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Intergenerational Service-Learning with Exercise Science Students

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INTERGENERATIONAL SERVICE-LEARNING WITH EXERCISE SCIENCE STUDENTS

A Capstone Experience/Thesis Project

Presented in Partial Fulfillment of the Requirements for

the Degree Bachelor of Arts with

Honors College Graduate Distinction at Western Kentucky University

By

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Western Kentucky University
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ABSTRACT

Exercise science professionals often work with older adults to help maintain function and independence. Ageism may begin during undergraduate training, as most have not interacted with older adults. Intergenerational service-learning (ISL) may be a useful pedagogy to facilitate interactions with older adults. PURPOSE: To determine if exercise science students' knowledge of older adults and ageism are significantly improved by incorporating ISL into an exercise science course. METHODS: Students (n =10) enrolled in *Exercise and Aging* and from two additional exercise science courses (n = 17) completed pre and post assessments of attitudes towards and knowledge of older adults. Students implemented Bingocize™, a combination exercise program and bingo game, once a week for 15 weeks at assisted living facilities. Curriculum focused on physical and psychosocial changes with aging. Independent t-tests were used to determine significant differences ($p < .05$). RESULTS: No significant differences were found in students' ageism (t (25) = .099, p = .922) or knowledge of older adults compared to controls (t (25) = .729, p = .473). CONCLUSIONS: Although significant improvements were not found, students were positively affected by the service-learning experience based on written and oral reflections. It is important for exercise science faculty to continue fostering quality intergenerational contact.

Keywords: Older Adults, Intergenerational Service-Learning, Exercise Science, Palmore's Facts on Aging Quiz, Fabroni's Scale of Ageism

Dedicated to Riley and Jack,

May you realize your dreams and never let them go

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FIELDS OF STUDY

Major Field: Psychology

Minor Field: Gerontology
Certificate in Long-Term Care Administration

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INTRODUCTION

The Aging Population

The Administration on Aging (2009) projects that by 2030, older adults (persons 65 and older) will represent 19% of the population. The median age of U.S. citizens is at its highest point in history, and is predicted to continue increasing (Boswell, 2012). Along with the demographic shift, there is an increase in chronic disease among Americans; 133 million living with one or more chronic diseases, such as heart disease, diabetes, or cancer (Anderson, 2004). Chronic diseases frequently cause older adults to lose function and independence, putting a large burden on the U.S. healthcare system. As the population grows older, there will be a greater need for health professionals to help older adults maintain function and remain independent. However, in today's healthcare culture, many health professionals are less willing to work with older adults, communicate with them differently than younger adults, and much like the rest of society, hold preconceived notions of older adults (Hultgren, 2012). For example, researchers at John Hopkins University School of Medicine found 80% of students would aggressively treat pneumonia in a 10 year old girl, but only 56% would do so for an 85 year old woman (Currey, 2008).

Development of Ageism

Ageism is defined as, "the discrimination against an individual based on their age" (Angus & Reeve, 2006). Ageist attitudes have been found in children as young as age four, among individuals who work with older adults, and even older adults themselves (Boswell, 2012). Barnes, Mendes de Leon, Lewis, Bienias, Wilson, & Evans (2008) found that Americans under the age of 35 are more likely than any other age demographic to hold poor attitudes about older adults, classifying them as lonely, senile, and less effective than younger adults in the workplace. Throughout history, this was not always the case. In prehistoric and agrarian societies, older adults were held in high regard for their knowledge and experience. Individuals over 50 years of age were the historians and teachers of tradition. In biblical times, if an individual lived to old age, it was thought they were chosen by God for a divine purpose (Nelson, 2005).

The decline of status in modern society for older adults began with the printing press. The knowledge that was once only held by the aged in society (knowledge of culture, traditions, historical information) was now able to be printed and repeated verbatim in books. This change reduced the status and respect that was once given to older adults because of their knowledge. The social role theory proposes that people's social roles provide an important basis for beliefs about the overall social group (Kite, Stockdale, Whitley & Johnson, 2005). It's from these observations that we as humans form stereotypes about a certain group of people. Once the printing press took away the social role of older adults in society, their contributions were no longer viewed in high regard.

The industrial revolution (approximately 1760 to 1820) brought another hurdle for older adults, as it caused a shift for most families in America. People were drawn to where the jobs were located and older adults didn't have the ability to be as mobile or as adaptive. Paralleling the job market today, the positions available in factories required a new set of skills that were not as natural to older adults. The ability to adapt to changing technology was more valued than experience.

During this time, the medical field was making great strides in extending life expectancy. The societal structure at the time was not prepared to handle such a growing population of older adults and there were many hardships faced by families caring for their parents and grandparents. Society began to associate old age with negative qualities and viewed older adults as nonproductive burdens in the community (Nelson, 2005). These negative attitudes have permeated history and hinder some older adults from aging well. Avorn and Langer (1982) found that older adults believed themselves to be less capable and performed poorer on a puzzle task when being assisted with it, rather than simply being encouraged. When society views our elders as being less competent and capable, and offers to do for them rather than encouraging them to do for themselves, we are inhibiting older adults from aging well.

Ageism in Healthcare

Ageism is prevalent throughout the healthcare system (Currey, 2008). When it comes to older adults, the current health care system focuses on disease management rather than prevention. This form of ageism is not only hurting the older adult community, but is further burdening the United States healthcare system. A RAND Study examining health information technology systems projected savings of $81 million

or more with aggressive preventative strategies as opposed to treatments and disease management (Taylor, Bower, Girosi, Bigelow, Fonkych & Hillestad, 2005). The average expenditure of health care spent on an older adult per year was $11,089, which is significantly higher compared to the amount spent on middle and younger aged adults, which was $3,352 per year (Stanton & Rutherford, 2005).

In addition to healthcare expenditures, there are numerous examples that can be drawn to illustrate ageism within the current healthcare system. Older adults are often systematically excluded from clinical trials, some of which are investigating therapies and medications targeted to the older adult community. Older adults are also often turned down for procedures because they are deemed too high of a risk, or not able to gain enough useful function from the procedure because of old age. This bias comes from the Quality-Adjusted Life Years (Weinstein, Torrance, & McGuire, 2009) metric, commonly used to measure healthcare cost-effectiveness (Kane & Kane, 2005). The QALY is a measure used in determining healthcare resource allocation. Current health status, longevity, and potential outcomes of certain treatments or procedures are factored into the QALY value (Weinstein, et al., 2009). These categories are biased towards younger adults because older adults more commonly have chronic diseases and fewer expected years to live. This doesn't necessarily mean that their quality of life during their remaining years wouldn't equal that of a younger adult, but it's not factored into the QALY.

In health care situations, older adults are faced with longer hospital stays, complex health issues, difficult pain management, and less external support than younger adults (Sorrell, 2010). This unique set of issues brings about a need for increased

empathy, compassion, and quality interpersonal relations between health care providers and older adult consumers (Sorrell, 2010). One way this is accomplished is through effective communication skills, because the way a health professional communicates with patients can convey a sense of empathy and understanding (Sorrell, 2010). The specific skill set needed to work with the older adult community cannot be obtained if future health professionals are fostering ageist attitudes during their undergraduate careers.

Ageism in Undergraduate Students

Negative attitudes towards older adults have been found in undergraduate students across a wide range of disciplines, with men having more negative attitudes compared to women (Allan & Johnson, 2008; Callahan, 2011). It's possible age discrimination begins early in the health professional's training, as most medical and health students have not had opportunities to interact with older adults. A lack of contact, or contact that is of poor quality, can result in negative attitudes toward a certain group of people, based largely on unfair stereotypes (Pettigrew, 1998). But, previous research has shown that interactions with the stigmatized group can reduce prejudice and improve attitudes (Hultgren, 2012). Studies have shown that participation in a course or workshop that focuses mainly on issues affecting the elderly population can positively influence aging knowledge and attitudes (Grefe, 2011). In a study done with dental students, increased clinical experience and interaction with older adults resulted in improved knowledge and awareness of aging (Fabiano, Waldrop, Nochajski, Davis, & Goldberg, 2005).

Caspi (1984) proposed that intergenerational contact would foster positive attitudes, and subsequent studies have supported this theory. Undergraduates seem to display more positive attitudes when engaging in contact with older adults, compared to

their peers who do not-- even when the contact is as sparse as once a month (Van Dussen & Weaver, 2009).

In a study done on the effects of aging awareness training, the researchers found their sample showed greater knowledge of aging was associated with greater awareness of aging issues and politically correct terminology in regards to older adults (Stuart-Hamilton & Mahoney, 2003). Studies have shown that aging knowledge is an influential factor in health students' and professionals' attitudes, with accurate knowledge engendering positive attitudes and inaccurate knowledge engendering negative attitudes (Boswell, 2009). To begin to change the healthcare culture, and reduce the costs and effects of ageism, there is a need for better education in medical and allied health students' undergraduate careers.

To our knowledge, the attitudes of Exercise Science students towards older adults has not been examined. Many exercise science students are preparing for careers in physical education, health and medicine, sport science, biology, or physical/occupational therapy programs after their undergraduate career. For example, clinical exercise physiologists most often work in rehabilitation settings, working to help patients with cardiovascular disease (ACSM, 2012). Over half of the 83.6 million individuals with 1 or more forms of cardiovascular disease are 60 years or older (Heart & Stroke Association, 2013). Another example would be Exercise Science students who become fitness instructors. As the older adult community continues to grow, there will be a higher demand for fitness programs designed to address the functional fitness needs specific to this age group. These exercises, typically designed to maintain older adults' activities of daily living (ADLs), are different from the normal routine that focuses on

gaining muscle mass and losing body fat. It is imperative to the health and wellness of older adults that our Exercise Science curriculums are training students to design exercise programs specific to their changing needs.

Existing curriculums successfully provide “hard skills” such as technical knowledge, skills and abilities, but often neglect the “soft skills” needed to be successful in today’s job market. Soft skills, such as relationship building and empathy for older adult clients/patients, are difficult to teach using traditional pedagogical methods. Yu and Kirk (2008) stated that soft skills are not something that can be instructed as a lesson, but rather a skill learned and developed through experience and practice.

Intergenerational Service-Learning

Intergenerational service-learning is a pedagogy used to link students with older people in the community (Underwood & Dorfman, 2006). Service Learning gives students the opportunity to apply the course concepts and skills outside of the classroom, while providing service to the community (Underwood & Dorfman, 2006). This experiential pedagogy also allows for students to reflect, turning their experiences into meaningful learning. Service-Learning is considered a "high impact" practice, and has been shown to greatly enhance academic development in undergraduate collegians because of its integration of theoretical concepts and real-life experience (Brownell & Swaner, 2009).

Service-learning has been referred to as the "mark of an engaged campus" (Brown & Roodin, 2001), and is a prime example of institutions not only rewarding academic and teaching success, but community development as well. Institutions have an obligation of regional stewardship and to also build environments that encourage students to become

civically minded professionals. The goal is that through service-learning, students will become more willing to be involved in the lives of those around them, especially those from different backgrounds and generations, as well as be committed to making a difference in their community.

This pedagogical strategy has been successfully used with social work, nursing, and occupational therapy students (Baumbusch, Dahlke, & Phinney, 2012). Meta-analytic studies have found that college students who engage in service-learning show a greater civic responsibility, improve the quality of life in the area in which they serve, and enhance community partnerships through their institutions (Brown & Roodin, 2001). Not only does service-learning benefit the community that's being served, but the students show greater academic growth and success as well. Astin, Vogelgesang, Ikeda, & Yee (2000) reported significant improvement in critical thinking, writing skills, leadership, and self-efficacy, all skills that create a well rounded student and community member.

Similar to intergenerational service-learning, a study was conducted using interprofessional service-learning with nursing, pharmacy, and dietetic students. The students worked with other disciplines in tandem to provide primary health care services to older adults residing in public housing. Lee, Hayes, McConnell & Henry (2013) found that the community experiences impacted the students beyond traditional clinical experience in the realm of cultural competence. For example, prior to the service-learning experience, one of the students did not realize that some people are not able to maintain a healthy diet because of low socioeconomic status. The student reported that without the service-learning experience in her education, she might have not ever been

exposed to the reality of working with patients who are forced to spend most of their resources on medications, rather than on groceries (Lee, et al., 2013).

Intergenerational service-learning has been implemented with exercise science practicum students and resulted in positive experiences for both the students and older adults. The practicum experience is utilized to develop students' critical thinking and communication skills, assets essential to allied health and medical students. Crandall (2014) instructed a course of sophomore level practicum students who were required to spend at least 6 hours per week (90 hours total) in the community working with older adults. The students formed groups and were assigned to an older adult facility where they were instructed to research, plan, and implement exercise programming for the participants. These students had not previously worked with older adults and through reflections, expressed their anxiety and apprehension. But after the semester, the students found the intergenerational service-learning experience to be beneficial for themselves, the older adult participants, and for their future careers in Exercise Science (Crandall, 2014).

The purpose of this study was to examine the effects of a service-learning centered exercise science course designed to positively influence university students' attitudes and knowledge of aging and older adults.

H1: EXS 455: Exercise and Aging students will show significantly less negative attitudes towards older adults at the end of the semester compared to controls.

H2: EXS 455: Exercise and Aging students will demonstrate significantly more knowledge about the aging process and older adults at the end of the semester compared to controls.

CHAPTER 2

METHODS

Participants

Before conducting the study, the researchers obtained approval from Western Kentucky University's (WKU) Internal Review Board. Volunteer participants (n = 27) were recruited from three undergraduate exercise science classes on the first day of the Spring 2014 semester. See Table 2.1 for participant characteristics. These courses were chosen to be representative of both lower and upper level classes offered at WKU. One student identified as a graduate student because they already possessed one bachelor's degree.

Materials and Design

The participants completed an 1) informed consent, 2) a demographic questionnaire, 3) Palmore's Facts on Aging Quiz (PAQ), and 4) the Fabroni Scale of Ageism (FSA). Paper and pencil questionnaire packets were distributed to each class. The researcher obtained informed consent from each participant and those who chose not to participate were not penalized in any way. To ensure the internal validity of the study, the participants were told the purpose of the study was to collect data for Southern Association of Colleges and Schools (SACS) accreditation.

The FSA was used to measure the participants' attitudes toward older adults, specifically in the realm of ageism (Fabroni, et al., 1990). The participants were asked to

respond how strongly they agreed or disagreed with the given statement on a 4-point Likert scale (1= strongly disagree to 4= strongly agree), resulting in a range of scores between 29 and 116, with higher scores indicating stronger ageist attitudes. A neutral score for the measure would be 72.5. An alpha coefficient of .86 was reported for the scale, showing a high internal consistency for the FSA. The PAQ was used to assess participants' knowledge of aging (Palmore, 1977). The questionnaire format was true or false. The 25 items were designed to cover a wide range of physical, mental, and social facts most commonly misperceived about older adults. A point was given to each correct answer on the quiz, with scores ranging from 0-25.

Procedure

Intergenerational service learning was integrated into a senior-level Exercise Science course called EXS 455: Exercise and Aging. The course was designed for students to gain a better understanding of the acute and chronic physiological and psychosocial responses and adaptations associated with exercise in the aged population. Specific attention was given to the mitigating role of exercise in certain diseases and disorders in the older adult community.

The course used five principles of service-learning (Partnership, Reciprocity, Capacity Building, Sustainability, and Reflection) to instruct students in how to apply the course concepts to their service experience. These principles are used in *The $100 Solution*™ model of service learning at Western Kentucky University, created by Dr. Bernard Strenecky. Each of these five principles represents an aspect of service-learning that is imperative to both delivering quality service to the community as well as fostering learning for students (English, 2014).

The Bingocize™ program was used as the service-learning model, a combination exercise routine and Bingo game. Bingocize™ is a low cost health promotion program that was originally created to train undergraduate students to conduct exercise programs for older adults. The instructors chose this model because it only requires a small amount of equipment (resistance bands, balance pads, and a standard Bingo game), is low risk for participants, and serves the need for increased involvement in the older adult community. At the beginning of the session, the older adult participants begin sitting at a table with their Bingo cards and exercise equipment. The students lead the warm-up with light exercises and stretching. The session involves alternating between cardiovascular and strength exercises (walking in place, leg extension, hip abduction) and rolls of traditional letter and number Bingo. The intervals are repeated until someone wins the Bingo game. A cool down, similar to the warm up, ends the session. In total, Bingocize™ lasts 45-60 minutes total. Each semester, the students partner with approximately six facilities in the Bowling Green, KY area. These facilities included independent living, assisted living, and a housing authority.

Beginning with a partnership, each group of students partnered with an older adults facility and its patrons to create a mutually beneficial collaboration that not only shares the responsibility, but also the rewards of a service-learning project. This partnership allowed the students to implement the Bingocize™ program. Within a well-defined partnership, the second principle of reciprocity was created with the "practice of exchanging things with others for mutual benefit". The students were able to give the older adults an exercise program and then in return, gained valuable experience from working with that population.

Capacity Building, the third principle, taught the service learners to "help others to help themselves". When the students instruct Bingocize™, they were teaching exercise routines to an older adult population that has largely never participated in structured physical activity. The learning that occured increased the older adults' capacity to become a regular exercise participant. Sustainability is described as having "the capacity to endure", and was evident in the Bingocize™ model through the continuous implementation of the program each semester, as well as in the knowledge passed onto the participants throughout the program.

Lastly, the fifth principle is reflection, which is the process of documenting and analyzing the experiences from a service learning project. Reflection was used as a tool to analyze and interpret students' service experiences and turn them into meaningful learning. Service-learning instructors recognize that each person enters their experiential education with assumptions and previous education and experiences that influence how they perceive the world (Karasik, 2013). The practice of reflection worked to break down these influencers and challenged students to view their experiences in a different light.

The students in the Exercise and Aging course documented their service-learning experiences through bi-weekly written reflections, with a final reflection at the end of the semester. The course instructor prompted students to address three basic questions within their reflection, "What happened during the service experience?", "Why was the service experience important or significant?", and "What did you learn from the service experience?". The instructor also posed reflective questions as the semester progressed. For example, "What community need does your service experience seek to address?" and

"How did you apply your previous knowledge and experience to this service experience?" The reflections were posted using a web program called BlackBoard, and were publicly published to the course's specific discussion boards. Students were encouraged to comment and reply to one another's reflections. The students also participated in oral reflections during regularly scheduled class time and outside of class within their service-learning groups. These discussions were less structured and largely focused on the challenges and successes of working with an older adult population.

During the first two weeks of the course, the students were given an overview of service-learning, as well as training to become Bingocize™ instructors. After being trained, groups were formed based on site location; the students with more access to transportation took sites at a farther distance from campus. During the remainder of the semester, the students came to class on campus twice a week to hear various lectures, participate in group discussions, and work together on improving their programs at the sites. See Table 1 for course calendar.

During the remaining class time, the students visited their sites and instructed the Bingocize™ program. The students were overseen by the instructor of the course, as well as the activities coordinator for each site. At the end of the semester, the students displayed a poster presentation during the Western Kentucky University ALIVE Center's Impact Expo, showcasing the service-learning projects that were completed throughout the semester. The WKU ALIVE Center is a local information and volunteer exchange with a mission to support community development through campus and community partnerships. The Center connects students and community individuals to promote

meaningful service and public scholarship (ALIVE Center for Community Partnerships, 2014).

Data were analyzed using SPSS Version 21. An Independent t-test was used to determine if significant differences existed between the pre and post test aging knowledge and attitudes towards older adults in both the experimental and control groups. Alpha was set at the $p < .05$ level.

CHAPTER 3

RESULTS

For the FSA, the service-learning group and the control group changed similarly in their attitudes towards older adults, with a mean difference of -3.67 (*SD*=5.59) and -3.41 (*SD*=6.51), respectively. See Table 4.2 for results. The differences were not statistically significant, $t(25) = .922$, $p = .92$.

For the PAQ, the service-learning group changed slightly in their aging knowledge, with a mean difference of 0.8 (*SD*=2.35). The control group did not change at all, with a mean difference of 0.0 (*SD*=2.96). See Table 4.3 for results. The differences were not statistically significant, $t(25) = .473$, $p = .47$.

CHAPTER 4

DISCUSSION

The aim of this study was to test the effects of an intergenerational service-learning course on exercise science students' level of aging knowledge, as well as their attitudes towards aging. It was hypothesized that at the end of the semester, the service learners would have more aging knowledge and more positive attitudes towards older adults when compared to other exercise science students. Our results suggest that students in the intergenerational service-learning students did not gain any additional aging knowledge from the course that we were able to measure, or significantly change their attitudes towards older adults.

The low level of aging knowledge in our sample was not surprising at the beginning of the semester. Many Exercise Science students have not had many opportunities to engage with older adults or participate in gerontology curriculum. The persistent low level of aging knowledge at the end of the semester within the service-learning group was surprising. The persistent low scores could be attributed to low participation. Questionnaires were distributed on the first and last day of the course, not capturing the students who added the class after the start of the semester and those who didn't attend class at the end of the semester. The class had a total of 33 students, but we were only able to obtain 10 complete sets of data.

Though Palmore's Facts on Aging Questionnaire has been used widely to measure changes in aging knowledge (Kline, 1990), the Exercise and Aging course did not cover the exact material on the 25 question quiz. The short questionnaire was developed to encompass the physical aspects of aging, along with mental and social aspects (Palmore, 1977) that were not directly covered in the Exercise Science curriculum. Even with the service-learning portion of the course, the students may not have gained this specific knowledge and thus contributed to the low scores. Future exercise science courses should include more of the information measured in the PAQ or an alternative measure should be found to better measure the content of the particular course.

At posttest, the students' attitudes towards older adults did not significantly change after participating in the service-learning. At pretest, the students were already exhibiting low levels of ageism and we believe a floor effect could have affected the students' scores. There may have been little room for the responses on the measure to vary or change after the intervention. The moderately low score on the FSA from the current study could have been a result of the measure having very explicit statements. In a study done by Lin, et al. (2011), explicit attitudes were shown to be slightly more positive than implicit ones. This finding aligns with the social desirability effect which can influence a participant's responses because of social and political pressure and context (Lin, Bryant & Boldero, 2011). The participants taking the questionnaire were able to clearly see which statements were positively and negatively coded, such as "Old people deserve the same rights and privileges as other members of our society" (positive), and "Most old people would be considered to have poor personal hygiene" (negative).

These statements only capture the explicit attitudes of the participants, not the implicit ones.

Though they were very simple to administer, the FSA was developed in 1990, and the PAQ was developed in 1977. Since then, the base of knowledge on aging and adulthood has changed drastically and future researchers should consider developing a more advanced measure of knowledge and attitudes. The Implicit Association Test (Greenwald, Mcghee, & Schwartz, 1998) is a way to further study attitudes toward older adults without the social pressure of being politically correct on an explicit measure.

Institute for the Ages (2014) states that for the next 40 years, the fastest growing segment of the population will be over 80 years old, and it's not just in America. Internationally, 40% of the population in the developed world will be over 55 years of age. These demographic shifts call for medical and allied health professionals with a base of aging knowledge and a positive regard for working with older adults. Though there wasn't much change seen in our study, the sample of Exercise Science students performed at the similar levels as other medical and allied health students on aging knowledge. (See Table 3) The low level of knowledge shown in the study could cause Exercise Science students to regress in their attitudes towards older adults, and would harm our healthcare system as it adjusts to the growing older adult consumer population.

If executed and measured properly, the best way to engage students in quality contact with the older adult community is through intergenerational service-learning. Beling (2008) showed the greatest increase in aging knowledge from pre to post tests came from the physical therapy service-learning students, compared to other teaching pedagogies.

Though our results were inconclusive, there was anecdotal evidence to suggest that there was a positive impact made on the exercise science students after participating in intergenerational service-learning. A student wrote in her final reflection about the relationships that had been made with their older adult Bingocize™ participants,

> "I have mixed emotions about my site. I'm excited with all the hard work we have put in... but at the same time I am sad to leave because I grew a special bond with these women and in a way they are like family now and I wish I could continue working with them and it did not have to end."

Another student shared in a reflection about the value she was gaining for her future career endeavors,

> "I feel like I am being prepared for my future career through this process (of service-learning) because in occupational therapy I will be working more with the elderly population. This is preparing me with responses I may get and showing me the issues I will face with getting them to follow through with their exercises and therapy"

Future researchers should consider qualitative data collection in the form of student reflections, as they are already a critical tool used in many different forms of service-learning. With the nature of personal variations in service-learning experiences, it may be advantageous to consider each service-learners growth individually.

Exercise Science curriculum shouldn't stop incorporating Gerontology concepts into course framework and engaging students in interactions with older adults.

Surprisingly, Davis-Berman & Robinson (1989) found that after an introductory course on aging, students were less interested in working with older adults than before the course. It seems that the exposure to the knowledge negatively influenced their perceptions of aging, which could be a result of the generally dispiriting topics discussed in a course about the "end of life" years. Nevertheless, if given the opportunity to work with older adults, students may find a new life in the field of Gerontology. If in the future Exercise Science faculty are able to foster quality contact between students and older adults, aging knowledge and attitudes towards older adults could improve significantly.

Table 2.1

Participant Characteristics (N=27)

Characteristic		Experimental	Control
Gender			
	Male	40%	52.9%
	Female	60%	47.1%
Age			
	Under 20 years old	0%	11.8%
	20-24 years old	100%	88.2%
Race			
	Caucasian	100%	94.1%
	African American	0%	5.9%
Class Status			
	Freshman	0%	0%
	Sophomore	0%	5.9%
	Junior	20%	64.7%
	Senior	70%	29.4%
	Graduate Student	10%	0%

Table 2.2

16 week semester schedule of lectures for EXS 455: Exercise and Aging, Spring 2014

Week	Topic
1	Intro to Service-learning project; Understanding human aging
2	Understanding human aging; Bingocize™ Training
3	Physical and psychological benefits of physical activity
4	Active living-options and benefits for older adults
5	Motivating older adults to initiate physical activity
6	Assessing physical activity, fitness, and progress in older adults
7	****No lecture**
8	Active options for older adults with special issues/concerns
9	Cardiovascular & pulmonary function
10	Muscular Strength & Power
11	Balance, postural, locomotion
12	Health, exercise, and cognitive function
13	Physically elite older adults
14	Helping older adults select physical activity programs
15	Physical activity options for older adults
16	**Cumulative Final Exam**

Table 4.1

PAQ Results for medical and allied health students

	Type of Student	PAQ M (sd)
Beling, et al. (2008)	Physical Therapy	16.87 (2.5)
Carmel, et al. (2006)	Medical	15.19 (7.9)
Carmel, et al. (2006)	Nursing	13.75 (8.82)
Fabiano, et al. (2005)	Dental	14.21 (2.03)
Lusk, et al. (1995)	Nursing	17.57 (2.34)
Waldrop, et al. (2006)*	Dental	15.03 (2.67)

*Note: *The original study was conducted with four cohorts, but were averaged together for comparison*

Table 4.2

FSA Results

	Pre Test M (sd)	Post Test M (sd)
Service-Learning (*N*=9)	56.7 (6.2)	53 (6.4)
Control Group (*N*=17)	54.8 (9.8)	51.4 (10.1)

Table 4.3
PAQ Results

	Pre Test M (sd)	Post Test M (sd)
Service-Learning (*N*=10)	15.8 (2.3)	16.6 (1.9)
Control Group (*N*=17)	15.89 (2.4)	15.89 (2.6)

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