Too little, too late?: Can an integrated empathy-building intervention shift gero-attitudes for undergraduates in an online course?

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Abstract:

By 2050, 22.1% of the United States population will be 65 years or older, increasing the demand for well-trained, enthusiastic professionals to serve them. At the same time, later life is frequently pathologized, and there continues to be a preference for youth by those who are yet to be old as well as older adults themselves. The growing divide between this expanding cohort and gero-focused professionals is exacerbated by the under-emphasis on gerontology in undergraduate higher education and the substantial shift toward online instruction and larger class sizes in the U.S. In this quasi-experimental study, researchers examined whether a gerontology-focused empathy-building intervention (EBI) in 2 semesters of an online undergraduate course on aging changed students' attitudes toward older adults, aging anxiety, and interest in gero-focused careers, compared with 2 control semesters taught without the EBI. Statistical results showed that neither the EBI nor course completion without the EBI significantly shifted students' gero-attitudes and interest, suggesting the necessity of earlier and varied interventions to combat negative stereotypes about aging. Qualitative results provided some indication of the possible impact of the EBI. We describe study design, implementation, challenges, and areas for future intervention and study.

Keywords: ageism | gerontology | aging anxiety | empathy | higher education | online learning

Article:

Introduction

The 77 million "Baby Boomers" born in the United States between 1946 and 1964 form part of a demographic and cultural shift making the U.S. more racially, ethnically, and chronologically diverse (Colby & Ortman, 2015). Although chronological age does not reliably indicate health or well-being, advanced age is frequently accompanied by reduced physiological function and

resilience; cognitive changes including slowed processing speed and increased likelihood of dementia; and major life transitions, including retirement and widowhood (Bailey, 2018).

Adults in later life may benefit from the services of culturally competent, well-trained professionals in the helping and human services fields. Yet, a lack of interest in working with this population has been reported for nurses, public health, social work, and medical and allied health students (Chonody & Wang, 2014; Lin, Bryant, & Boldero, 2011; Sudha & Morrison, 2016). Over half of geriatric medicine and psychiatry fellowships go unfilled each year (Bartels & Naslund, 2013), and only 1.2% of psychologists reported a geropsychology specialty (Moye et al., 2019). In 2012, the Institute of Medicine predicted that training enough geriatric specialists to meet the growing need is not possible. Ageism is described as widespread at the individual and institutional level in the helping professions, to the detriment of clients, workers, and the fields (Nelson, 2017).

The challenges of educating and enhancing students' and rising professionals' gero-interest have been exacerbated in the increased shift to online education in many disciplines in U.S. universities (Seirup, Tirotta, & Blue, 2016), accelerated during the COVID-19 pandemic (Schroeder, 2020). Effects on student gero-attitudes is yet unknown, but with some labeling the pandemic "#BoomerRemover" (McDonnell, 2020), negative perceptions of later life could be sustained. In this paper, we present a quasi-experimental study assessing the impact of an integrated EBI on ageism, aging anxiety, and gero-interest among undergraduate students in an online aging class. Following a review of the literature, study design, quantitative and qualitative results, discussion, and areas for future research are presented.

Literature review

"Gero-disinterest" among college students and rising professionals is reinforced by systemic pathologizing of older adulthood (Bailey, 2018) and ambivalence of faculty toward gerontological coursework (Nelson, 2017). Negative attitudes about later life expressed by faculty in self-disparaging ageist comments (e.g., a professor claims a "senior moment") may negatively impact students' beliefs about and self-perceptions of aging. Limited gerontology course options reduce academic opportunities to explore issues of later life. This "othering" of gerontology, coupled with fear of becoming older and associated changes in ability and social standing along with anxiety about one's own mortality, may contribute to ageist beliefs across the lifespan (Bodner & Cohen-Fridel, 2014). Developing awareness of ageist attitudes is critical in acknowledging one's biases and exerting control over what may become an automatic response to older people (Bargh, Chen, & Burrows, 1996). Such awareness can serve as an exercise in primary prevention for those who will one day be old, as internalized ageism can have devastating effects on the mental and physical health of older adults (Nelson, 2017). It may also help mitigate the dire crisis of care predicted by the Institute of Medicine (2012).

Despite attention given to multicultural competence in higher education, in the International Journal of Multicultural Education's 20th anniversary issue, the list of diversity issues did not include age (Chang, Pak, & Sleeter, 2018). Although some have recognized age as a component of multicultural diversity (American Counseling Association, 2014; Bailey, 2018; Substance Abuse and Mental Health Services Administration, 2014), there is inconsistent focus on age in

competencies, best practice guidelines, and ethical codes across helping professions (Bailey, 2018). The deleterious effects of ageism (e.g., age discrimination, elder abuse) represent a pressing social justice issue (Nelson, 2017), but such concerns of later life are frequently overlooked.

Higher education trends are toward increased online instruction with larger class sizes in the U.S. in all fields (Seirup et al., 2016; Taft, Perkowski, & Martin, 2011). Undergraduate enrollment in online education increased 10.4% from 2016–2018 (Lederman, 2019), and the COVID-19 pandemic drastically accelerated educators' adoption of online learning in 2020 (Schroeder, 2020), a trend that may continue. The challenges of connection and engagement between students and course content, with instructors, and with one another are highlighted in a virtual classroom (Paulsen & McCormick, 2020). These trends pose additional challenges for effectively engaging students in gero-focused education.

To support development of cultural competence, a spirit of social justice, and empathetic awareness toward individuals whom students will one day serve, crafting a pedagogy that supports transformative introspection along with mastery of course content represents a unique challenge. Service learning, synchronous student engagement, and creative expression (Bossaller, 2016; Sharp & Morris, 2014) are demonstrated to support such student development. To bolster empathy development, educators can challenge students' existing perspectives by introducing a disorienting dilemma (Mezirow, 1991), drawing students to critical self-reflection and heightened awareness of inconsistencies in their own beliefs. Though impossible to mandate introspection in face-to-face or online learning classrooms, educators can support the critical self-reflection required for transformative learning by providing students opportunities to question existing assumptions (e.g., attitudes about aging) through activities such as reflective writing and group discourse (Bailey, 2018). In the online classroom, integrating reflective writing assignments is a simple way to encourage such introspection.

Such transformative learning (Mezirow, 1991) necessitates developing impactful online educational practices to improve student interest in and attitudes toward serving the needs of older adults. Currently, with regard to online learning in general, there is a notable dearth of research on improving student gero-interest and gero-attitudes. With the increase of online learning in U.S. higher education, there is an urgent need for online educators across various disciplines to enhance rising professionals' interest in serving the growing senior population with enthusiasm and cultural competence. Our study addressed this gap.

This project examined the impact of a novel empathy-building intervention on gero-attitudes, aging anxiety, and gero-interest. We examined three research questions. Do students who participate in the EBI indicate more positive gero-attitudes (RQ1); reduced aging anxiety (RQ2); and greater gero-interest (RQ3) compared to pre-intervention scores and compared to students in the control semesters? We hypothesized that gero-attitudes (H1), aging anxiety (H2), and gero-interest (H3) would be improved in the intervention groups compared to pre-intervention scores and compared to control semesters.

Methods

The intervention

The EBI used in this study was modified from Bailey's (2018) three-part transformative learning intervention, "The Game of *I am*." The original EBI included a facilitated face-to-face role-play game and follow-up debrief bracketed by pre- and post-game written reflections. In Bailey's study, self-reported empathy measured by the Toronto Empathy Questionnaire (Spreng, McKinnon, Mar, & Levine, 2009) and attitudes toward older adults measured by the Fraboni Scale of Ageism (Fraboni, Saltstone, & Hughes, 1990) were statistically improved from pre- to post assessments among master's level students. Increases in self-reported likelihood of working with older adults measured by Bailey's gero-interest scale were not statistically significant.

For the current study with four large asynchronous online undergraduate classes, only the two reflective writing components of Bailey's (2018) intervention were integrated into usual coursework. Early in the semester, students were instructed to write a first-person 500-word, response to the prompt:

> Today is your 75th birthday. Please describe all of the following about your lifestyle: work and/or volunteer activities; family, friends, and others close to you; your health; what you do for fun; your financial situation; and your perspectives about life as you grow older.

Students were instructed to upload an image related to their reflection. This assignment was designed to present students a disorienting dilemma (Mezirow, 1991) as they took the perspective of themselves as older. Second, near semester's end, students were instructed to write a first-person 500-word response to the prompt:

> Please imagine yourself in the following scenario: You are currently working with a 91-year-old client who has come to you for assistance. Please answer the following questions: How would you work with this client? Please describe how it might be different than working with a client who was younger. What things would be important for you to consider when helping this client? Finally, how would you feel about working with a client this age? Describe your comfort level, your knowledge about older adults, and anything that might pose a challenge to you in your work with an older client. Also describe anything that may help you to work effectively with this client.

This assignment was designed to encourage further critical self-awareness from the perspective of self as a professional engaged in a helping profession or human services field. The term "client" reflects the standard language describing those receiving services in the professional counseling and social work fields (American Counseling Association, 2014; National Association of Social Workers, 2017).

Participants

After securing institutional IRB approval (#17-0313), over four semesters from the fall of 2017 through the spring of 2019, a convenience sample was recruited from undergraduates enrolled in a sophomore/junior level course, "Aging and Adult Development," (AAD). This is an

asynchronous online course taught each semester by one of the researchers at a large public university in the Southeastern U.S. that is Federally designated as Minority-serving. Part of the required curriculum for Human Development and Family Studies (HDFS) majors at the university, AAD is taken as a minor course by other students. Enrollment is 90–100 students each semester. This large online course is designed and taught by an instructor with research and teaching expertise in gerontology to fulfill the curriculum requirements of the major. It is typically taught by the single instructor without support from teaching assistants.

In keeping with prior semesters, during the four semesters of this study, students were assigned a required gerontology textbook, supplemented by additional resources (e.g., newspaper articles, media clips). Students were exposed to basic facts, trends, and theories relating to aging, including the definition and examples of ageism; demographic changes; biological, psychological, social, and economic aspects; family and caregiving; policy issues; and socioeconomic, gender, and race/ethnic disparities. Because of the large class size with a single instructor, the assessment structure aimed to balance assignments providing detailed and individualized instructor feedback, with others where feedback was automated. The assignments aimed to increase grasp of class materials as well as to promote engagement with and application of the concepts. Short quizzes with automatic grading and brief individual and collaborative written assignments with individual feedback tested grasp of class materials. Experiential assignments to promote deeper engagement and application were longer and received more detailed individual feedback. These experiential elements included students taking the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998) for age bias; students interviewing people of different age groups including older adults, younger adults, and teens about technology use; and students writing and reflecting on their experiences.

The topic of technology use among different age groups was selected for an experiential assignment because although older age groups are accessing and using technology at a faster rate, there is still variation by socioeconomic and other demographic factors (Anderson & Perrin, 2017), and a popular stereotype exists that older age is a barrier to learning or applying technology skills (Brown & Strommen, 2018). Thus, an opportunity for conversation with persons of different age groups about technology access and use is potentially a valuable learning exposure for students that may illustrate access, barriers, and use of technology among older adults. Students selected participants of their choice in the following age groups: (i) one person aged 13–18; (ii) themselves; and (iii) an older adult aged 60 years and above. Students read fact-based reports on the subject (e.g. Anderson & Perrin, 2017); were given an interview question guide to ascertain demographic and socioeconomic characteristics of the interviewee, their ownership and use patterns of different devices (e.g. smartphone, laptop, e-reader); and were instructed to ask open-ended questions on participants' access, experience, and opinions about technology and the internet. Students then wrote a 600-word paper on their findings and reflections. Across the four study semesters, the readings and assignment structure remained the same to minimize variability.

The course design incorporates recommended practices of online pedagogy in key categories identified with good online education, including effective course design, active engagement and interaction, and learner support (Smidt, Li, Bunk, Kochem, & McAndrew, 2017). In keeping with these course design practices, during the four study semesters, students received a clearly

organized layout with materials and assignments in weekly folders so that they could find all they needed with minimum "clicks." Requirements and expectations were explicitly communicated in the posted syllabus. The instructor maintained a "presence" through a short personal video and weekly e-mails to the class including general feedback and reminders of upcoming deadlines. Students needing additional support were individually contacted. Student collaborations promoted interpersonal engagement. Course content was a mix of academic and applied (e.g. news articles, short videos) materials. As in previous semesters, during the four semesters of this study, the course received favorable student evaluations. Periodic peer reviews from colleagues with expertise in the content area and in online teaching and learning were also positive.

A total of 197 students completed all survey materials (51.7% total response rate). Second wave non-response rates ranged from a low of 12.5% in Fall 2017 (control) to a high of 18% in Spring 2019 (control). Participants' racial/ethnic profiles were in line with the university's Federal designation as a Minority-Serving Institution (Table 1). Students who select the HDFS major are overwhelmingly female, reflected in participants' gender profiles. Over 84% reported receiving financial aid, included as a measure of students' socioeconomic status. Less than one-fifth had prior coursework or paid work with older adults, though about one-third had volunteer experience. About 24% were helping to care for an older adult who did not live with them, and about 6% were living with and caring for an older person.

Table 1. Demographic characteristics (*n* = 197)

Demographic	Range	*M* (*SD*)	Percent
Age	18–48 years	22.11 (4.98)	
Gender			
Female			93.9%
Male			6.1%
Race/Ethnicity			
White			40.6%
Black/American			37.1%
Hispanic/Latinx			7.6%
Asian			3%
Other			2%
Marital Status			
Single/Occasional Partner			82.7%
Married/Committed Partner			17.3%
Prior Aging Coursework			19.3%
Prior Paid Work Experience with Older Adults			17.3%
Prior Volunteer Experience with Older Adults			33%
Helping to Care for Non-Co-Resident Older Adult			21.3%
Helping to Care for Co-Resident Older Adult			6.6%
Receiving Financial Aid			84.77%

There were not statistically significant differences between control and intervention groups or between semesters on any demographic factors. Additionally, there were not statistically significant differences on any demographic factors between participants who completed both waves of the survey and those who dropped out. Across all groups and conditions, there was a

significant ($p < .01$) preference for working with those 34 and younger compared to those 35 and older. A striking difference across all four groups was a decline in self-reported health from intake to endline, statistically significant ($p < .05$) in the control semesters but not the intervention semesters.

Recruitment and data collection procedures

To avoid a coercion effect, as one of the study investigators was instructor of record for the course, the co-investigator conducted recruitment, managed study artifacts, graded intervention assignments, collected survey data, and conducted qualitative interviews. The instructor of record was blinded to study participants until grades were posted. In the first week of each semester, all students received a recruitment e-mail. To incentivize participation, students who consented and completed the study were guaranteed an additional 10 points toward their final course grade (5% of final course grade) and were entered into a drawing for a 20 USD gift card. To further minimize any possibility of coercion, students who did not want to participate in the research study could write a 1,000 word (about 4 pages) paper on a topic to be mutually determined between them and the co-investigator, and gain the extra points. Only one student chose this option over the four semesters.

Participants created a de-identified self-selected alphanumeric code for study identification and were administered an online (via Qualtrics) baseline questionnaire to be completed by the third week of the 15-week semester. The questionnaire included the three assessment measures and demographics questions (e.g., age, gender, race/ethnicity, marital status, prior aging coursework, prior experience working/volunteering with older adults; see Table 1). Three weeks before semester's end, participants were administered an endline assessment, including the baseline questions without the constant demographics (e.g., age, gender, race/ethnicity). During intervention semesters (Spring 2018, Fall 2018), all students, whether study participants or not, were assigned the two-part EBI as a required assignment. These were completed just after the baseline and prior to the endline surveys respectively. For control groups, the semester was conducted as usual.

After final surveys were completed each semester, a randomly selected group of 15 students was invited to participate in an online focus group discussion, with an incentive of being entered into a 20 USD gift card drawing. These students were interviewed on their perceptions of older adults and potential interest in a gero-focused career. Despite recruitment efforts, the response rate for focus groups was low. Participants included in Fall 2017, 5 females; in Spring 2018, two females; in Fall 2018, one male; and in Spring 2019, 3 females.

Instruments

Outcomes were assessed using the Fraboni Scale of Ageism (FSA; Fraboni et al., 1990), the Anxiety About Aging Scale (AAS; Lasher & Faulkender, 1993), and the researchers' own six-item gero-interest scale (GRO).

The FSA (Fraboni et al., 1990) is a 29-item Likert-type self-report scale with item scores ranging from 1 (*strongly disagree*) to 5 (*strongly agree*; unanswered questions are given a score of 3).

Higher scores indicate more negative attitudes. "Old" refers to adults 65 years of age and older. The FSA has demonstrated high internal consistency, reliability (McBride & Hays, 2012), and strong correlations with other measures (e.g., Aging Semantic Differential, Lassonde, Surla, Buchanan, & O'Brien, 2012; Rosencranz & McNevin, 1969). In the current study, the FSA demonstrated high internal reliability. Cronbach's Alpha for the full scale across groups was .897 for intake and .895 for endline measures.

The AAS (Lasher & Faulkender, 1993) is a 20-item Likert-type self-report scale with item scores ranging from 1 (*strongly agree*) to 5 (*strongly disagree*). Higher scores indicate higher levels of aging anxiety. The AAS measures aging anxiety across four dimensions: Fear of Old People, Psychological Concerns, Physical Appearance Concerns, and Fear of Losses. Confirmatory factor analyses (Sargent-Cox, Rippon, & Burns, 2014) support the four-factor model of the multidimensional nature of aging anxiety. In the current study, the AAS demonstrated good internal reliability, with Cronbach's Alpha for the full scale across groups for intake and endline measures of .808 and .826 respectively.

The GRO, a six-item Likert-type self-report scale with item scores ranging from 1 (*strongly disagree*) to 5 (*strongly agree*), modeled on Bailey's (2018) gero-interest scale, was developed by one of the researchers to measure student interest in working with older adults. Higher scores indicate greater gero-interest. Items included, "I would enjoy working with older adults in my future career," and "I am taking this course because I am interested in working with older adults." The original measure (Bailey, 2018) was validated by a four-member team of researchers with expertise in counselor education, higher education, and gerontology. The GRO scale developed for the current study was expanded from the Bailey (2018) scale to include an assessment of participants' willingness to engage in additional gerontology-focused coursework. In the current study, the GRO demonstrated high internal reliability. Cronbach's Alpha for the full scale across groups was .931 for intake and .924 for endline measures.

Because study instruments were all self-report measures, the possibility of social desirability bias must be noted. However, the instructor was unaware of study participants' identities, and the measures were presented at two time points across each semester. Analyzing the change in scores over time rather than comparing raw scores between individuals further reduced the effect on social desirability (Jones, Sander, & Booker, 2013).

Analytical methods

First, we conducted chi-square tests for homogeneity of sample variance between control and intervention groups per named categorical variables (see Table 1) and found no significant differences across groups and variables. To examine changes in the three measures (FSA, AAS, GRO) from intake to endline and between intervention and control groups, we conducted repeated measures ANCOVAs . For each ANCOVA, to further reduce error variance due to socio-demographic differences between participants, named categorical variables were included as covariates in the analyses to factor out the influence of extraneous variables on score changes (e.g., age, race, family elders). We used IBM SPSS Version 26.0 (IBM Corp., 2019) for all descriptive analyses.

Focus group interview data were analyzed using thematic analysis techniques (Clarke, Braun, & Hayfield, 2015). Since the interviews had been conducted by one of the researchers, the other took the lead in analyzing the data. Interview transcripts were read in-depth and more than once with a focus on examining evidence for the research questions rather than on theory-building. Emerging themes in responses to the questions were identified using a combination of deductive (reflecting prior research) and inductive (emerging from the data) approaches. Through the multiple reading of the interview transcripts, the researcher became familiar with the data, documented codes, and kept notes of the decision process to identify and finalize themes. First, transcripts of each interview were read for codes and themes emerging within the interview, and then these were compared across interviews. Because there were comparatively few transcripts and participants, this reduced the complexity of the process of identifying codes and themes. Thereafter, both researchers discussed and reached consensus on themes and emerging findings. This allowed for incorporating the positionality and reflexivity of both researchers (Linneberg & Korsgaard, 2019).

Additional procedures aimed to enhance trustworthiness of the qualitative data and analyses, with strategies shaped by the design parameters of the present study (Nowell, Norris, White, & Moules, 2017). Since the qualitative data consisted solely of focus group discussion data without the possibility of re-contacting participants, triangulation was aimed by strategically discussing ongoing emerging results with colleagues with gerontology expertise including individual conversations and presentations of work-in-progress. Notes of these discussions were kept. This approach also promoted dependability. To aim at transferability, strategies included meticulous professional transcription of the audio data, and returning repeatedly to the interview transcripts to uncover and reinforce themes and insights. Confirmability was supported by maintaining an audit trail of qualitative data analyses, interpretation notes, and discussion notes (Cypress, 2017).

Results

Differences between Control and Intervention Groups

We conducted independent sample t-tests between conditions (control and intervention) along named socio-demographic variables and found no statistically significant ($p = .05$) differences (e.g., "Age * Condition": $p = .574$; "Gender * Condition": $p = .315$; "Helping to Care for Non-Co-Resident Older Adult * Condition": $p = .665$).

FSA & AAS

In both control groups (Fall 2017, Spring 2019) and the Fall 2018 intervention group, although self-reported ageism (FSA) and aging anxiety (AAS) trended lower from intake to endline, differences were not statistically significant (Table 2). The Spring 2018 intervention group trended higher in FSA and AAS scores, also not statistically significantly different. There were no significant differences in FSA or AAS scores between control and experimental groups. Hypotheses 1 and 2 were not supported.

Table 2. Patterns in FSA, AAS, and GRO across conditions and time

Condition	n*	FSA pre (SD)	FSA post (SD)	% change	p-value	AAS pre (SD)	AAS post (SD)	% change	p-value	GRO pre (SD)	GRO post (SD)	% change	p-value
Control													
F 17	56	51.86 (10.13)	51.75 (12.09)	−.21	0.96	48.52 (8.48)	47.09 (9.68)	−2.9	0.41	21.09 (5.65)	20.3 (6.14)	−3.75	0.48
S 19	36	51.64 (10.34)	51.47 (9.96)	−.33	0.89	50.53 (9.47)	50.33 (7.46)	−.39	0.92	21.53 (4.9)	22 (4.07)	+2.18	0.66
Exp.													
S 18	66	51.76 (9.39)	52.97 (8.87)	+2.31	0.45	49.39 (9.65)	49.91 (10.17)	+1.05	0.77	20.76 (5.83)	21.0455 (6.14)	+1.38	0.78
F 18	39	53.72 (10.18)	52.59 (8.33)	−2.12	0.59	48.9 (7.19)	47.74 (7.22)	−2.37	0.48	19.85 (5.12)	19.64 (4.89)	−1.06	0.87

*Response rates: Fall 2017, 56%; Spring 2018, 72.5%; Fall 2018, 39%; Spring 2019, 40%

These results are adjusted for control variables including: age; gender; race/ethnicity; marital status; prior aging coursework; volunteer, caregiving, and work experience with older adults; living with older adults; financial aid status; participants' self-rated health.

Table 3. Qualitative findings the abbreviated quotations presented in this table are more fully presented in the text

	Control semesters		Intervention semesters	
	Fall 2017	Spring 2019	Spring 2018	Fall 2018
# participants	5	3	2	1
Responses to: "What are some beliefs you have about and things that you notice when you're around older people?"	*Theme: continued negative attitudes* "I noticed … older people most of the time they are alone, or lonely." "The good majority, have arthritis. That just really scares me."	*Theme: continued negative attitudes* "I notice … the typical things … that someone is older … gray hair and wrinkles … sometimes you kind of have to talk a little louder or slower." "They might have some physical impairments … But for the most part I feel they're much the same as anybody else." "I work with the … older population and they're like, *Oh, I fell at one time and now I'm scared to do anything*."	*Theme: transformed thinking* "Before that class I kind of looked at every older adult in some type of fragile way that … so it was just a misconception that this class proved otherwise."	*Theme: transformed thinking* "This class … has completely reshaped my understanding and my vision of senior citizens … "
Responses to: "How willing are you to consider a career working with or focusing on older adults?"	*Theme: mostly unwilling to work with older adults*: Three said 'no'. "I don't think I would consider … working with older people … because I feel like it would require a lot more patience … I don't know if I am ready." "Maybe I would … because [my major, recreational therapy] … mostly deals with older people … I want to get my master's in occupational therapy. I know they work a lot with older people."	*Theme: ambivalent about work with older adults, except 1*: "My goal is to work with college or high school students as a counselor … but, I don't … mind … a job where I would interact a lot with older people … " "not primarily … actually I hope to get into counseling … will see all types of people." "I … wanted to work with infants. But … I was able to build connections with [older people] … and that's what really changed my mind and the need for … more workers for the aging population"	*Theme: willing to work with older adults*: "I don't see why not … because … something that we covered in our class … especially older people of color don't have … mental health … assistance." "Before this class, no … but after this class, it's made me realize that … the elderly population and children are very similar in their wants and needs in a way."	*Theme: willing to work with older adults*: "after taking this course … I just see a real need and … maybe I need to step up into this segment that needs more people … "

GRO

Although not statistically significant, in both the Fall 2017 control and the Fall 18 experimental groups, self-reported gero-interest declined somewhat from intake to endline. Neither the Spring 2018 nor the Spring 2019 increase in gero-interest was statistically significant, and there were not significant differences in GRO scores between control and experimental groups (Table 2). Hypothesis 3 was not supported.

Qualitative findings

Interview data indicated some evidence of the EBI's impact on gero-attitudes, although in the context of low participation in the focus groups. Table 3 presents abbreviated quotations from intervention and control semesters illustrating evidence for the key research questions. The quotations are presented in more detail here.

Students' perceptions of older adults were ascertained from responses to the question, "What are some beliefs you have about and things that you notice when you're around older people?" In the intervention semesters (Spring 2018, Fall 2018), students spontaneously mentioned that the class had transformed their thinking. A student in Spring 2018 said, "Before that class I kind of looked at every older adult in some type of fragile way that … their body's getting older, but … there are some older people that can move better than I can, so it was just a misconception that this class proved otherwise." In Fall 2018, another student said, "Before this class … I was taught to respect my elders … but at the same time I had an annoyance … they don't understand the music I'm listening to, I don't want to sit in church four days a week … and so I kind of avoided older people … This class … has completely reshaped my understanding and my vision of senior citizens … I see that they can be healthy and productive and work and just as cognitively aware as I am … I haven't had the opportunity to interact with any seniors … but I imagine within myself that it's going to be a lot more positive … when I do."

In control semesters (Fall 2017, Spring 2018), no students mentioned that the class made an impact on their attitudes. Moreover, students' perceptions of older adults seemed to emphasize loneliness and health declines. In Fall 2017, a student said, "I noticed a lot of older people most of the time they are alone, or they're lonely … one time I was at a restaurant and I saw an older guy, and … I felt really bad for him, I wanted to just go sit with him, and talk to him, because he was alone, and I was just like, oh my God I was with my best friend." Another said, "Something that I know the good majority, they have arthritis. That just really scares me, because I don't want to have to get out of bed, and my joints and my knees, and my back is hurting me. I want to be able to exercise, to run. Even when I am 70 plus years old." In Spring 2019, a student said, "I notice their physical appearance, the typical things … that someone is older, white or gray hair and wrinkles, that sort of thing … but sometimes you kind of have to talk a little louder or slower." Two students who worked with older adults said, "They might have some physical impairments that might stop them from doing some things that they want to do. But for the most part I feel like they're pretty much the same as anybody else" and, "I actually work with the older population. And ugh even just getting up there, they're like, Oh, I fell at one time and now I'm scared to do anything."

Students' willingness to consider a gero-career was ascertained through responses to the question, "Would you consider a job or career that involves working with older adults?" In responses to this question, there was some suggestion of support for the EBI. In the intervention semester Fall 2018, a student who initially wanted to work with adolescents was now drawn toward working with older adults, mentioning the class as a catalyst. "One thing I realized … is there's a whole lot of people who like me are saying 'I want to work with adolescents and I want to work with families.' And after taking this course … I just see a real need and … maybe I need to step up into this segment that needs more people … doing some serious soul searching because I feel so drawn after taking this course to making a difference where there's not enough people."

In the intervention semester Spring 2018, students also appeared more open to gero-careers because of the class. One said, "My plan is to go into mental health counseling. My focus was initially on school-aged children and young adults … but I don't see why not to opening up to a broader age range … because that was something that we covered in our class … especially older people of color don't have that stability in their lives in terms of mental health and assistance." Another student said, "So before this class, no, I would've probably … never worked with older adults, but after this class, it's kind of made me realize that … the elderly population and children are very similar in their wants and needs in a way. And in a service standpoint, definitely … I'd like to be like an advocate for types of services or resources that they could qualify for."

In the control semester Fall 2017, three students said "no" to a gero-focused career. Two were planning careers as a pediatrician or midwife. Another said, "I don't think I would consider a job working with older people only because I feel like it would require a lot more patience, and stuff like that. I don't know if I am ready to do that as of right now." Another said, "Maybe I would consider a job because [my major] kind of mostly deals with older people. I am doing recreational therapy, but later on I want to get my master's in occupational therapy. I know they work a lot with older people so I do see myself working with older people in the future." Thus, the students' interests were already set prior to taking the class, and at least one still seemed to have an ageist mind-set.

In the control semester, Spring 2019, one student mentioned interacting with, rather than serving, older adults. "My current goal is to work with college or high school students as a counselor. So I would be working more with younger people, but, yeah, I don't know, I don't necessarily mind the idea of having a public service type job where I would interact a lot with older people … at the library in a full time position, then … you know, I would still be working with a lot of older people." Two other students had taken CNA training and were already working with older adults. Only one was positive about that, saying, "I want to work with the older population because [previously] I really didn't, I actually wanted to work with infants. But then when I started there, I was able to build connections with them and that's what really changed my mind and just the need for … more workers for the aging population because they are living longer and they too need more support." The other said, "Well I think it would involve the older population, but not primarily … actually I hope to get into counseling. So I'm assuming that, you know, you will see all types of people." Thus, prior work experience rather than the class shaped student attitudes.

Discussion

Our study's purpose was to measure the effects on gero-attitudes, aging anxiety, and gero-interest of an EBI integrated into coursework for a large online undergraduate course on aging. Despite no statistically significant changes in our three outcome measures across conditions and cohorts, several elements stood out. First, even with limited participation in the focus groups, the qualitative evidence provided some hints of support for a potential EBI impact.

Second, this project demonstrates that integrating reflective assignments into online coursework is a practical way to enhance the introspection that has been demonstrated to support student empathy development. Online pedagogy is increasingly prominent in higher education despite the potential for disengagement, and necessitates educators' commitment to maintaining quality instruction, encouraging active engagement and connection with course content, and fostering self-reflection. Although reflective assignments can trigger student introspection, in this study, our hopes of sparking a disorienting dilemma leading to improved attitudes were not realized. Possible reasons for these disappointing findings are discussed here.

The version of "The Game of *I am*" intervention (Bailey, 2018) used in this study was modified from the original. Without active engagement sparked by facilitated gameplay and follow-up debrief, the perspective-taking writing exercises may not have been adequately disorienting to support critical self-reflection and attitude change. Creating a virtual interactive role-play game might cause a more unsettling experience, leading to deeper connection with perspective taking and the co-creation of knowledge essential for transformative learning (Mezirow, 1991). Future online iterations of the EBI could incorporate these interactive elements.

Overall decline in self-reported health within three of four semesters may have served as a mediating factor to self-reported attitudes. Attitudinal changes may be hard to measure for students approaching semester's end when the gravity of assignments and assessments becomes more salient. Even with extra credit given for study completion, taking time to fulfill final study requirements may have added to end-of-semester stressors. In addition to students' overall preference for working with those 34 and younger, aside from one intervention semester (Spring 2018), interest in working with all age groups declined. In conducting educational research in situ, political climate, participants' health, and academic stressors may have influenced our findings in ways that are challenging to discern.

In keeping with previous research (e.g., Merz, Stark, Morrow-Howell, & Carpenter, 2018), it is likely that course content raising gero-awareness improved our students' objective <u>knowledge</u>. Even with an assignment in which students engaged in intergenerational contact with older adults (all groups) and the addition of reflective EBI writing assignments (intervention groups), taking the course did not significantly shift <u>attitudes</u>. In their meta-analysis of interventions to counter ageism, Burnes et al. (2019) reported that a combination of intergenerational contact and educational interventions is most likely to support the greatest attitudinal changes. Higher quality contact (Bousfield & Hutchison, 2010) and working with older adults (Allan & Johnson, 2009) has been associated with more positive student gero-attitudes. Living with an older person (Allan & Johnson, 2009), and shorter-term, less intimate contact with older adults has been associated

with minimal improvements in and in some cases more negative gero-attitudes (Christian, Turner, Holt, Larkin, & Cotler, 2014).

With ageist stereotyping prevalent in children's literature, films, and social media platforms (Nelson, 2017), it is likely that aging attitudes are quite entrenched by early adulthood. Absent a substantially disorienting dilemma presented via facilitated student engagement (e.g., role play, debrief), we speculate that interventions to combat ageism among undergraduate college students may be too little, and much too late, to counter what may be the least contested and most socially accepted global prejudice (Nelson, 2017).

Limitations

Although the instructor of record was not involved in recruitment and data collection, and despite the use of alphanumeric codes, participants may have felt coercive pressure to participate and respond according to anticipated researcher ideals. Additionally, the extra credit incentive may have influenced students' participation, though an alternative assignment was offered to students who did not wish to participate in the study. Moreover, even with this level of extra credit offered for research participation, our response rate ranged from 39% to 72.5% across the study semesters, not indicating substantial effect on participation. There was sample attrition from baseline to endline in each semester. However, there were no significant demographic differences between students who completed both waves and those who dropped out after the first survey. Next, very few students participated in the focus groups, which limits the conclusions we can draw from the qualitative findings. Although the experiential assignment on technology use in different age groups was designed as a factual awareness-raising and stereotype-challenging exercise, and many students' responses did indicate that their findings were different from what they had expected, it is possible that for some students, the exercise sustained their preconceived ideas. Our study was limited to four semesters of a course taught by one instructor at a large public university. Future research could integrate the intervention into aging-related coursework at other institutions and disciplines, and test enhanced elements of the intervention. Our participants were predominantly female (93.9%), and although representative of the HDFS major, the perspectives of non-female students were limited.

Conclusion

Despite these limitations, this study suggests that in a climate of gero-disinterest coupled with a shift toward large online classes in higher education, offering an online empathy-building intervention is a practical pedagogic strategy. The lack of impact of the adapted intervention in significantly shifting students' gero-attitudes underscores that such views need to be addressed earlier in students' lives with a wider variety of high-quality experiences, and that the online intervention should retain role-play and debriefing elements. Additional enhancements should be tested. If students' gero-interest is not explicitly and effectively enhanced, the work force available to serve the growing population of older adults worldwide stands in increasing jeopardy.

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