuals whose common goal is to share experiences, perspectives, and knowledge to enrich other's lives. Art in all of its forms expresses the human desire to reflect on how we see the world through different mediums. One of the mediums of Vital Visionaries is through the eyes of a generation of senior citizens and medical students who will be providing care for the community to those who need it most. One quote that defines one of the clinical pearls of medicine, "The patient doesn't care how much you know until they know how much you care" sums up the benefit of programs like Vital Visionaries, by valuing and exploring art together, participants can show how working towards a common goal can lead to a new understanding and development of humanity.

1st Year Medical Student, Florida
Reflection Homework

Executive Summary

Vital Visionaries (VV) is an intergenerational art program sponsored by OASIS that connects healthy older adults with medical students for the purpose of countering negative stereotypes of the aged. Additionally, VV aims to demonstrate the valuable role the arts can play in healthcare. It is hypothesized that exposure of healthy older adults to first or second year medical students will counter negative stereotypes, enhance their attitude toward older adults, and influence their likelihood of becoming geriatricians.

The program was piloted from 2007 to 2008 in eight cities, with about 15 medical students and 15 older adults in each program. They typically met for two hours on a Saturday at a local museum to discuss and/or create art in small groups or pairs. The art mediums were primarily painting, sculpture, and photography, but some sitesalso included prose, poetry, and impromptu orations. Guided by art educators, some sites had participants create an art piece. Other sites had participants walk individually, in pairs, or in groups around the museum to examine current painting, sculpture, or photography exhibits. Participants were asked to discuss how they gave meaning to the art.

Of the 112 medical students participating in the program, most were 24 years of age, female, Caucasian, and in their first year of medical school. Of the 120 older adults, the average age was 73; most were female, Caucasian, with either a bachelors or graduate degree, married/partnered, retired, and healthier than their peers in the U.S. general population. The OASIS program used routine announcements to offer the opportunity.

Researchers at the George Warren Brown School of Social Work at Washington University in St. Louis assessed the effects of VV on the medical students and older adults. There were 328 participants in the evaluation (120 older adults, 112 medical students participating in the program, 96 medical students in the comparison group). All procedures were approved by the IRB at Washington University (HRPO Number X07-76). A mixed-methods approach was adopted, utilizing the following strategies:

Pre-post test survey with medical students. At the beginning and end of the course, students completed a survey. A comparison group of first year medical students not participating in VV was solicited; and these students filled out the pre-post tests in the same time frame. The instrument captured attitude towards older adults, self-perceived competency and the understanding of medical needs of older adults, comfort with older adults, interest in working with older adults, exposure to older adults, and quality of relationship with older adults. The treatment and comparison students were not equivalent on all measures; and it appears that VV students were more interested in working with older adults and had more past experience with older adults.

Pre-post test survey with older adults. At the beginning and end of the class, older adults completed a survey capturing comfort levels in discussing their health with younger health professionals. No comparison group was utilized.

Reflection homework. Participants were asked to write a "Reflection Homework" on the second to last session. They were instructed to write a 1-2 page paper on their experience in the class. Forty-seven (42%) of the medical students and 60 (50%) of the older adults submitted the assignment to the evaluation team.

Focus groups. Focus groups were conducted in Pittsburgh, Houston, and St. Louis with medical students and older adults, separately. The groups were audio-taped, and transcriptions were made.

Telephone interviews with program directors. All eight program directors were interviewed upon the completion of the program and queried about implementation of the program and suggestions for improvement.

Key Findings

Motives for participation, retention, and reasons for discontinuing

Medical students who participated in focus groups suggested that the "credit" and "food" got them to the first session, but that the fun kept them coming back. VV offered them a chance to do something to take their minds off of school, "hang with their friends," and meet new people, while doing something fun and creative. Among the OASIS members, 67% were interested in art, 60% wanted to socialize with medical students, and 47% offered a range of reasons (to stay busy, curious what the program would prove). Eighty percent completed the program. Medical students who discontinued the program reported schedule conflicts, while the older adults cited personal health, caregiving responsibilities, travel, or schedule conflict.

The role of art

Those who joined VV were interested in and wanted to learn about art. It served as an ice breaker and a point of departure for conversation and sharing of perspectives and life experiences. Further, it served as a "hands-on" activity that revealed a person's physical and cognitive agility. Finally, if older adults *and* medical students were insecure about their "creative sides" then they saw each other as peers.

Medical students' attitudes toward older adults

Findings indicate that attitudes towards older adults were similar for both groups at pretest and that attitudes were relatively positive. Upon the completion of the VV program, the treatment group's attitudes toward older adults ($p<.001$) became even more positive.

Medical students' likelihood of pursuing geriatric medicine

Focus groups and reflection homework clearly indicate that medical students were unsure of their career plans at this stage of their training. Some students did not know what a geriatrician was or how to become certified. Many students did not have relations with non-familial older adults before the program. Given this, it is not surprising that four sessions of a two-hour class did not influence their career plans ($p=.43$).

Socialization of medical students to older adults

VV students experience more positive change in their perceptions of commonality than the comparison students ($p=.0009$), meaning they felt they had more in common with older adults. Students spoke of their limited exposure to non-familial, healthy older adults, and VV gave them this exposure. Some reported that they gained personal understanding or professional skills to interact with older adults and that VV reduced their levels of fear in interacting with older adults.

Curricula and residency improvement

Focus group participants suggested that making geriatric courses a requirement would be the surest way to improve the curricula and expose all students to older adults. They were unsure of how to *exactly* improve their school's curricula because they were new to the program and had not yet fully experienced the training.

Older adults' comfort levels

Perhaps due to self-selection, these older adults had relatively high comfort levels in talking to younger medical professionals about their health, and the program did not change their comfort levels (p=1.000).

Quality of program and suggestions for improvement

All (100%) of medical students and older adults (100%) rated the program as either "very good" or "good." Participants reported that they met new people and learned useful information and new skills. Additionally, the instructors received overwhelmingly positive evaluations. The participants suggested three improvements: (i) extend the duration of the overall program, (ii) vary the activities, and (iii) recruit a diversity of participants.

Evaluation Report of Vital Visionaries: Medical Student and Older Adult Outcomes

The Program

Program and purpose. Vital Visionaries (VV) is an intergenerational art program sponsored by OASIS that unites older adults with first and/or second year medical students. Its purpose is to counter negative stereotypes by uniting medical students with older adults who are healthy and active. Additionally, VV aims to demonstrate the valuable role the arts can play in healthcare for people of all ages. It is hypothesized that exposure of first or second year medical students to healthy and active older adults will counter negative stereotypes, enhance their attitude toward older adults, and influence their likelihood of becoming geriatricians.

Sites and partners. Preparation for the evaluation took place in the fall of 2007 and the program was piloted in 2008 in eight cities (Table 1). Rochester, New York and Pittsburgh, Pennsylvania conducted the program twice. Northwestern University and University of Florida participated in a previous pilot project of VV and operated independent of OASIS.

Table 1. OASIS' Partners

	University	Museum	Season
1.	University of Rochester, Medical Center (Session 1)	Memorial Art Gallery of the University of Rochester	Spring
2.	Northwestern University, Buehler Center on Aging, Health and Society	Museum of Contemporary Art	Spring
3.	Indiana University, School of Medicine	Eiteljorg Museum of American Indians and Western Art	Spring
4.	University of Pittsburgh, School of Medicine (Session 1)	The Frick Pittsburgh	Spring
5.	University of Florida, Center for the Arts in Healthcare and Education	Harn Museum	Spring
6.	University of Rochester, Medical Center (Session 2)	Memorial Art Gallery of the University of Rochester	Fall
7.	University of Albany, Center for Excellence in Aging Services	Albany Institute of History and Art	Fall
8.	University of Texas at Houston, Center for Health and Humanities, and the Human Spirit	Museum of Fine Arts	Fall
9.	St. Louis University, School of Medicine	Contemporary Art Museum and Pulitzer Foundation for the Arts	Fall
10.	University of Pittsburgh, School of Medicine (Session 2)	The Frick Pittsburgh	Fall

Scheduling and activities. OASIS directors, faculty from medical schools, medical students, curators and educators from the museum met to discuss, select, and plan the schedule and activities of the sessions. Except for Rochester, each site aimed to have 15 first year medical students and 15 older adults. Rochester aimed to have smaller classes. Some sites could not recruit 15 first year medical students and began to recruit second year medical students. Participants met for four sessions, typically on a Saturday, for two hours at a local museum to discuss and/or create art in small groups or pairs. Florida had partnered one older adult to one medical student throughout the four sessions, but the other sites alternated partners. Museum curators or educators facilitated the two-hour sessions.

The primary mediums of art were painting, sculpture, and photography in combination with prose, poetry, and impromptu orations. For example, art educators at some sites had participants choose between creating an art piece using paint and Xeroxed copies of personal photographs, or writing a personal poem. Other sites had participants walk individually, in pairs, or in groups around the museum to examine current exhibits. Participants were asked to discuss how they gave meaning to the art.

Recruitment—Medical students

Table 2 summarizes recruitment incentives that were offered to medical students. Most sites offered snacks. Houston provided dinner at the museum's café before the art class, which facilitated informal discussions. Students at Northwestern and Rochester received credit that applied towards graduation. Houston and St. Louis offered credit that operated as a "curriculum vitae builder" in that it did not count towards graduation but indicated on their transcript that the student was involved with the community. Students at Florida did not receive credit but did receive a course stipend in the amount of $100. Students at Albany and Indianapolis did not receive credit or a stipend.

Table 2. Recruitment incentives for medical students

Site	Credit Towards Graduation	Credit for CV	Meal or Snacks	Stipend
Northwestern	●		●	
Rochester	●		●	
Pittsburgh			●	
Indianapolis			●	
Florida			●	●
Albany			●	
Houston		●	●	
St. Louis		●	●	

Methods of recruitment were primarily by word-of-mouth and emails that were sent directly to incoming first year medical students. Faculty sponsors sent the emails and/or presented the program at orientation. When faculty support was lacking, medical students were the primary source of recruiting their friends and/or peers into the program.

Recruitment—Older adults

OASIS directors published the program in their semester catalogue, sent emails and/or directly asked key members who would most likely enjoy the program and make a positive contribution. Dr. Josh Hauser used

a Northwestern medical database (older adults who like to participate in research) and mailed letters to older adults. Dr. Rusti Brandman in Florida primarily recruited older adults through PrimeTime, but also tried to recruit older adults at a Martin Luther King event and an Italian organization. Program directors made efforts to recruit ethnically diverse older adults but experienced limited success.

Study Methodology

Researchers at the George Warren Brown School of Social Work at Washington University in St. Louis were asked to assess the effects of Vital Visionaries on the medical students and older adults. All procedures were approved by the IRB at Washington University (HRPO Number X07-76).

Design and data collection

The evaluation team worked with site representatives to develop a feasible and acceptable research strategy (see Appendix A, Acknowledgement). A mixed-methods approach was adopted.

Quantitatively, a pre-post test with comparison group design was used to assess the effects of VV on medical students. A pre-post test *without* comparison group was used with older adults. Participants completed the pretest at the beginning of the first session and the post test at the end of the last session.

Qualitatively, we asked participants to voluntarily and anonymously submit a "Reflection Homework" on the second-to-last session. We also conducted focus groups in Pittsburgh, Houston, and St. Louis with medical students and older adults, separately. Lastly, we interviewed program directors upon the completion of the program.

Table 3 provides a visual of when tests, reflection homework, focus groups, and interviews with program directors were conducted during the program.

Table 3. Evaluation tools used during the program

Session 1	Session 2	Session 3	Session 4	Post-Program
Pre-test		Reflection homework	Post-test	Focus Groups Interview Program Directors

To reduce administrative burden on the local directors, an Evaluation Point Person "EPP" was assigned to the site. The EPP was selected by either the OASIS director or medical school faculty and required to fulfill the following criteria: (i) to have passed the Collaborative Institutional Training Initiative (CITI) course in the Protection of Human Research Subjects; and (ii) to fulfill steps in the "Evaluation Checklist" (Appendix B). The course by CITI takes approximately 6 hours to complete and the steps in the evaluation checklist require a time-commitment. Thus, an honorarium in the amount of $150 was given to each EPP.

Measures

Refined Aging Semantic Differential. The Refined Aging Semantic Differential (RASD) (Polizzi, 2003, Appendix C) was used to assess medical students' attitudes towards older adults. This standardized measure was chosen for three reasons. First, it was normed on male and female college students who were primarily Caucasian—similar to our sample. Second, it was found to be more psychometrically promising than the Kogan OP Scale, Maxwell-Sullivan Attitude Scale (MSAS), and the University of California at Los Angeles Geriatrics Attitudes Scale (GAS) (Iwasaki and Jones, 2008; Stewart et al. 2007). Third, the original Aging Semantic Differential (Rosencranz and McNevin, 1969) was determined to have outdated adjectives to describe older adults (Polizzi, 1998, 2002, 2003).

We modified the instrument's attitudinal target from "men 70-85 years of age" or "women 70-85 years of age" to "individuals aged 65 and over" because (i) we are not interested in just men or women whose ages are between 70 and 85; (ii) it is impractical to have two different instruments to administer; and (iii) Iwasaki and Jones's (2008) research suggests that the majority of respondents thought about "males and females equally," thus providing justification for using one instrument.

The RASD uses a 7-point Likert scale on 24 polar opposite adjectives. The 24 items on the instruments were summed for an overall attitude score with a theoretical range of 24-168, with a midpoint of 96. A total score of less than 96 indicates a positive attitudinal score, while a total of greater than 96 indicate a negative attitudinal score (Polizzi, 2002).

Short-Form 12. The SF-12, Version 2, measures health status and health outcomes. It is a multipurpose short-form with only 12 questions derived from the SF-36 Health Survey (Ware et al., 2005). It is brief, comprehensive, psychometrically sound, and has proven useful in measuring health status and monitoring health outcomes in both general and specific populations. We used this form for descriptive purposes only at posttest for the older adults.

Non-standardized measures (Appendix F, L). We measured medical students' attitudes toward and comfort with older adults using a simple survey. These measures were either dichotomous or Likert scaled (i.e., 0-5), with higher numbers indicating positive responses. The questions investigated students' attitudes towards older adults as part of their future practice, self-perceived competency and understanding of the medical needs of older adults, difficulty in talking and working with older adults, commonalities and comfort with older adults, excitement and interest in working with older adults, previous exposure and experience with older adults, and quality of relationship with older adults.

Reflection homework

Participants were asked to write a "Reflection Homework" on the second-to-last session. The instructions were: "We are interested in knowing about your reflection on the class. This assignment is completely anonymous. You have the option to keep it for your personal purposes or turn it in for us to get a deeper understanding of your thoughts and ideas of this program. Please write a 1-2 page reflection about your experience in this class." We received 47 (42%) from medical students and 60 (50%) from older adults.

The reflection homework was content analyzed. Two raters worked to identify and define categories of content; and inter-rater reliability was established. We offer a frequency of the qualitative data merely to

note how often the category was mentioned. Future research can put these categories on a scale and query respondent to get a clearer idea of the prevalence and magnitude.

Focus group

We conducted focus groups in Pittsburgh, Houston, and St. Louis with medical students and older adults, separately. Participation was voluntary and attendees were informed that information would be anonymous and audio-taped. Notes and/or transcriptions were made of the focus groups. Using a semi-structured approach, we asked the participants what they got out of the program, thoughts regarding the art medium, suggestions for medical school curriculum improvement, feedback on programmatic improvement, recommendations on how to socialize medical students with older adults, and motives for choosing medicine and specializations. Table 4 summarizes the number of participants at each site. Due to inclement weather, only two older adults in St. Louis attended the focus group.

Table 4. Number of focus group participants

City	Medical Students	Older Adults
Pittsburgh	8	11
Houston	13	7
St. Louis	6	2
Total	**27**	**20**

Sample

Recruitment. An "Evaluation Information Sheet" (see Appendix D) informed each participant that participation in the evaluation was entirely voluntary, that they were able to change their mind at any time, and that receiving course credit, stipend, or food was not dependent on completing questionnaires, submitting an anonymous homework, or participating in a focus group. Participants were also informed that information gained from the survey would be held confidentially. Information gained from the reflection homework and focus group would be held anonymously.

Some faculty recruited the comparison group by identifying another class that was being offered on the same day at a similar time and requested permission from the professor that those students take the pretest and posttest. When faculty sponsorship was lacking, the evaluation point person (medical student) asked their friends and/or peers who did not participate in VV to take the pretest and posttest.

There were 328 participants in the evaluation: 112 medical students in the treatment group, 96 medical students in the comparison group, and 120 older adults (Table 5). Most of the medical students were 24 years of age, female, Caucasian, and first year medical students. Most of their art partners were 73 years of age, female, and Caucasian, with either a bachelors or graduate degree, married or partnered, and retired.

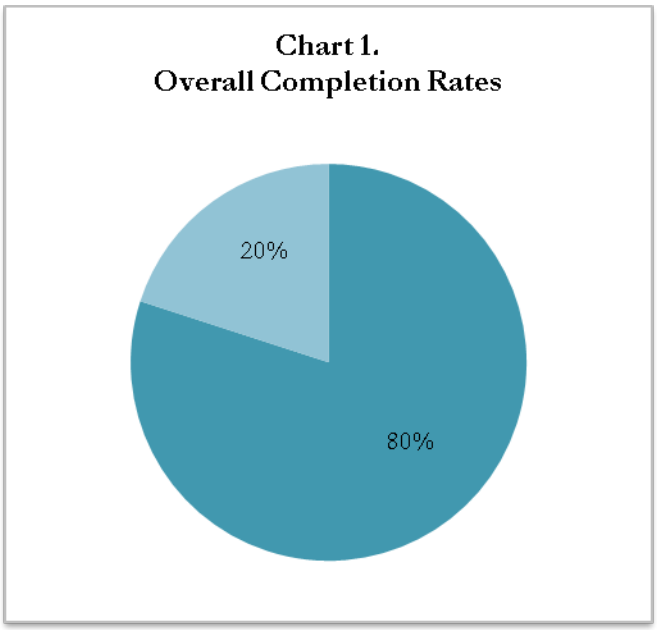
Table 5. Sample Description

	Medical Students			Older Adults
	Total N=208	Treatment N=112	Comparison N=96	N=120
Demographics				
Average Age	24	24	24	73
(range, SD)	(21-37, 2.4)	(21-32, 1.9)	(21-37, 2.9)	(54-91, 7.9)
Gender				
Male	74 (39%)	36 (33%)	38 (45%)	23 (19%)
Female	118 (61%)	72 (67%)	46 (55%)	97 (81%)
Race				
Caucasian	119 (63%)	63 (59%)	56 (68%)	112 (95%)
Asian	43 (23%)	25 (23%)	18 (22%)	0 (0%)
Black or African American	11 (6%)	5 (5%)	6 (7%)	4 (4%)
Hispanic or Latino	8 (4%)	7 (7%)	1 (1%)	2 (2%)
American Indian or Alaskan Native	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Native Hawaiian or Other Pacific Islander	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Other	9	7	2	0
Asian and White	3	3	0	0
Cajun	1	0	1	0
Egyptian/Middle Eastern	1	0	1	0
Filipino	1	1	0	0
Iranian	1	1	0	0
Latino and White	1	1	0	0
South Asian	1	1	0	0
Year in Medical School				
First Year	172 (91%)	100 (94%)	72 (87%)	
Second Year	17 (9%)	6 (6%)	11 (13%)	
Average age at which they chose to pursue a career in medicine (range, SD)	18 (1-35, 5)	18 (5-25, 5)	17 (1-35, 6)	
Educational Level				
High School				18 (15%)
Some College				25 (21%)
Bachelors				31 (26%)
Graduate				46 (38%)
Marital Status				
Married/Partnered	17 (9%)	6 (6%)	11 (13%)	45 (38%)
Separated/Divorced	1 (1%)	1 (1%)	0 (0%)	25 (21%)
Widowed	0 (0%	0 (0%)	0 (0%)	37 (31%)
Never Married/Partnered	172 (90%)	100 (93%)	72 (87%)	12 (10%)
Living Situation				
Live with Others				40 (33%)
Live in a retirement Community				10 (8%)
Live Alone				70 (58%)
Current Employment Status				
Employed (full or part-time)				23 (19%)
Retired				92 (76%)
Unemployed				5 (4%)

Most (80%) of participants completed the pretest and posttest (Table 6, Chart 1).

Table 6. Completion of pre-post tests

	Completed Pre-Post n (%)
Treatment (n=112)	95 (85%)
Comparison (n=96)	78 (81%)
Older Adults (n=120)	88 (73%)
Total (N=328)	261 (80%)



Characteristics of medical students—Similarities and differences

The treatment and comparison groups were similar with regard to age and race, but there were more women in the treatment group than the comparison group (Appendix E, Table E1).

At pretest, the two groups were similar with regard to their attitudes towards older adults as measured by the Refined Aging Semantic Differential (RASD); competency and understanding measures; comfort levels with older adults; experience and exposure to older adults; completion of courses that dealt primarily with adult development, aging issues, or older adults; and quality of relations with older adults (Appendix F, Table F1).

However, these findings demonstrate the significance of self-selection. Compared to the comparison group, the treatment group had a better attitude toward older adults as part of future practice; perceived less difficulty in talking and working with older adults; felt they had more in common with older adults; believed working with older adults would be more exciting and interesting; and were more likely to have worked or volunteered in a setting with regular contact with older adults (Appendix F, Table F1).

Health and wellbeing characteristics of older adults

Appendix G, Charts G1-G3, present findings from the standardized Short-Form 12, Version 2, Health Survey, by age group. The empirical data suggests that the older adult participants are more healthy and well than their peers in the general U.S. population.

Sample attrition

Sample attrition resulted when respondents did not answer a question, discontinued the program, or completed the program but did not complete the posttest

The research team contacted all the participants who gave permission for contact on the pretest, but did not administer a posttest (see Appendix H for "Telephone Transcript").

Data analysis

Clustering. The data used in the current study have a hierarchical structure (e.g., participants are clustered within sites). In these clustered data, outcomes of individuals within the same cluster are likely to be correlated, and a failure to incorporate within-cluster correlations into the analytic model leads to incorrect standard errors and p-values (Ballinger, 2004; Peters et al., 2003). Estimates and corresponding p-values were adjusted by the Generalized Estimating Equation (GEE) method.

Parameter estimation. The impact of VV on attitudes towards older adults (RASD) and perceptions of commonality were estimated by comparing posttest scores for the treatment group and the comparison group, after adjusting for pretest scores and other covariates such as age, gender, change in contact with or knowledge of older adults since participating in VV (i.e., taking additional class, internship, residency), likelihood of becoming a geriatrician, degree of difficulty in working and talking with older adults, perception of competence to handle the medical needs of older adults, comfort levels with older adults, perceptions of commonality with older adults, group membership(treatment or comparison), and site. The adjusted posttest scores are tested for statistical difference and used to calculate effect size. Effect sizes were calculated using Hedge's G (see Appendix I, for how we computed the effect size).

Adjusted posttest means. The effects of the VV program were estimated by comparing posttest scores for the VV and comparison students after adjusting for pretest scores and other covariates. Because we were not able to randomly assign the students into the VV program, we controlled for a number of other variables: attitude toward older adults as part of future practice; perceived levels of difficulty in talking and working with older adults; feelings of having more in common with older adults; changes in exposure to older adults, etc.

Findings

Motives for participating and reasons for discontinuing

Enrollment was on a "first come, first serve" basis, and enrollment was uneven across sites. Houston had 7 medical students on a "waitlist;" while there were 54 seniors at Rochester and 5 seniors at Pittsburgh. The programs aimed to have the same number of medical students and older adults, and thus these waitlisted individuals did not participate in the program.

Medical students who participated in focus groups suggested that the credit and food got them to the first session, but that the fun kept them coming back VV offered students a chance to do something to take their minds off school, "hang with their friends," and do something fun and creative.

OASIS members are lifelong learners and many of them enrolled in the program for a combination of reasons: 67% were interested in art, 60% wanted to socialize with medical students, and 47% offered a variety of reasons beginning with curiosity, staying busy, wondered what the program would prove, to "why not?"

Reasons for students discontinuing the program fell into three categories: personal, programmatic, and unknown (Table 7). One medical student discontinued the program because he believed that the focus and

intent of the program had changed, and thus, he did not feel compelled to attend the last session. Four medical students did not attend the last session due to schedule conflicts. The reasons motivating participants to discontinue are unknown because the research team could not reach them.

Table 7. Medical students' reasons for discontinuing program

Reason	Frequency n (%)
Programmatic	1 (5%)
Personal:	
Schedule conflict	4 (24%)
Unknown	
Called, but did not reach	4 (24%)
IRB restriction	3 (18%)
Did not give permission to contact on pretest	4 (24%)
Post, but no pre	1 (5%)

Older adults generally discontinued the program because of personal health, caregiving, travel, or schedule conflict (Table 8). However, there were three individuals that discontinued the program due to programmatic reasons. One older adult felt as though the class of 30 (15 medical students and 15 older adults) was too large and her opinions on art were either redundant or irrelevant. Another older adult believed that the program was going to be offered at a museum branch that was nearer her and she couldn't get to the other branch due to a lack of transportation. A third older adult completed the program but refused to complete the posttest and she did not offer any explanation.

Table 8. Older adults' reasons for discontinuing program

Reason	Frequency n (%)
Programmatic	
Class too large	1 (3%)
Transportation problems	1 (3%)
Finished program, but refused posttest	1 (3%)
Personal	
Personal Health	3 (9%)
Caregiving	3 (9%)
Travel	2 (6%)
Schedule Conflict	4 (13%)
Unknown	
Called, but did not reach	8 (25%)
IRB restrictions	8 (25%)
Did not give permission to contact on pretest	1 (3%)

Activities and the role of art

Focus group findings suggest that art played several roles. First, it attracted individuals who were interested in and wanted to learn about art. Second, it served as an ice breaker but also a point of departure for deeper

conversation and sharing of perspectives, life experiences, worldviews, and creativity. Third, it served as a "hands-on" activity that revealed a person's physical agility in manipulating materials as they painted or created collages. Fourth, if older adults *and* medical students were insecure about their "creative sides" (making or interpreting art), then they saw each other as peers. But, if one group had more knowledge or insight into the art, then the other group perceived that group as "wise" and "knowledgeable." For example, participants in Pittsburgh (Session 2) viewed photographs of that city's history. Most of the older adults were from Pittsburgh, while most of the medical students were not. As they viewed and discussed the art, the older adults naturally adopted a "local cultural ambassador" role and taught the students about events, people, and places in Pittsburgh. Many (40%) of the medical students who submitted a reflection homework noted that the older adults shared their wisdom, knowledge, life experience, worldview, and perspectives more generally, and that they learned from the older adults. Similarly, older adults reported that they learned from the medical students.

Objective 1
Attitudes Towards Older Adults

The Refined Aging Semantic Differential (RASD; Polizzi, 2003) was used to assess medical students' attitudes towards older adults. A total score of less than 96 indicates a positive attitudinal score, while a total of greater than 96 indicates a negative attitudinal score.

Table 9 presents the mean difference between pretest and posttest. Statistical tests indicate that attitudes towards older adults were relatively positive for both groups at pretest. Upon completion of the intervention, however, the treatment group had a more positive attitude toward older adults with a difference of -13.27 points, at high statistically significant levels and at an entire standard deviation; whereas the comparison group had a slight increase in positive attitudes towards older adults, -2.32 points, though it was not at high statistically significant levels.

Table 9. Mean Difference between Pretest and Posttest

Outcome Variable	Group	Pre	Post	Difference between Pre and Post
Attitudes towards older adults (RASD)	Treatment N=86	74.94 (12.58)	61.67 (17.74)	-13.27 (13.27) $p<.0001$
	Comparison N=68	79.98 (11.30)	77.66 (13.64)	-2.32 (10.10) $p=.0622$

Numbers in parentheses are standard deviations

Chart 2 below illustrates pretest and posttest means on RASD by group.

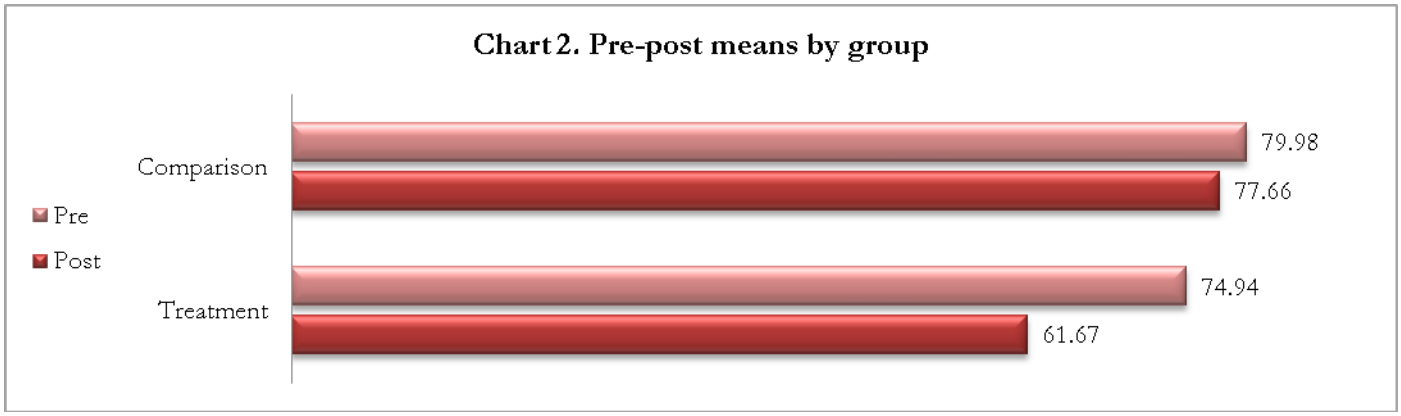


Table 10 presents findings on statistical tests of the difference between the attitudes by the treatment and comparison group. The posttest scores are corrected for pretest scores as well as other covariates: age, gender, change in their contact or knowledge with older adults since participating in VV (i.e., taking additional class, internship, residency), likelihood of becoming a geriatrician, if working and talking with older adults is difficult, whether they believe they will be competent with the medical needs of older adults, comfort levels with older adults, perceptions of commonality, group membership, and site.
The change in attitudes made by the treatment group were statistically more positive than the changes made by the comparison group (p=.0006), while controlling for the other covariates. Effect sizes associated with these gains are moderate-high, at .58.

Table 10. Adjusted posttest of RASD

Outcome Variable	Treatment Adjusted Posttest Mean (N=86)	Comparison Adjusted Posttest Mean (N=68)	Program Impact	Effect Size
Attitudes towards older adults (RASD)	64.40 [1.54]	73.76 [1.40]	9.35 [2.74] z=3.41 p=.0006	.58

Numbers in brackets are standard errors.

Objective 2
Likelihood of Pursuing Geriatric Medicine and Interest in Learning more about Geriatrics

It was learned in the focus groups and reflection homework that medical students were unsure of their ultimate career paths. Some medical students did not know what "geriatrician" meant or how one gets certified. Others expressed hesitancy about becoming a geriatrician because they were unclear of how they were going to help heal older adults or unsure of mentorship, funding, or research opportunities. One student suggested that she intends to live in a rural setting; thus, she doesn't intend to specialize in anything because she may be too specialized and not get hired. Many of the medical students agreed that, simply due to the sheer number of the baby boomer cohort, they would be working with older adults irrespective of their final specialized choice.

A subsample of medical students was queried on the medical specializations they were considering (Appendix J, Table J1). As can be seen from Table J1, they are considering an array of specializations. For example, the highest ranked specializations under consideration for the treatment group are pediatrics and general surgery, internal medicine, geriatrics, neurology or neurosurgery, and OB/GYN. The highest ranked specializations under consideration for the comparison group are pediatrics, emergency medicine, internal medicine and family medicine.

Likelihood of pursuing geriatric medicine

At pretest, most (72%) of the treatment group and (89%) of the comparison group reported that it was either "unlikely" or "very unlikely" that they would pursue geriatric medicine (Appendix K, Table K1).

The posttest suggests that there was a slight increase in the mean likelihood of pursuing geriatric medicine for the treatment group (.13) and comparison group (.10) at statistically significant levels (Table 11).

Table 11. Mean difference between pretest and posttest on likelihood

Outcome Variable	Group	Pre	Post	Difference between Pre and Post
Likelihood of pursuing geriatric medicine	Treatment n=87	2.19	2.32	.13 (.47) t=2.47 *p*=.0155
	Comparison n=76	1.86	1.97	.10 (.47) t=1.92 *p*=.0588

Table 12 presents findings on statistical tests of the difference between the treatment and comparison groups' change scores on the likelihood of pursuing geriatric medicine. The posttest scores are corrected for pretest scores as well as other covariates: age, gender, attitudes towards older adults (RASD), change in their contact with or knowledge of older adults since participating in VV (i.e., taking additional class, internship, residency), if working and talking with older adults is difficult, whether they believe they will be competent with the medical needs of older adults, perceptions of commonality, comfort levels with older adults, group membership (treatment/comparison), and site.

The changes in likelihood to pursue geriatric medicine were not statistically significant (p=.4265), while controlling for the other covariates. In other words, the change between pre and post test on this measure was equivalent between the VV and comparison students.

Table 12. Adjusted posttest of likelihood

Outcome Variable	Treatment Adjusted Posttest Mean (N=87)	Comparison Adjusted Posttest Mean (N=76)	Program Impact
Likelihood of pursuing geriatric medicine	2.19 [.05]	2.12 [.04]	-.07 [.08] z=-.80 p=.4265

Plans for obtaining specialized training in geriatrics

At pretest, most of the treatment group (78%) and comparison group (92%) were either neutral, disagreed, or strongly disagreed that they were planning to obtain specialized training in geriatrics at some point in their medical education (Appendix K, Table K2).

Table 13 below suggests that, at posttest, there was a slight increase for both groups in their plans to obtain specialized training in geriatrics at some point (.13 for treatment, .15 for comparison). These changes are marginally significant.

Table 13. Mean difference between pretest and posttest

Outcome Variable	Group	Pre	Post	Difference between Pre and Post
Plan to obtain specialized training in geriatrics at some point in medical education	Treatment n=92	2.92	3.05	.13 (.72) t=1.71 p=.0898
	Comparison n=76	2.48	2.63	.15 (.70) t=1.79 p=.0780

Table 14 presents findings on statistical tests of the difference between the treatment and comparison groups' change scores on plans to specialize in geriatric medicine. The posttest scores are corrected for pretest scores as well as other covariates: age, gender, attitudes towards older adults (RASD), change in their contact with or knowledge of older adults since participating in VV (i.e., taking additional class, internship, residency), likelihood of pursuing geriatric medicine, level of difficulty in working and talking with older adults, perception of competence to handle the medical needs of older adults, perceptions of commonality, comfort levels with older adults, group membership (treatment/comparison), and site.

The comparison's groups change in plans to specialize in geriatrics was marginally more positive than that of the treatment group (p=.0776), controlling for the other covariates. This unexpected finding may be explained the comparison group's significantly lower pretest scores (p=.0015) that left a lot more room for improvement in this area than the higher pretest scores of the VV students.

Table 14. Adjusted posttest of likelihood

Outcome Variable	Treatment Adjusted Posttest Mean (N=87)	Comparison Adjusted Posttest Mean (N=64)	Program Impact
Plan to obtain specialized training in geriatrics at some point in medical education	2.82 [.06]	2.95 [.03]	.13 [.07] z=1.76 p=.0776

Objective 3
Assess Changes in Attitudes Toward Older Adults as Part of Future Practice

Appendix L, Table L1, presents the pretest and posttest scores on attitudes towards older adults as part of their future practice at a bivariate level for both groups. There were statistically significant differences between pretest and posttest for treatment and comparison groups with regard to (i) wanting a large number of aged patients in their future practice, (ii) expectations of having older adults comprise a large part of their future practice, (iii) believing they would be competent in working with aged patients, (iv) believing that aged people are less difficult to talk to, (v) believing aged people are less difficult to work with than younger people. The comparison group also had a significant increase in believing that aged people make more interesting patients than younger people.

The remaining measures—(i) belief that they would understand the medical needs of older adults better than those of younger people or (ii) belief that working with older adults will be less exciting than working with younger patients—did not change between pretest and posttest.

Table 15 presents findings on statistical tests of the differences between the treatment and comparison groups' change scores on the indicated measures. The posttest scores are corrected for pretest scores as well as other covariates, including age, gender, attitudes towards older adults (RASD), change in their contact with or knowledge of older adults since participating in VV (i.e., taking additional class, internship, residency), likelihood of pursuing geriatric medicine, level of difficulty of working and talking with older adults, perception of competence to handle the medical needs of older adults, perceptions of commonality, comfort levels with older adults, group membership (treatment/comparison), and site.

There were differences in change scores on two measures between the treatment groups and the comparison group.

1. The VV students made a larger positive gain in the belief that they would be more competent in working with aged patients (p=.0084). The effect size associated with this difference is .19.

2. The comparison group students made larger positive gain in the attitude that older people make more interesting patients than do younger people (p=.0267). The effect size associated with this change is .30.

There were no differences on the remaining measures.

Table 15. Mean difference between pretest and posttest

Outcome Variable	Group	Adjusted Posttest Mean	Program Impact	Effect Size
Would like to have a large number of aged patients (65+) in future practice	Treatment n=87 Comparison n=63	3.26 [.05] 3.25 [.05]	-.01 [.06] z=-.24 *p*=.8066	n/s
Expect aged patients (65+) to comprise a large part of future practice	Treatment n=87 Comparison n=64	3.44 [.08] 3.47 [.08]	.02 [.10] z=.28 *p*=.7768	n/s
Competency and Understanding				
I believe I will be competent in working with aged patients (65+)	Treatment n=87 Comparison n=64	4.13 [.04] 4.01 [.03]	-.11 [.04] z=-2.63 *p*=.0084	-.19
Difficulty in Talking and Working with Older Adults				
Aged people (65 and older) are difficult to talk to (5=Strongly Disagree)	Treatment n=87 Comparison n=64	4.04 [.04] 4.05 [.04]	.01 [.06] z=.12 *p*=.9007	n/s
Aged people (65 and older) are generally more difficult to work with than younger people (5=Strongly disagree)	Treatment n=87 Comparison n=64	3.60 [.06] 3.66 [.10]	.05 [.12] z=.47 *p*=.6353	n/s
Interesting Patients				
Aged people (65+) make more interesting patients than do younger people	Treatment n=87 Comparison n=64	2.92 [.05] 3.17 [.06]	.25 [.11] z=2.22 *p*=.0267	.30

Objective 4
Socialization, Curricula Improvement, and Residency Experiences

Socialization. Focus groups and reflection homework from medical students indicated that the primary and often sole connection to older adults was with family members, and that experiencing a different relationship (non-familial) to older adults was beneficial. For example, one student from St. Louis wrote, "Another benefit of this program was learning that the elderly were once young too. I haven't interacted much with the elderly outside of my family, and usually, the elderly in my family were judgmental and righteous. In this setting I had the chance to interact with the elderly and I didn't have the threat of being judged." A student from Albany wrote, "It was also very refreshing to have positive exposure to senior citizens. Many of the elderly individuals in my life have provided a bad impression for the aged as a whole." Another student from St. Louis wrote, "This program provided me the chance to interact with people with a different perspective. By interacting with a different generation, I lessened my fear of interacting with the elderly."

Other students suggested that their preconceived ideas of older adults had changed. For example,

"Initially, I had reservations about working with the elderly. I had preconceived notions that elderly people were mean, judgmental, difficult to work with, and not much of a pleasure to be around. This experience has really enlightened my views on elderly individuals. My partner is an exceptional woman with a great sense of humor and remarkable personality…Her views on the art work as well as her creativity and insight have truly changed my opinion on elderly people not being much fun to be around; she is a BLAST…The overall experience has caused me to see the elderly as individuals and not just a group of people. I'm not sure if I will go into geriatrics but I will make more of an effort to look past the age and welcome the individual."

First Year Medical Student, Florida
Reflection Homework

The pretest and posttest suggests that the treatment group changed significantly in their sense of commonality and comfort with older adults, while there was no change in the comparison group (Table 16).

Table 16. Mean Difference between Pretest and Posttest

Outcome Variable	Group	Pre	Post	Difference between Pre and Post (SD)	t, *p*
Commonalities and Comfort					
I have little in common with aged people (65+) (5=Strongly disagree)	Treatment n=92	3.78	4.10	**.32** (.82)	t=3.78 ***p*=.0003**
	Comparison n=76	3.43	3.40	-.03 (.78)	t=-0.29 *p*=.7703
I feel comfortable around aged people (65+)	Treatment n=92	4.07	4.28	**.21** (.63)	t=3.10 ***p*=.0025**
	Comparison n=76	4.01	4.06	.05 (.67)	t=0.68 *p*=.4963

Chart 3 below illustrates the group means in commonality by group, pre-post.

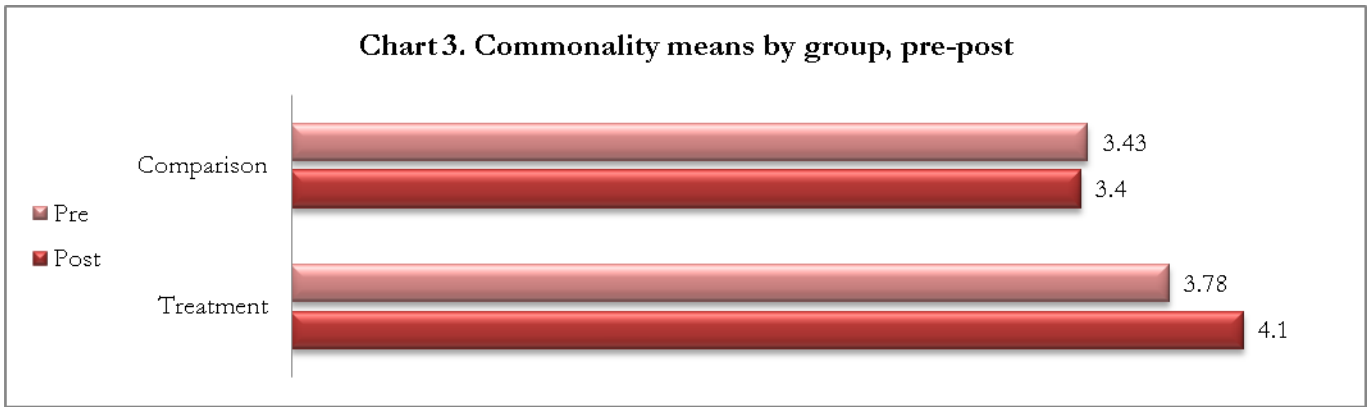


Table 17 shows that the change in their perceptions of commonality by the treatment group were statistically more positive than the changes made by the comparison group (p=.0009), while controlling for the other covariates. Effect sizes associated with these gains are moderate-high, at .62.

Table 17. Adjusted posttest of Commonality

Outcome Variable	Treatment Adjusted Posttest Mean (N=92)	Comparison Adjusted Posttest Mean (N=76)	Program Impact	Effect Size
I have little in common with aged people (65+) (5=Strongly disagree)	3.94 [.07]	3.52 [.08]	-.42 [.13] z=-3.32 p=.0009	-.62

Curricula improvement and residency experiences. Medical students suggested in focus groups that making geriatric courses a requirement would be the surest way to improve the curricula and expose all of their peers to older adults. Of the medical students who submitted reflection homework, 30% noted that VV helped them to gain or develop personal understanding and/or professional skills to interact with older adults (see "Content Analysis"). However, both first and second year students were unsure of how *exactly* to improve their school's curricula or residency experiences because they were relatively new to the program and had not yet fully experienced the training. Future research can target medical students who are about to graduate or who just finished their residency to get a better understanding of how curricula and residency programs can be improved.

Objective 5
Older Adults' Comfort Levels

Most (95% at pre, 97% at post) older adults were comfortable, somewhat comfortable, or very comfortable, discussing their health with doctors, nurses, or other medical professionals that are younger than themselves (Appendix K, Table K3).

Table 18 below presents the pretest and posttest scores. Although the mean decreased by .03, the statistical tests indicate there was no difference in levels of comfort over time (p=1.000).

Table 18. Mean Difference between Pretest and Posttest (n=86)

Outcome Variable	Pre	Post	Difference between Pre and Post (SD)	*t, p*
How comfortable are you with discussing your health with doctors, nurses or other medical professionals that are younger than you?	4.55	4.52	-0.03 (.89)	t=0.00 p=1.000

Content Analysis of Reflection Homework

Medical students. Many (42%) of the medical students submitted their homework to the evaluation team. Of those, 77% said they enjoyed working with the seniors and the art aspect of the program; 62% noted that the art brought them, both young and old, together; and 40% stated that the older adults shared their wisdom, experience, and perspectives and they learned something from the older adults.

Although the Revised Aging Semantic Differential suggested that this group, on average, had relatively positive attitudes towards older adults, nearly a third (30%) wrote about experiencing a breakdown in stereotypes held of older adults as a result of participating in VV. Approximately 30% stated that they gained and/or developed personal understanding or professional skills to interact with older adults. Over a quarter (28%) suggested that VV was an escape and a stress reliever from medical school.

Table 19. Categories of Reflection Homework for Medical Students (N=47, 42%)

Category	Percent (n)
I enjoyed working with the seniors and the art aspect of the program.	77% (36)
Art brought us, young and old, together.	62% (29)
I learned something from older adults; they shared their wisdom, experience, perspectives.	40% (19)
The course can be improved…	36% (17)
Breaking down of age stereotypes (i.e., "I think this class has certainly 'demystified' senior citizens to me, working with them helps to break past any stereotypes or misconceptions of senior citizens that younger people might have;" "they were much more funny, sarcastic, and 'with it' than I expected;" "the *vibrancy* of these *geriatric* aged women was quite surprising")	30% (14)
I gained or developed personal understanding and/or professionals skills to interact with older adults.	30% (14)
VV was an escape/stress reliever from school.	28% (13)
I regret not getting to know them better and/or I wanted the class to last longer.	21% (10)
I had positive attitudes of older adults, so I didn't change my view of them.	19% (9)
I want to attend more classes like this.	13% (6)
The instructor was good.	9% (4)
I will continue to make art.	6% (3)

Approximately 36% of reflections offered suggestions for program improvement. These suggestions included increasing the diversity of older adults, starting and ending the program on time, engaging in different art and non-art activities, and offering opportunities that would allow participants to get to know each other more informally and with less structured activities. Some students wanted to engage with "not so healthy" or "vital" older adults. For example, one student from Pittsburgh wrote, "It would be nice to find a way for medical students to interact with elderly people who are not quite so 'vital' and tied into the community since those people are probably the ones who we may find more difficult to interact with as patients." Though very rare, a few students noted that the art activities were "belittling," or that the instructor treated the older adults like infants.

Older adults. Half of the older adults submitted homework to the evaluation team. Of those, most (98%) stated that they enjoyed working with the medical students and the art aspect; 40% reported that the class stimulated learning and creativity; and 37% noted that the instructor was very good. Similar to the medical students, nearly 30% suggested they too learned from the medical students. Twenty percent (20%) were thankful for the class.

Table 20. Categories of Reflection Homework for Older Adults (N=60, 50%)

Category	Percent (n)
I enjoyed working with medical students and the art aspect.	98% (59)
The class stimulated learning and creativity.	40% (24)
The instructor was very good.	37% (22)
I learned something from the youngsters.	28% (17)
Criticisms of the course…	25% (15)
I am willing to do it again.	23% (14)
Thank you for the class.	20% (12)
I regret not getting to know each other better or I am interested in the class be longer.	13% (8)
I enjoyed working with my contemporaries.	12% (7)

Approximately 25% of reflections offered suggestions for program improvement. They suggested more informal interaction with medical students, that the purpose of the program should be less vague and more clearly stated, and some noted the lack of diversity of older adults.

For example, an older adult from Pittsburgh (Session 1) suggests that "maybe there was too much planned time and not enough casual mingling." Program managers at Pittsburgh noted this feedback and offered more casual mingling and less formal planned time in their second rollout of the program. Participants in focus group suggested that was one of the strengths of the second program.

Older adults were keen to note the vagueness of the program goals and many wanted the purpose to be clearly stated. As one older adult from Florida wrote, "The one thing I cannot get a handle on, is how this program can influence these medical students to go into the field of geriatrics? Unless this upcoming final program has a way of tying it all together. It is meant to show them that we senior[s] are not all so dull and are still interesting to be around? Would this influence them into caring for seniors medically?? If at all possible I would appreciate an answer."

Regarding the lack of diversity for older adults, one St. Louisian wrote,

> I suspect that the population of OASIS attendees was atypical as most were well educated [and] of the same race—not the more multi-ethnic and educationally diverse population that the students would likely encounter in a gerontology practice. I suspect the self-initiated participation approach used by OASIS limits (by default, not intent) the pool of multi-ethnic/less-well educated people that might participate, thereby restricting exposure opportunities for the medical students—something to consider if a future class were run.

Quality of Program and Diversification of Activities and Participants

All of the medical students (100%) and older adults (100%) rated the program as either "very good" or "good." Additionally, most participants reported they had met new people, and learned new useful information and new skills. Additionally, the instructors received overwhelmingly positive evaluations.

Table 21. Quality of program and instructors

Medical Students		Older Adults
100%	I met new people	96%
82%	I learned new useful information	94%
71%	I learned new skills	77%
34%	Class met too few times	43%
100%	Presenter/instructor knew a lot about the topic	100%
95%	Presenter/instructor was well organized	98%

However, there were three consistent criticisms of the program: (i) the duration of the overall program was too short; (ii) class activities were not varied, and (iii) diversity of participants was lacking.

For example, approximately 34% of medical students and 43% of older adults reported that the class met too few times; this message was reiterated in focus groups and reflection homework. Further, medical students in the focus groups were concerned not just with the increase in the sheer number of older adults, but also the diversity of older adults, and expressed a desire to meet and connect with older adults from a variety of different ethnic backgrounds. Older adults also shared this concern.

Focus group participants suggested that the program can keep its focus on painting, sculpture or photography, extend its medium slightly to include other types of art, i.e. theater, music, dance, or extend activities to include non-art activities such as local sightseeing, cooking, gardening, and sports. Participants also suggested that providing a range of "art" and "non-art" activities would help to recruit individuals of different genders, ethnicities, education, etc.

Replication and Presentations

Shirley Fisher and Gail Weisberg at OASIS in Pittsburgh are partnering with faculty at the University of Pittsburgh Medical School to replicate the program in the near future. Similarly, Dr. Josh Hauser at Northwestern is helping to replicate the program with Dr. Arthur Derse at the Medical College of Wisconsin. We are sharing with them our method, surveys, databases, and insights into the evaluation process.

Dr. Josh Hauser presented the program on a symposium at the American Association of Medical College's (AAMC) conference in Houston during the fall of 2008. Dr. Judy Salerno also presented the program at AAMC in 2007.

Limitations

Participants self-selected into the program, and thus, this evaluation does not utilize a random sample. Measures are self-report, and social desirability bias may exist even though the respondents were informed that survey responses would be confidential and focus group contributions and reflection homework would be anonymous.

Aside from Polizzi (2002, 2003), the RASD has been psychometrically examined only once by Iwasaki and Jones (2008) and there is controversy regarding its factor structure. Polizzi (2003) posits that there is only one factor structure that measures a college person's attitude toward older adults. However, similar to our preliminary confirmatory factor analysis using structural equation model techniques, Iwasaki and Jones (2008) found a one-factor structure to have poor fit and also discovered a four-factor structure. Unfortunately Iwasaki and Jones did not identify what the other factors were, nor did they identify which observed measures loaded onto which factors. For purposes of this evaluation, we used a single-global attitudinal factor. It has a Cronbach's alpha of .89 (pre) and .95 (post), which indicates good internal consistency. We intend to perform a confirmatory and exploratory factor analysis of the RASD upon completion of this evaluation and submit an article demonstrating the results.

Summary and Interpretation of Findings

Changed attitudes

The empirical data suggest that Vital Visionaries, an intergenerational art program, affected medical students in key ways. First, it heightened a positive attitude toward older adults. And for some, it countered their negative stereotypes of older adults. This sample of medical students met healthy non-familial older adults. They were described as "with it" and "sarcastic." Relationships were characterized as "a blast" and "a joy." Some students immediately identified how this program has changed their attitude toward older adults in personal and professional settings. Several students expressed the idea that they saw past their stereotypes and saw a person, a unique individual with a unique set of circumstances. As the students suggested, irrespective of their ultimate career choice, this is a positive outcome.

Our methodological approach suggests that this program has a positive impact on medical students' attitudes towards older adults, and it has a moderate effect size. While the effect size is impressive, it would be worthwhile to compare it to effect sizes of other programs; but this is not possible. Although there have been many interventions to counter negative stereotypes of medical students or young adults (e.g., Alford, Miles, Palmer, and Espino, 2001; Angiullo, Whitbourne and Powers; 1996; Fitzgerald, et al. 2003; Hughes, et al. 2008; Jansen and Morse, 2004; Knapp and Stubblefield, 2000; Moriello et al., 2005; Ragan and Bowen, 2001; Roberts et al., 2006; Stewart et al., 2007; Wilkinson, Gower and Sainsbury, 2002; Zuilen et al. 2001), some of these interventions used the original Aging Semantic Differential (Rosencranz-McNevin, 1969) and it is difficult to make a direct comparison. Secondly, *all* of these interventions used analysis of variance techniques with few covariates, and did not examine the effect size. This review of the literature highlights the contribution of the methodological and statistical approaches used in this evaluation.

Career plans

These findings clearly point out that the first and second year medical students had not developed career plans in terms of a medical specialization and that this program has not altered this situation. However, it is important to highlight the context. Some students did not know what a geriatrician is or how to become certified. They were unaware of how to heal older adults. Further, they did not know of mentorship, research, or funding opportunities as a geriatrician or a student in geriatrics. Many students did not have relations with non-familial older adults before the program and some had bad impressions of older adults in general. Given this, it is not surprising that four sessions of a two-hour class did not influence their career plans.

Further, selecting a specialization in medicine is influenced by a range of factors—career prestige, income, family and work balance, rural or urban settings, healthcare structures—in addition to attitudes and previous exposure to older adults. Perhaps the intervention needs to include additional workshops that discuss geriatric practice, along with information on mentorship, research, or funding opportunities. Additionally, the curriculum of this proposed intervention could include accurate information on the aging process, older adults, and policies and programs that affect aging and older adults. Finally, exposure to healthy older adults may need to be more prolonged.

Our findings are similar to Alford et al. (2001), who found that there was an increase in awareness of geriatrics as a career choice as well as an increase in comfort levels with older adults but little change in career plans. Perhaps a better result could be obtained if the intervention had multiple sessions that targeted

critical turning points in students' medical training, starting at pre-med. There is theoretical and empirical support for such an intervention. Aside from our findings, Ragan and Bowen (2001) suggest that negative attitudes toward older people may be amended by providing accurate information about older people in conjunction with reinforcement for change. Knapp & Stubblefield (2000) found that class participation and community activities between generations helped create more realistic views of aging and foster more positive attitudes towards older adults among younger people. Burbank et al. (2006) identified strategies to improve knowledge and attitudes about older adults among nursing students. Strategies included a senior mentoring experience, critical reflective journaling, and assignments that addressed diversity issues. Wilkinson, Gower, and Sainsbury (2002) found that the earlier the intervention, the better.

Socialization, curricula improvement and pedagogy

Vital Visionaries had a positive impact on medical students' belief that they had more in common with older people. Students reported they had met new people and learned new skills and information. Further, VV offered them an opportunity to meet non-familial, healthy, active older adults in a non-judgmental context. Thus, it appears that this program was successful in socializing medical students to active older adults. The long-term impacts could only be determined with a follow-up study.

This sample of first and second year medical students could not offer any exact suggestions for how curricula, pedagogy, and residency experiences could be improved because they had yet to complete the program. They did suggest that making geriatric courses a requirement would be the surest way to improve the curricula and expose all of their peers to older adults. However, making geriatric courses mandatory raises a range of concerns, i.e. quality or quantity of physicians (see Chiang, 1998). Thus, another recommendation is to qualitatively and quantitatively survey medical students who have completed their education and residency experiences in order to identify ways to improve the curricula, pedagogy, and residency experiences in relation to geriatrics.

Older adults' comfort levels

This sample of older adults already had high levels of comfort in talking about their health with medical professionals younger than themselves, and this program did not change that. This sample, however, was highly educated and healthy. Perhaps older adults of lower socio-economic status or those in poor health would be less comfortable talking with medical students in an informal setting.

Diversification and timeframe

Diversifying the participants in terms of race, ethnicity, gender, and educational levels, along with engaging in a variety of different activities was suggested. Focus group participants, both medical students and older adults, suggested that they would be willing to meet once a month for an entire academic year or for a semester. An extended time commitment would also enable different activities. For example, activities that focus on salient cultural holidays throughout the year could possibly attract ethnically diverse participants, both young and old.

For this pilot project, OASIS directors and NIA representatives agreed to recruit only healthy older adults, given the project's aim. Therefore, a few older adults with a high degree of physical or mental disability were not recruited. Program directors and staff have always been uncertain about what types of older adults to engage in VV, and this important decision warrants further consideration. Program staff must consider what

negative stereotypes they want to counter. For example, to counter negative stereotypes of disabled older adults it might be more productive to include individuals who have sharp minds and are physically disabled. Such older adults may be more similar to older patients that medical students will encounter in clinical settings. If VV students are only exposed to very healthy older adults, then they might mentally compartmentalize two kinds of older people—the healthy fun ones in the program and the chronically ill patients with multiple needs they see in the clinic and hospital (personal communication, Jack Guralnik, January 23, 2009). Having an ongoing relationship with a variety of older adults could foster a more realistic understanding of the aging process, inform the medical student of the resiliency of older adults, and reduce ageism.

In sum, this evaluation suggests that Vital Visionaries positively affected medical students' attitudes toward older adults. VV students also felt that they had more in common with older adults after the program and learned new skills to interact with older adults in personal and professional settings. Both medical students and older adults were very enthusiastic about the program. Findings clearly indicate that medical students were unsure of their career plans at this stage of their training, and that this program did not change the likelihood that they would pursue geriatrics. Only longer term follow-up of these new medical students will reveal the effects of VV on their eventual specialization.

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Appendix A
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Megan Petra, Doctoral Student
Sherril Wayland, MSW

Appendix B
Evaluation Checklist for Point Person

		Yes	No
Preparation	1. Has the Comparison Group (15 first-year medical students) been identified?		
	2. Have *at least* 15 older adults enrolled in the class?		
	3. Have *at least* 15 first-year medical students enrolled in the class?		
Pretests	4. At the *beginning* of the *first day of class*, was the pretests given and retrieved from the following 3 groups? Medical Students in Art Class Older Adults in Art Class Comparison Group (Medical Students not in the Art Class)		
	5. Did everyone put their name on the survey?		
	6. Are all survey questions answered?		
	7. Did you Xerox a copy of all the surveys (please keep in a double-locked safe and confidential place) and mail the originals to Ernest Gonzales at Wash U?		
Reflection Homework	8. For the second to the last session, was the reflection homework distributed to the following 2 groups? Medical Students in Art Class Older Adults in Art Class		
	9. Was the reflection homework collected on the last session?		
	10. Are the reflection homework kept in a double-locked safe and confidential place (to be mailed with posttest)?		
Posttests	11. For the *last day of class*, was the posttest given and retrieved from the following 3 groups? Medical Students in Art Class Older Adults in Art Class Comparison Group (Medical Students not in the Art Class)		
	12. Did everyone put their name on the survey?		
	13. Are all survey questions answered?		
Submission of Evaluation Tools	14. Have you Xeroxed the reflection homework and posttests for your own safekeeping records?		
	15. Have you mailed the original reflection homework and posttests to Ernest Gonzales at Washington University?		

That's it! Upon completion of the evaluation, we will inform you when to properly dispose of your copies of the pretests, reflection homework and posttests.

Thank you!

Appendix C
Refined Aging Semantic Differential (Polizzi, 2003)

Below is a list of 24 polar opposite adjective pairs on a 7-point scale. The middle block is neutral. Please place a check mark along the scale at the point that best represents your judgment about _____. Make each item a separate and independent judgment. Don't be concerned about how you mark any of the previous items, and don't worry or puzzle over individual items. It is your first impression or immediate feeling that is most important. Please be sure to mark each item on the scale

				N				
Cheerful	___	___	___	___	___	___	___	Crabby
Pleasant	___	___	___	___	___	___	___	Unpleasant
Friendly	___	___	___	___	___	___	___	Unfriendly
Kind	___	___	___	___	___	___	___	Cruel
Sweet	___	___	___	___	___	___	___	Sour
Nice	___	___	___	___	___	___	___	Mean
Tolerant	___	___	___	___	___	___	___	Intolerant
Cooperative	___	___	___	___	___	___	___	Uncooperative
Fair	___	___	___	___	___	___	___	Unfair
Grateful	___	___	___	___	___	___	___	Ungrateful
Unselfish	___	___	___	___	___	___	___	Selfish
Considerate	___	___	___	___	___	___	___	Inconsiderate
Patient	___	___	___	___	___	___	___	Impatient
Positive	___	___	___	___	___	___	___	Negative
Calm	___	___	___	___	___	___	___	Agitated
Thoughtful	___	___	___	___	___	___	___	Thoughtless
Humble	___	___	___	___	___	___	___	Arrogant
Frugal	___	___	___	___	___	___	___	Generous
Flexible	___	___	___	___	___	___	___	Inflexible
Good	___	___	___	___	___	___	___	Bad
Hopeful	___	___	___	___	___	___	___	Despairing
Optimistic	___	___	___	___	___	___	___	Pessimistic
Trustful	___	___	___	___	___	___	___	Suspicious
Safe	___	___	___	___	___	___	___	Dangerous

Appendix D
Evaluation Information Sheet[1]

You are invited to participate in an evaluation of this program conducted by Ernest Gonzales and Nancy Morrow-Howell at the George Warren Brown School of Social Work at Washington University in St. Louis on behalf of OASIS. The purpose of this evaluation is to assess the Vital Visionaries Program for curriculum and programmatic improvement.

What will my participation involve?

You may be asked to complete a questionnaire, submit an anonymous homework reflection, and/or participate in an audio-taped focus group.

What are the risks to participating?

There are no known risks to participation.

Are there any benefits to participating?

There may be no direct benefits from participating in this evaluation but your input may help us improve the curricula and programs at OASIS and your medical school.

What if I change my mind about participating?

Your participation is entirely voluntary and you may change your mind at any time. Receiving course credit, stipend, and/or food is not dependent on completing questionnaires or submitting an anonymous homework.

What about my privacy and confidentiality?

We will do everything we can to protect your privacy. All records as part of this evaluation will be kept confidential and under double lock. Your identity will not be revealed in any publication that may result from this evaluation. Occasionally, Washington University or an external oversight agency audits or reviews a research project. When that happens, they are only checking to make sure that we have protected your rights and conducted this evaluation properly. Auditors will always keep your identity confidential.

[1] This sheet also contained contact information for participants with questions or concerns about the evaluation or their rights as a research subject. This information has been removed for the purposes of this report.

Appendix E
Summary of Sample Description on Pretest

Table E1 offers a summary of the sample on demographic characteristics and the differences.

Table E1. Sample description at pretest

	Total N=208	Treatment N=112	Comparison N=96	Difference Test
Demographics				
Average Age (years)	24	24	24	t=1.34, p=.18
Gender				
Male	74 (39%)	36 (33%)	38 (45%)	χ^2=2.83, df=1, p =.09
Female	118 (61%)	72 (67%)	46 (55%)	
Race				
Caucasian	119 (63%)	63 (59%)	56 (68%)	χ^2=5.98, df=4, p =.20
Asian	43 (23%)	25 (23%)	18 (22%)	
Black or African American	11 (6%)	5 (5%)	6 (7%)	
Hispanic or Latino	8 (4%)	7 (7%)	1 (1%)	
American Indian or Alaskan Native	0 (0%)	0 (0%)	0 (0%)	
Native Hawaiian or Other Pacific Islander	0 (0%)	0 (0%)	0 (0%)	
Other	9 (5)			
Asian and White	3	3	0	
Cajun	1	0	1	
Egyptian/Middle Eastern	1	0	1	
Filipino	1	1	0	
Iranian	1	1	0	
Latino and White	1	1	0	
South Asian	1	1	0	
Year in Medical School				
First Year	172 (91%)	100 (94%)	72 (87%)	χ^2=3.28, df=1, p =.070
Second Year	17 (9%)	6 (6%)	11 (13%)	

Appendix F
Summary of Sample Description of Measures on Pretest

Table F1 offers a summary of the pretest scores on the measures used in the quantitative survey.

Table F1. Sample Description of Measures on Pretest of Medical Students

	Group	N	Mean at Pre	Difference Test
Attitude Towards Older Adults				
Refined Aging Semantic Differential (Standardized Instrument)	Treatment	104	75.01 (12.94)	t=1.59 p=.11
	Comparison	89	78.05 (13.59)	
Attitude Towards Older Adults as Part of Future Practice				
Likelihood of pursuing geriatric medicine	Treatment	104	2.21 (.66)	t=-3.83 p=.0002
	Comparison	92	1.85 (.62)	
Plan to obtain specialized training in geriatrics at some point in medical education	Treatment	108	2.89 (.86)	t=-3.20 p=.0015
	Comparison	92	2.51 (.81)	
Would like to have a large number of aged patients (65+) in future practice	Treatment	108	3.34 (.71)	t=3.66 p=.0003
	Comparison	92	2.97 (.73)	
Expect aged patients (65+) to comprise a large part of future practice	Treatment	108	3.50 (.93)	t=-2.15 p=.0331
	Comparison	92	3.21 (1.0)	
Competency and Understanding				
I believe I will be competent in working with aged patients (65+)	Treatment	108	4.05 (.66)	t=-1.22 p=.23
	Comparison	92	3.93 (.63)	
I believe that I will understand the medical needs of aged people (65+) than those of younger people	Treatment	108	2.67 (.72)	t=-1.44 p=.15
	Comparison	92	2.52 (.69)	

Table F1. Sample Description of Measures on Pretest of Medical Students

	Group	N	Mean at Pre	Difference Test
Difficulty in Talking and Working with Older Adults				
Aged people (65 and older) are difficult to talk to (5=Strongly Disagree)	Treatment	108	4.08 (.67)	t=-2.99 p=.0032
	Comparison	92	3.74 (.91)	
Aged people (65 and older) are generally more difficult to work with than younger people (5=Strongly disagree)	Treatment	108	3.60 (.76)	t=-3.43 p=.007
	Comparison	92	3.22 (.82)	
Commonalities and Comfort				
I have little in common with aged people (65+) (5=Strongly disagree)	Treatment	108	3.81 (.81)	t=-3.09 p=.0023
	Comparison	92	3.43 (.88)	
I feel comfortable around aged people (65+)	Treatment	108	4.06 (.64)	t=-.35 p=.72
	Comparison	92	4.02 (.71)	
Exciting and Interesting Patients				
I believe working with aged patients (65+) will be less exciting than working with younger patients (5=Strongly disagree)	Treatment	108	3.82 (8.3)	t=-3.81 p=.0002
	Comparison	92	3.36 (.89)	
Aged people (65+) make more interesting patients than do younger people	Treatment	108	3.16 (.78)	t=-2.18 p=.0305
	Comparison	92	2.91 (.81)	
Experience and Exposure to Older Adults				
Number of times visited people in a nursing home, an assisted living facility, or in a naturally occurring retirement community (NORC)	Treatment	N=107		χ^2=3.69 df=4 p =.45
		Never (0)	7 (7%)	
		1-4 times	38 (36%)	
		5-9 times	19 (18%)	
		10-14 times	10 (9%)	
		15+ times	33 (31%)	
	Comparison	N=84		
		Never (0)	9 (11%)	
		1-4 times	30 (36%)	
		5-9 times	18 (21%)	
		10-14 times	3 (4%)	
		15+ times	24 (29%)	

Table F1. Sample Description of Measures on Pretest of Medical Students

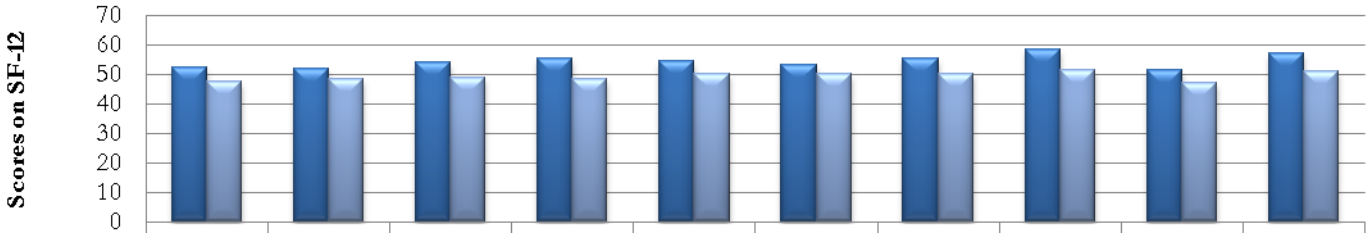
	Group	N	Mean at Pre	Difference Test
Worked or volunteered in a setting with regular contact with individuals aged 65+	Treatment	108	Yes 71 (66%)	χ^2=5.57 df=1
	Comparison	84	Yes 41 (49%)	*p*=.0182
Have taken a course that dealt primarily with adult development, aging issues or individuals 65+	Treatment	108	Yes 12 (6%)	χ^2=.79 df=1,
	Comparison	84	Yes 13 (7%)	*p* =.37
Quality of Relationships with Older Adults				
Age of the oldest individual they have been closest to	Treatment	108	83 yrs. of age (11)	*t*=-.92 *p*=.36
	Comparison	84	81 yrs. of age (12)	
Closeness of that relationship	Treatment	108	2.5 (.58)	*t*=-.28 *p*=.78
	Comparison	84	2.5 (.57)	
Overall experience with family members, friends, neighbors and others who were 65+	Treatment	108	4.6 (.49)	*t*=-1.51 *p*=.13
	Comparison	84	4.5 (.52)	

Numbers in parentheses are standard deviations

Appendix G
Summary of Health and Wellbeing of Older Adults

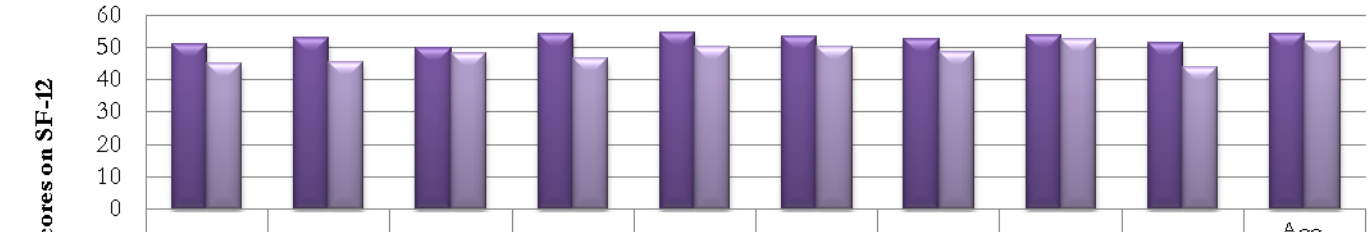
Charts G1-G3 offer a summary of the health and wellbeing of older adults in the program (VV) compared to their peers found in the general U.S. population (U.S. Pop.).

Chart G1. Comparison of SF-12 Scores of VV Older Adults & General U.S. Population, Age 55-64



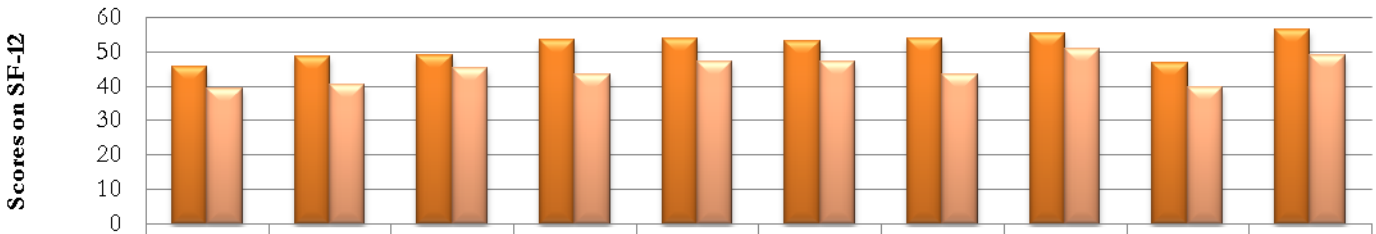
	Physical Func.	Role Physical	Bodily Pain	General Health	Vitality	Social Func.	Role Emotional	Mental Health	Agg. Physical Score	Agg. Mental Health Score
VV	52.17	51.8	54.04	55.16	54.45	53.2	55.14	58.44	51.37	57.05
U.S. Pop.	47.61	48.26	48.79	48.27	50.21	49.93	49.83	51.4	46.9	50.84

Chart G2. Comparison of SF-12 Scores of VV Older Adults & General U.S. Population, Ages 65-74



	Physical Func.	Role Physical	Bodily Pain	General Health	Vitality	Social Func.	Role Emotional	Mental Health	Agg. Physical Score	Agg. Mental Health Score
VV	50.85	52.75	49.74	54.11	54.52	53.47	52.42	53.59	51.12	54.22
U.S. Pop.	44.87	45.28	47.97	46.72	50.1	50.27	48.34	52.6	43.93	51.57

Chart G3. Comparison of SF-12 Scores of VV Older Adults & General U.S. Population, Ages 75+



	Physical Func.	Role Physical	Bodily Pain	General Health	Vitality	Social Func.	Role Emotional	Mental Health	Agg. Physical Score	Agg. Mental Health Score
VV	45.47	48.33	48.82	53.19	53.78	52.93	53.61	55.27	46.69	56.46
U.S. Pop.	39.26	40.38	45.01	43.46	46.92	46.85	43.36	50.57	39.75	48.89

Appendix H
Telephone Guide for Discontinuees

Hi, my name is _____, and I'm calling from Washington University in St. Louis.

May I speak with _____?

Hi, I'm calling because we have been asked to evaluate the program, Vital Visionaries. Does this program sound familiar to you? [yes/no]

If "no", probe further and describe program.

If "yes", then: Can I ask you a question about program improvement? Any information you offer will be strictly confidential and we're only asking so then we can improve the program.

If "yes", then: we've noticed that you submitted a pre-survey, but we don't have a post-survey. Why is that?

_____
_____
_____
_____.

Okay. Well, that's the only reason why I'm calling. Yes, that's right. That's the only reason I'm calling. Would you like to share anything else? [yes/no]

If "yes", then

_____
_____
_____
_____

Thank you for your time!

Appendix I
Hedge's G and Effect Size

In this study, Hedge's G statistics are used to compute effect sizes. The formula is as follows:

$$\text{Hedge's g} = \frac{X'_1 - X'_2}{\sqrt{\frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{(n_1 + n_2 - 2)}}}$$

where X'_1 and X'_2 are adjusted posttest means, n_1 and n_2 the sample sizes, and S_1 and S_2 the student-level unadjusted posttest standard deviations for the treatment group and the comparison group, respectively (WWC, 2007).

Standardized mean effect sizes (such as Cohen's d and Hedge's g) are basically z scores (Neill, 2008). These effect sizes indicate the mean difference between two variables expressed in standard deviation units. A score of 0 represents no change, and effect size scores can be negative or positive. The meaning of an effect size varies is dependent on the measurement context, so rules of thumb should be treated cautiously. A well-known guide is offered by Cohen (1988):

.8 = large
.5 = moderate
.2 = small

Appendix J
Students' List of Interested Medical Specializations

Table J1. List of medical specializations participants were considering

	Treatment N=85 (Rank)	Comparison N=99 (Rank)
Pediatrics,	9(1)	17 (1)
Internal Medicine-Pediatricsr		
Pediatrics-neonatology		
General Surgery	9 (1)	6
Internal Medicine	8 (2)	11 (3)
Geriatrics	7 (3)	4
Internal Medicine-Geriatrics		
Psychiatry-Geriatrics		
Neurology or Neurosurgery	6 (4)	3
OB/GYN	6 (4)	2
Emergency Medicine	4	13 (2)
Family Medicine	5	9 (4)
Other medical specializations		
Adolescent Medicine	0	1
Allergy and Immunology	1	0
Anesthesiology	1	5
Cardiology	3	4
Critical Care	0	1
Dermatology	1	2
Ears, Nose and Throat (ENT)	0	1
Endrocrinology	0	1
Infectious Disease	1	1
Medical Genetics	1	0
Oncology	3	4
Ophthalmology	1	4
Orthopedic	3	3
Pathology	1	1
Plastic Surgery	0	1
Primary Care	2	1
Psychiatry	5	0
Psychology	1	0
Pulmonology	1	1
Radiology	4	3
Sports Medicine	1	0
Urology	1	0

Appendix K

Table K1. Likelihood of Pursuing Geriatric Medicine

Treatment		**What is the likelihood of you pursuing geriatric medicine?**	**Comparison**	
Pre n=104	Post n=93		Pre n=92	Post n=80
3 (3%)	3 (3%)	Very Likely	1 (1%)	1 (1%)
27 (26%)	29 (31%)	Likely	9 (10%)	8 (10%)
63 (61%)	56 (60%)	Unlikely	58 (63)	57 (71%)
11 (11%)	5 (5%)	Very Unlikely	24 (26%)	14 (18%)

Table K2. Plan to obtain specialized training in geriatrics at some point in education

Treatment		**I plan to obtain specialized training in geriatrics at some point in my medical education.**	**Comparison**	
Pre n=108	Post n=96		Pre n=92	Post n=80
3 (3%)	6 (6%)	Strongly Agree	0 (0%)	0 (0%)
21 (18%)	25 (26%)	Agree	8 (9%)	13 (16%)
49 (45%)	35 (36%)	Neutral	41 (45%)	24 (30%)
31 (29%)	28 (29%)	Disagree	33 (36%)	41 (51%)
4 (4%)	2 (2%)	Strongly Disagree	10 (11%)	2 (3%)

Table K3. Comfort levels

Pre (n=120)	**How comfortable are you with discussing your health with doctors, nurses or other medical professionals that are younger than you?**	**Post (n=89)**
86 (72%)	Very Comfortable	67 (75%)
12 (10%)	Somewhat Comfortable	6 (7%)
16 (13%)	Comfortable	13 (15%)
4 (3%)	Somewhat Uncomfortable	1 (1%)
2 (2%)	Very uncomfortable	2 (2%)

Appendix L
Changes in Attitude Toward Older Adults As Part of Future Practice

Table L1. Mean difference between pretest and posttest

Outcome Variable	Group	Pre	Post	Difference between Pre and Post (SD)	*t*, *p*
Would like to have a large number of aged patients (65+) in future practice	Treatment n=92	3.33	3.46	**.13** (.63)	t=1.98 ***p*=.0510**
	Comparison n=75	2.98	3.04	.06 (.69)	t=.66 *p*=.50
Expect aged patients (65+) to comprise a large part of future practice	Treatment n=92	3.48	3.58	.10 (.81)	t=1.15 *p*=.25
	Comparison n=76	3.25	3.43	**.18** (.85)	t=1.87 ***p*=.0656**
Competency and Understanding					
I believe I will be competent in working with aged patients (65+)	Treatment n=92	4.09	4.21	**.11** (.51)	t=2.25 ***p*=.0270**
	Comparison n=76	3.92	3.92	0 (.61)	t=0.00 *p*=1.000
I believe that I will understand the medical needs of aged people (65+) better than those of younger people	Treatment n=92	2.63	2.71	.08 (.75)	t=1.11 *p*=.2696
	Comparison n=76	2.55	2.52	-.03 (.71)	t=-0.32 *p*=.7480
Difficulty in Talking and Working with Older Adults					
Aged people (65 and older) are difficult to talk to (5=Strongly Disagree)	Treatment n=92	4.08	4.27	**.19** (.70)	t=2.50 ***p*=.0143**
	Comparison n=76	3.69	3.85	.16 (.84)	t=1.62 *p*=.1093
Aged people (65 and older) are generally more difficult to work with than younger people (5=Strongly disagree)	Treatment n=92	3.58	3.85	**.27** (.86)	t=3.01 ***p*=.0034**
	Comparison n=76	3.22	3.42	**.20** (.19)	t=2.35 ***p*=.0211**
Exciting and Interesting Patients					
I believe working with aged patients (65+) will be less exciting than working with younger patients (5=Strongly disagree)	Treatment n=92	3.79	3.86	.07 (.86)	t=.84 *p*=.4024
	Comparison n=76	3.39	3.40	.01 (.77)	t=.15 *p*=.8827
Aged people (65+) make more interesting patients than do younger people	Treatment n=92	3.13	2.98	-.15 (.83)	t=-1.63 *p*=.1072
	Comparison n=76	2.89	3.05	**.16** (.78)	t=1.76 ***p*=.0832**

Numbers in parentheses are standard deviations