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When I'm 64: Effects of an Interdisciplinary Gerontology Course on First-Year Undergraduates' Perceptions of Aging

C. Caroline Merz, M.A., Susan Stark, Ph.D., Nancy Morrow-Howell, Ph.D., and Brian Carpenter, Ph.D.

Abstract

One challenge for gerontology is getting more students interested in aging at an earlier point in their academic career. This study evaluated the impact of an interdisciplinary course on aging designed for first-year undergraduate students. The course aimed to expand students' appreciation of the personal and professional relevance of aging issues, with the goal of expanding their aging-related curricular and career interests. Main outcome variables of the study included knowledge of older adults and aging, attitudes toward older adults, and anxiety about personal aging. Participants included an intervention group enrolled in the course and a control group not enrolled in the course. Compared to baseline, at the end of the semester students in the class had more knowledge about aging and more positive explicit attitudes toward older adults, but their implicit attitudes toward older adults and anxiety about aging did not change. Control students showed no changes. These findings suggest that objective knowledge of aging and explicit attitudes improve with curricular intervention, but implicit attitudes and anxiety might be more difficult to change. Gerontology education is a complex undertaking whose diverse goals must be clearly articulated in order to guide curricular interventions and incite curiosity among young undergraduate students.

Keywords

gerontology; older adults; aging; interdisciplinary; undergraduate education; attitudes

The booming population of older adults in America will require an increasing number of individuals in aging-related careers and professionals who are knowledgeable about aging issues. Even individuals who do not work directly with older adults can benefit from increased knowledge of the aging process, as aging will affect their family and friends and, of course, themselves. There are, however, several challenges to recruiting individuals to work in aging-related fields and generating interest in aging. Negative attitudes toward older adults, insufficient knowledge about aging, and fear of personal aging may be critical barriers, as discussed below.

Negative attitudes toward older adults and aging are pervasive in American society. Preferences favoring youth over age are displayed by younger adults and older adults alike (Gonsalkorale, Sherman, & Klauer, 2013). Part of the reason for this bias may be that knowledge about aging is low, and widespread misperceptions about older adults exist (Cowan, Fitzpatrick, Roberts, & While, 2004). As a consequence, individuals express anxiety about their own personal aging, fearing the worst and overlooking the opportunities and benefits of advancing age. Indeed, among college students, anxiety about aging appears

to mediate the relationship between knowledge of aging and attitudes toward older adults, such that the association between low knowledge and ageist attitudes is partially explained by elevated anxiety about personal aging (Allan & Johnson, 2008). These well-documented phenomena (i.e., negative attitudes, low knowledge, aging anxiety) likely contribute to the insufficient number of students who are interested in careers in aging.

Education has been proposed as one strategy to generate more interest in aging (Anderson, 1999). Curricular intervention studies typically employ pre/post-test designs to examine the effects of instruction in gerontology. Across these studies, knowledge of aging tends to increase, whereas changes in attitudes are less consistent. In some studies attitudes improve (Angiullo, Whitbourne, & Powers, 1996), in others there is no change (Knapp & Stubblefield, 2000), and one study found attitudes toward older adults actually became more negative (Knapp & Stubblefield, 1998). One study on anxiety about aging found no difference between curricular intervention and control participants at the end of the semester (Harris & Dollinger, 2001).

Previous curricular intervention studies have focused on upper-level courses, mostly within departments of psychology (e.g., Angiullo, Whitbourne, & Powers, 1996; Harris & Dollinger, 2001; Knapp & Stubblefield, 2000). These upper-level classes are often filled with juniors and seniors, who have already declared a major and may already have begun a career path. By contrast, a course designed for first-year students might engage them earlier in their academic careers and have more opportunity to influence the trajectory of their subsequent course choices. Moreover, being confined to one department, courses may miss opportunities to address the inherent interdisciplinarity of gerontology and attract students with various curricular and career interests. A course on aging that introduces students to the wide range of disciplines and applications of gerontology may invite to the field students who have interests in healthcare, public health, architecture, public policy, law, business, and the arts. The current study sought to address such issues.

The curricular intervention evaluated in the current study was a semester-long elective course offered solely to first-year undergraduate students. The course adopted an explicitly interdisciplinary approach to aging and was co-taught by three professors from departments of psychology, social work, and occupational therapy. The course, “When I’m Sixty-Four: Transforming Your Future,” was advertised to first-year students before they arrived on campus and listed in the online course catalog amidst other interdisciplinary course offerings. The class met weekly for two-hour lectures that covered broad content on aging, much like a traditional social gerontology course, adopting a biopsychosocial framework. Guest lecturers appeared throughout the semester, representing medicine, public health, law, public policy, architecture, nursing, and business. The primary instructors represented their respective disciplines and also took efforts to synthesize and bridge topics from week to week. In addition to the weekly lecture, students were divided into small groups of 7-15 students for 1-hour weekly discussions facilitated by another faculty member and graduate student. Each group was co-facilitated by a different faculty member and a graduate student pair, none of whom participated in the weekly lectures. The discussion facilitators themselves came from various departments across the university, including anthropology, business, social work, art, occupational therapy, psychology, and law. In these meetings,

facilitators explored topics in greater detail and conducted active learning exercises. Throughout the semester, course content emphasized both personal and professional implications of the material.

Students had weekly reading assignments, in-class quizzes, and were required to complete two self-directed learning assignments of their choice that exposed them to additional aging-related content (e.g., watching a feature film, attending a relevant event on campus, completing an advance directive, interviewing an older relative). Students wrote a 1-2 page reflection for each self-directed learning assignment. Small groups of 3-5 students also participated in a mandatory community project in which they visited a local organization or business and evaluated its “age-readiness.” Each group produced a written report of their evaluation and a poster that was presented to the class at the end of the semester.

In this report we describe the impact of the course on students’ knowledge of aging, attitudes toward older adults, and anxiety about their own personal aging. In addition, we investigated changes in student opinions about the influence of older adults and aging on their future undergraduate coursework, extracurricular activities, graduate education, and career.

Method

Participants

A total of 109 first-year undergraduate students at a private, four-year, Midwestern university were enrolled in the study at the beginning of the fall 2014 semester. Approximately half of the students ($n = 51$) were enrolled in the elective interdisciplinary gerontology course described above. The remaining participants ($n = 58$) were recruited from a randomly generated list of first-year undergraduate students not enrolled in the course. There were no other inclusion or exclusion criteria. Seventy-two percent completed data collection at both the beginning and end of the semester. The final sample included 78 students (34 curricular intervention students; 44 control students). There were no significant differences between students who completed data collection at both time points and students who only completed data collection at the beginning of the semester on demographic variables: age, $t(107) = 0.20$, $p = 0.84$, gender, $\chi^2(2) = 2.62$, $p = 0.27$, and race/ethnicity, $\chi^2(5) = 7.84$, $p = 0.17$.

Measures

Demographic characteristics—Demographic information collected for each student included age, gender, and race/ethnicity.

Experience with older adults—At baseline, prior experience with older adults was assessed with four questions. Closeness to grandparents was rated on a 6-point Likert-type scale from 0 (*not at all close*) to 5 (*very close*). Time spent volunteering with older adults and time spent volunteering in a nursing home were rated on a 6-point Likert-type scale from 0 (*no time*) to 5 (*a lot of time*). Self-described level of experience with older adults was rated on a 6-point Likert-type scale from 0 (*no experience*) to 5 (*a lot of experience*). These four variables were combined to create an average composite variable (Cronbach’s $\alpha =$

0.68), with higher scores indicating more self-reported experience with older adults. The internal consistency for this composite variable was acceptable.

Knowledge of aging—Knowledge of aging was measured using an updated and modified version of Palmore’s Facts on Aging Quiz (FAQ; Palmore, 1977; Seufert & Carrozza, 2002). This measure consists of 25 True/False/Don’t Know factual questions about the aging process and older adults. Scores could range from 0 – 25, with higher scores indicating more knowledge about aging. In the current sample, Cronbach’s α was 0.53 (poor) at baseline and 0.76 (acceptable) at the end of the semester. Knowledge was also assessed using 10 multiple-choice questions taken from in-class quizzes given to students in the interdisciplinary gerontology course throughout the semester. Students in the course took 10 quizzes, with five questions each, generated by the course instructors based on lectures and reading assignments. The 10 items used for the research study were randomly selected from this pool of 50 items. Scores could range from 0 – 10, with higher scores indicating better knowledge of course content.

Attitudes toward aging—*Implicit attitudes* toward older adults were measured using the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). The IAT is a widely used measure of implicit attitudes to test bias toward social groups. In this study we used the “age” version of the IAT. At a computer, students sorted visual stimuli (i.e., faces of older adults and younger adults) and text stimuli (i.e., positive and negative words) into categories of “good” and “bad.” Differences in speed of responding between trials of attitude-congruent associations (i.e., young faces with good words, old faces with bad words) and trials of attitude-incongruent associations (i.e., old faces with good words, young faces with bad words) are interpreted as the strength of automatic associations a person has formed between age groups and valenced words.

The IAT for this study was programmed in PsychoPy software (Peirce, 2007) and used standardized stimulus materials for age taken from the www.projectimplicit.net website. The order in which attitude-congruent vs. attitude-incongruent sorting categories were presented was counterbalanced across participants. This order was kept consistent within each participant from the beginning to the end of the semester. Reaction times were scored using the algorithm described by Greenwald, Nosek, & Banaji (2003) to produce a single *D* variable for each student at each administration. This variable represents a standardized difference score comparing reaction times between the attitude-congruent and attitude-incongruent sorting tasks. Positive *D* values indicate a bias against older adults compared to younger adults (with higher values indicating stronger bias), *D* values of 0 indicate equivalent attitudes toward older and younger adults, and negative *D* values indicate more positive attitudes toward older adults relative to younger adults (with more negative values indicating a bias in favor of older adults).

Explicit attitudes toward older adults were measured using the Polizzi Attitudes Toward the Elderly Scale (PATES; Polizzi, 2003), a revised and shortened version of the Aging Semantic Differential (ASD; Rosencranz & McNevin, 1969). Participants are given a list of 24 opposite adjective pairs on a 7-point Likert-type scale. Positively valenced items (e.g., “cheerful”) laid on the side of scale closest to 1, the corresponding negatively valenced items

(e.g., “crabby”) laid closest to 7, and 4 lies in the middle to indicate neutral. Participants mark the point on the scale they think best describes different characteristics of older adults. Total scores are calculated by averaging ratings across the 24 items and can range from 1 – 7, with higher numbers reflecting more negative views of older adults. Cronbach’s α on the PATES was 0.92 (excellent) at baseline and 0.94 (excellent) at the end of the semester in the current sample.

Anxiety about aging—Anxiety about aging was assessed using the Anxiety about Aging Scale (AAS; Lasher & Faulkender, 1993). Participants rated the extent to which they agreed or disagreed with 20 statements about aging (e.g., “I fear it will be hard for me to find contentment in old age,” “The older I become, the more I worry about my health”). Items were rated on a 4-point Likert-type scale, from 1 (*strongly disagree*) to 4 (*strongly agree*). An average across the 20 statements was calculated and can range from 1 – 4, with higher scores reflecting more anxiety about growing old. In the current sample, Cronbach’s α for the AAS total score was 0.83 (good) at baseline and 0.83 (good) at the end of the semester.

Influence of aging—Participants were asked four questions on how much of an influence “older adults and aging” will have on different aspects of their lives: 1) the courses they subsequently take in college, 2) the extracurricular activities they pursue, 3) the topic of any graduate education they plan to pursue, and 4) the focus of their future careers. All items were rated on a scale from 0 (*no influence*) to 5 (*strong influence*).

Procedure

All study procedures were approved by the Human Research Protection Office of the university. Students were invited to participate in the study via e-mail from the principal investigator at the beginning of the semester, before classes began. The instructors for the course had no contact with students regarding the research and were unaware which students were participating. E-mail addresses for the students in the course were acquired from course instructors; e-mail addresses for the students not in the course were acquired from a university Dean, who provided a randomly generated list of 600 first-year students not in the course. The e-mail contained a link to a consent form and online survey that contained the assessment instruments described above, with the exception of the IAT. Once students completed the online survey, they were contacted by the principal investigator via e-mail to schedule an appointment to complete the IAT in person on a computer in the psychology department. Parental consent was obtained for six students who were 17 years old at the start of the study. Data were collected at the beginning of the semester and at the end of the semester. At both time points, participants were entered into a drawing to have \$100 credited to their student account.

Data Analysis

All data analyses were conducted in SPSS (SPSS, Version 21). Descriptive statistics were calculated to examine distributions for missing data and outliers. A series of 2×2 (Group [class, control] $\times$ Time [beginning of the semester, end of the semester]) repeated-measures analysis of variance (ANOVA) were conducted to examine group differences on the outcome measures. Knowledge based on course quiz content (only available at the end of the

semester) was analyzed with an independent samples *t*-test comparing the class and control groups.

Results

Baseline participant characteristics (age, gender, race/ethnicity, experience with older adults) are presented in Table 1. There were no significant differences between the class and control groups on age, $t(76) = 1.39, p = 0.17$, gender, $\chi^2(1) = 0.14, p = 0.71$, race/ethnicity, $\chi^2(3) = 7.08, p = 0.07$, or experience with older adults, $t(76) = 0.18, p = 0.86$. Means, standard deviations, and ranges of main outcome measures are presented in Table 2.

Knowledge of Aging

Examining changes on the Facts on Aging Quiz, there was a significant Group X Time interaction, $F(1,76) = 17.06, p < .001, \eta_p^2 = 0.18$, a small effect. Scores for control students did not change from the beginning of the semester to the end of the semester, whereas scores for students in the course increased significantly (see Figure 1). At baseline, there was no difference on this measure between students in the course ($M = 14.32, SD = 2.74$) and control students ($M = 13.66, SD = 2.89$), $t(76) = 1.03, p = 0.31$. On the second measure of knowledge, a collection of quiz questions taken from course content, students enrolled in the class had significantly higher scores than control students at the end of the semester, $t(73) = 10.87, p < .001$, Cohen's $d = 2.55$, a large effect.

Attitudes Toward Aging

There was no significant interaction and no significant main effects on the Implicit Association Test. Students in both groups had negative implicit attitudes toward older adults relative to younger adults, at both baseline and at the end of the semester.

Looking at explicit attitudes on the Polizzi Attitudes Toward the Elderly Scale (PATES), students in both groups reported slightly positive attitudes toward older adults, at both baseline and at the end of the semester. There was a significant Group X Time interaction, $F(1,74) = 7.30, p < .01, \eta_p^2 = 0.09$. While attitudes toward older adults among the control students remained stable throughout the semester, course students showed a small but statistically significant increase in positive attitudes (see Figure 1). This interaction is a small effect and reflects, on average, a 0.35 point improvement on a 7-point scale among students in the course.

Anxiety About Aging

Anxiety about aging was moderate in both groups at baseline and at the end of the semester (grand $M = 2.27, SD = 0.32$, on a 4-point scale), and there was no significant interaction and no significant main effects for the AAS. Total scores on the AAS were similar for control students and students in the course, and scores remained stable over time for both groups.

Influence of Aging

No multivariate effects were found for the items related to the influence of "older adults and aging" on students' future actions. For influence on subsequent undergraduate courses,

however, there was a significant main effect of Group, $F(1,76) = 7.96, p < .01, \eta_p^2 = 0.10$ (a small effect), such that students in the class reported that “older adults and aging” would have a higher influence on the courses they would take than control students. The same main effect of Group emerged for influence on extracurricular activities, $F(1,73) = 4.01, p < .05, \eta_p^2 = 0.05$ (a small effect); students in the class reported more likely influence on their extracurricular activities than control students. There were no significant effects for future graduate education or career.

Discussion

This study examined the effects of an interdisciplinary gerontology course on knowledge, attitudes, and anxiety about aging in first-year undergraduate students. The course included several features designed to reduce negative stereotypes about older adults and generate interest in future curricular and extracurricular activities related to aging. Findings from the current study suggest that while knowledge of aging and explicit attitudes toward older adults improved among students in the course, implicit attitudes toward aging and anxiety about aging were resistant to change. Courses in gerontology may achieve some desirable outcomes among students with some level of interest in older adults and aging, but shifting attitudes and intentions may require a more nuanced, focused approach.

One of the goals of any course about aging is to dispel myths about older adults so students have a realistic understanding of what it means to grow old. In this course, students began the semester with moderate knowledge about aging, and by the end of the semester they had gained an increased awareness of the aging process and some of the challenges and opportunities posed by growing older. Other curricular interventions with college students have shown a similar increase in knowledge (e.g., Angiullo et al., 1996; Cottle & Glover, 2007; Knapp & Stubblefield, 1998, 2000).

Attitudes toward older adults and aging are another important target of curricular interventions. Bias against older adults can contribute to discrimination and ageism, as well as discourage individuals from wanting to work with older adults as part of their career. Results from the current study demonstrate improvement in *explicit* attitudes toward older adults. On average, students in the course reported positive explicit attitudes about older adults at the beginning of the semester, and their attitudes became slightly more positive by the end of the semester (whereas control students showed similar levels of positive explicit attitudes at the beginning of the semester and no significant change by the end of the semester). With respect to the inconsistency of previous study results on attitude change, the results from the current study provide evidence that explicit attitudes *can* improve as the result of curricular intervention, though the effect is small. Demand characteristics may account for this result, as students in the class might have presented themselves as having more favorable attitudes about older adults.

Indeed, students showed a bias against older adults in their *implicit* attitudes, and that bias remained even for students who completed the course. These implicit negative attitudes may be damaging because, like explicit negative attitudes, they are associated with prejudice and discrimination (Greenwald, Andrew, Uhlmann, & Banaji, 2009), and they may be even more

subversive than explicit negative attitudes because they operate outside of a person's awareness (Dovidio, Kawakami, Smoak, & Gaertner, 2009). Implicit attitudes may also be more difficult to change. In fact, reflecting on our course, it is possible that we confirmed students' negative perceptions. While the course did cover positive aspects of aging, such as productive engagement and psychological growth, it also addressed challenges such as chronic illness and financial stresses. Although our goal was to provide a balanced presentation of positive *and* negative facets of aging, students might have focused on information that reinforced the negative beliefs they originally brought to the class. To us this seems like one of the most critical challenges in gerontology education – how to be comprehensive and honest about aging while not “scaring off” potential recruits to the field – and an important focus in future curricular development and evaluation.

One positive outcome is that anxiety about aging was relatively low in both groups of students and did not change over the course of the semester. Katz (1990) proposed that attitudes toward one's own aging may be related to stable personality traits, such as neuroticism, and therefore less likely to change, even with intervention. It also may be that traditional college students are simply too young to be worried about their own aging. Indeed, mean anxiety levels in the current sample are relatively low, comparable to those found in similarly aged samples of both American and German college students (McConatha et al., 2003).

Compared to students not in this class, students in the class reported that issues of aging were more likely to influence their subsequent college courses and extracurricular activities at both time points, perhaps reflecting interests that propelled them to sign up for the class in the first place. So, while the course did not increase how students thought about the influence of aging, neither did it diminish their perception of aging's influence. But again, this self-report measure could be influenced by demand characteristics. We are following students longitudinally to observe whether students in the class make different, aging-related curricular and extracurricular choices in their subsequent years.

As in many studies of academic courses, one limitation of the current research is that statistical analyses are underpowered due to our relatively small sample size. Enrollment was limited by the size of the course ($n = 51$) and further reduced due to attrition. Several of our results approached significance, and as the course runs again we plan to collect additional data. Another potential limitation of the current study is the low Cronbach's alpha of our primary measure of knowledge: the FAQ. As Palmore (1981), the scale's author, noted, because the FAQ is designed to measure knowledge of discrete facts, it might be reasonable to expect lower internal consistency. Other studies that use the FAQ report similarly low Cronbach's alpha scores, and despite this low internal consistency we found the statistically significant interaction that we predicted.

There is also some evidence that students in the course might have been self-selecting into the course, perhaps influencing group differences. Random assignment is typically not possible in curricular interventions, but it may be possible to assign students randomly within a class to particular features, or between gerontology courses with different formats or features, to pinpoint the effectiveness of specific pedagogical approaches. Indeed, in the

case of our course it is unclear whether our results are due to the course content, instructor style, or course structure, since all of these differed between the curricular intervention group and control group.

If one goal within gerontology education at the undergraduate level is to promote interest in careers in aging, it would be important to know what characteristics of students best predict that interest. It is possible that the variables we examined (knowledge, attitudes, and anxiety) do not have a major impact on interest in aging careers, and future studies could include additional variables such as expected salary, perceptions of job security, and opportunities for entrepreneurship. Once researchers have identified predictors of educational and career choices, those variables can be the subject of intervention themselves.

A larger issue facing gerontology is defining the purpose of our courses, which can then inform the pedagogical methods used. Traditional learning objectives are relatively straightforward to evaluate: did students learn essential course content, did they gain the competencies expected, etc. (See the newly developed AGHE (2014) competencies for one framework for undergraduate education.) But there is also a set of higher order goals that gerontology instructors have. For instance, in the current course we sought to reduce negative bias toward older adults and to encourage students to pursue aging-related careers. These are not learning objectives per se, but they are goals of the course that emerge from a particular professional (and perhaps personal) stance and can be submitted to evaluation of their own. Yet they can only be evaluated if instructors are explicit about their goals. A one-semester course on aging geared toward first-year students is effective at promoting some changes in knowledge and attitudes, but it may not be sufficient to alter the trajectory of students' education and careers. If we hope to address the upcoming workforce shortage *and* reduce negative attitudes about older adults, future longitudinal research on effective curricular interventions is needed.

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Figure 1.

Change in total scores on the Facts on Aging Quiz (FAQ) and Polizzi Attitudes Toward the Elderly Scale (PATES) for class students and control students, from the beginning to end of the semester. Error bars represent standard error.

Table 1
Participant Characteristics

Measure	Curricular Intervention Group (<i>n</i> = 34)				Control Group (<i>n</i> = 44)			
	<i>M</i>	<i>SD</i>	<i>n</i>	%	<i>M</i>	<i>SD</i>	<i>n</i>	%
Age	18.0	0.46	-	-	18.1	0.44	-	-
Gender (female)	-	-	20	58.82	-	-	24	54.55
Race/Ethnicity								
Asian	-	-	9	26.47	-	-	14	31.82
Black	-	-	1	2.94	-	-	0	0
Hispanic	-	-	3	8.80	-	-	0	0
White	-	-	20	58.82	-	-	30	68.18
Missing	-	-	1	2.94	-	-	0	0
Experience with older adults	12.53	3.73	-	-	-	-	12.36	4.31

Table 2

Descriptive Statistics for Outcome Measures

Measure	Curricular Intervention Group (<i>n</i> = 34)				Control Group (<i>n</i> = 44)			
	Time 1		Time 2		Time 1		Time 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Facts on Aging Quiz ^{a, b, c}	14.32	2.74	17.59	2.82	13.66	2.89	13.66	4.06
Course Content Items ^a	–	–	8.06	1.24	–	–	4.09	1.93
Implicit Association Test	0.38	0.39	0.49	0.47	0.47	0.40	0.45	0.31
Polizzi Attitudes Toward the Elderly Scale ^c	3.21	0.60	2.86	0.76	3.03	0.65	3.10	0.75
Anxiety about Aging Scale	2.34	0.34	2.29	0.31	2.22	0.33	2.25	0.36
Influence of Aging on...								
Coursework ^a	2.03	1.28	2.35	1.45	1.48	1.52	1.32	1.25
Extracurriculars ^a	1.87	1.06	1.74	1.15	1.43	1.34	1.23	1.10
Graduate education	2.26	1.39	2.06	1.41	1.77	1.51	1.57	1.35
Career	2.55	1.50	2.42	1.40	2.18	1.57	1.86	1.41

Note.

^a main effect of group at $p < .05$;

^b main effect of time at $p < .001$;

^c interaction between group and time at $p < .01$.