

Effects of Service-Learning on Kinesiology Students' Attitudes Toward Children With Disabilities

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Abstract

Contact theory (*Allport, 1954*) served as the framework to investigate undergraduate kinesiology students' attitudes toward children with disabilities after a service-learning (SL) experience. Fifty-one undergraduate kinesiology students enrolled in an adapted physical education (APE) course served as the experimental group, and 31 undergraduate kinesiology students enrolled in an introductory kinesiology course served as the control group. The Attitudes Toward Disabled Persons Scale-Form A (*Yuker, Block, & Younng, 1970*) was administered at three different times: before, during, and after the SL. A mixed-design ANOVA revealed that there were no statistically significant main or interaction effects for gender, group, and time on the attitude scores of kinesiology students toward children with disabilities. The results suggest that the quantity and quality of contact time with children with disabilities may be important to consider when designing and structuring SL experiences in APE courses.

Introduction

Service-learning (SL) is an instructional method that offers organized service experiences where students can identify needs of the community and reflect on their work to better understand course content while building a sense of civic responsibility (*Bringle & Hatcher, 1995; Miller, 2012*). A primary goal of all experiential learning methods, including SL, is to promote students' better understanding of content and assist them in applying knowledge and theory to practice through hands-on experiences. An aspect of SL that differentiates it from other experiential learning methods is that students engage in activities that require not only "serving to learn" but also "learning to serve" (*Bringle & Hatcher, 1995; Simon et al., 2013*).

Many academic areas in higher education have recognized the value and benefits of SL (*Butin, 2006; Miller, 2012*). SL has been found to increase diversity awareness (*Miller, 2012*); increase positive attitudes toward P-12 students with disabilities (*Roper & Santiago, 2014*); enhance preservice teachers' self-efficacy, self-esteem (*Wade, 1995*), and pedagogical content knowledge (*Meaney, Griffin, & Bohler, 2009*);

and reduce negative attitudes toward obese individuals (Rukavina, Li, & Rowell, 2008). In addition, studies suggest that SL contributes to undergraduate students' personal and cognitive development and their ability to work well with others and analyze problems, as well as improving students' critical thinking skills, commitment to service, citizenship skills (Eyler, Giles, Stenson, & Gray, 2001), and call to vocation (Miller, 2012).

The use of experiential learning strategies in kinesiology has grown in popularity (Watson, Crandell, Hueglin, & Eisenman, 2002). In particular, courses in adapted physical education (APE) or adapted physical activity (APA) typically use hands-on experiences (Folsom-Meek, Nearing, Groteluschen, & Krampf, 1999). In such courses, undergraduate students learn how to develop, implement, and monitor physical education/physical activity programs for individuals with disabilities.

Studies have examined experiential learning strategies in various APE/APA contexts, including participating in off-campus programs such as the Special Olympics (Hodge & Jansma, 1999; Rowe & Stutts, 1987; Stewart, 1990) and on-campus programs such as a university-based APE/APA program (Folsom-Meek et al., 1999; Hodge & Jansma, 1999; Roper & Santiago, 2014). Within this research, a significant amount of attention has focused on the effects of APE/APA practical experiences (e.g., practicums, SL) on undergraduate students' attitudes toward individuals with disabilities (Folsom-Meek et al., 1999; Hodge & Jansma, 1999; Roper & Santiago, 2014; Rowe & Stutts, 1987; Stewart, 1990).

Rowe and Stutts (1987) examined the effects of type of practica, experience, and gender on attitudes of undergraduate physical education (PE) majors toward individuals with disabilities. In their study, 175 students participated in one of the following four 12-week (2 days per week, 1 hour per day) practica options: (a) preschool children with disabilities, (b) adults with cerebral palsy, (c) elementary school children with disabilities, and (d) adolescents with intellectual disabilities. Results indicated that the hands-on experience had a positive influence on the participants' attitudes. There were no significant differences across gender and type of practica. Participants who had prior experience with individuals with disabilities showed relatively positive attitudes on both the pre- and post-test.

Using the Attitudes Toward Disabled Persons–Form A (ATDP-Form A; Yucker et al., 1970), Stewart (1990) examined the effect of practica type on the attitudes toward individuals with disabilities.

Participants consisted of 48 undergraduate PE majors who were enrolled in an introductory APE course. Physical education majors voluntarily selected one of the four 20-hour practica: (a) Special Olympics, (b) a swimming program for children with disabilities, (c) a swimming program for elderly participants, or (d) a fitness recreational program with an undergraduate student with physical disabilities. Scores were pre- and post-tested across the four different practica experiences, as well as with a control group. With the exception of the swimming program for elderly participants, all of the practicum groups showed positive attitudinal change.

Several studies have focused on attitudes toward teaching individuals with disabilities (Folsom-Meek et al., 1999; Hodge & Jansma, 1999) instead of general attitudes. Using the Physical Educator's Attitudes Toward Teaching Individuals with Disabilities-III (PEATID-III; Rizzo, 1993), Folsom-Meek et al. (1999) examined the effects of academic major, gender, and prior experience working with individuals with disabilities on the attitudes of undergraduate students. The results revealed that non-PE students and female students had more positive attitudes toward teaching individuals with disabilities than PE students and male students. Furthermore, students who had prior hands-on experience with individuals with disabilities held more positive attitudes than students who did not have prior hands-on experience.

Other studies have compared type of practica on attitudes toward teaching students with disabilities in PE. Hodge and Jansma (1999) administered the PEATID-III (Rizzo, 1993) to 474 college students from 22 institutions at Week 1, Week 10, and Week 15 during an APE course. The results indicated that group scores were significantly higher in Weeks 10 and 15 compared to the first week. There were no significant differences between males and females.

Hodge, Davis, Woodard, and Sherrill (2002) compared the effects of eight sessions of an on-campus or off-campus APE/APA practicum on undergraduate PE students' attitudes and perceived competence toward teaching students with disabilities. PEATID-III (Rizzo, 1993) scores were compared at Week 1 and Week 15 across the on-campus and off-campus groups. Results revealed no significant difference between type of practicum on attitude scores toward teaching students with physical disabilities or mental impairment. However, the perceived competence did significantly improve from pretest to posttest. Unlike Hodge and Jansma (1999), this study found that the type of practicum did not influence the PE students' attitudes toward individuals with disabilities.

Based on the previous literature, evidence indicates that the use of experiential learning strategies tends to improve undergraduate students' attitudes toward individuals with disabilities (Folsom-Meek et al., 1999; Hodge & Jansma, 1999; Rowe & Stutts, 1987; Stewart, 1988, 1990). However, several studies suggest that some variables such as type of practica and prior experience might influence the potential for positive attitudinal change (Rowe & Stutts, 1987; Stewart, 1990). The majority of the research has focused on assessing practica experiences rather than SL. Very few studies have used a clearly identified SL approach in the APE/APA field. Roper and Santiago (2014) qualitatively examined the attitudes toward individuals with disabilities of kinesiology undergraduate students after participating in a six-session (90 minutes per session) SL experience with P-12 students with disabilities. Results of this study revealed that undergraduate kinesiology students expressed a great deal of anxiety prior to the SL experience, but this anxiety dissipated after they began to work with the P-12 students with disabilities. The undergraduate kinesiology students were also found to hold pre-conceived attitudes and stereotypical assumptions about individuals with disabilities; many of these attitudes and assumptions were challenged or changed as a result of the SL experience. It was concluded that the attitudes of the undergraduate kinesiology students toward P-12 students with disabilities were positively influenced by the SL experience. Woodruff and Sinelnikov (2015) qualitatively examined what undergraduate students found meaningful when teaching and how their perceptions toward individuals with disabilities evolved throughout a 10-week SL experience. The results indicated a three-stage model for explaining how students learn to teach individuals with disabilities: (a) anticipation, (b) familiarization, and (c) commitment. Similar to Roper and Santiago (2014), Woodruff and Sinelnikov indicated that the students experienced anticipation (i.e., uncertainty, fear) early in the SL experience. During the familiarization stage, undergraduate students' interactions with the individuals with disabilities became more meaningful. The researchers stressed the importance of getting to the commitment stage, as this was when the students' most positive attitudinal change occurred.

Theoretical Framework: Intergroup Contact Theory

Originated by Allport (1954), intergroup contact theory asserts that interpersonal interaction is one of the most effective ways to decrease prejudice between minority and majority populations.

Contact theory was originally used to study attitudes toward racial and ethnic minorities among Caucasian populations but has since been applied to study a variety of minority populations, including lesbian, gay, bisexual, and transgender individuals (*Herek & Capitano, 1996*), individuals with AIDS (*Werth & Lord, 1992*), the elderly (*Drew, 1998*), and individuals with disabilities (*Slininger, Sherrill, & Jankowski, 2000*). According to Allport (*1954*), reduced prejudice will result when four conditions of the contact situation are present: (a) equal status between the groups, (b) common goals, (c) intergroup cooperation, and (d) support of authorities. Allport believes that upon becoming familiar with others and their experiences, stereotypical assumptions and attitudes are expected to decrease.

Researchers have found that those who have contact with individuals with disabilities generally hold more favorable attitudes toward individuals with disabilities than those who do not (*Slininger et al., 2000*). Several studies have applied contact theory within the APE/APA setting (*Murata, Hodge, & Little, 2000; Tripp, French, & Sherrill, 1995*). Tripp et al. (*1995*) compared attitudes of students (ages 9-12 years) without disabilities who either had or did not have direct contact with peers with disabilities in their general physical education classes. Using the Peer Attitudes Toward the Handicapped Scale (*Bagley & Green, 1981*), results revealed that contact with students with disabilities did not significantly affect the attitudes of students without disabilities. Tripp et al. (*1995*) suggested that the number of students in the class may have reduced the strength of contact needed for positive attitudinal change. However, gender and type of disability did significantly influence attitudes. Female students held significantly more positive attitudes than male students. The students' attitudes were also significantly more favorable for individuals with behavioral disabilities than individuals with physical disabilities. Tripp and colleagues posited that due to the physical nature of the course, students with physical disabilities may have slowed down games or required them to be less competitive.

Murata et al. (*2000*) interviewed 12 high school students without disabilities who served as teacher assistants and peer tutors for three high school students with multiple disabilities. Results revealed that students were initially uncertain and concerned about inclusion, but these feelings changed over time due to repeated, positive interactions with students with disabilities. Slininger et al. (*2000*) argued that much of the research using contact theory within APE has failed to address the four conditions that Allport

(1954) deemed necessary in order to achieve prejudice reduction. In their study examining children's attitudes toward peers with severe disabilities, they found that despite not being able to create equal-status relationships between the children with and without disabilities, the attitudes of male students did positively change as a result of contact.

Contact is considered important to reduce individual biases and stereotypical attitudes toward minority populations (*Allport, 1954*). Incorporation of a SL methodology in APE/APA gives undergraduate students opportunities to work directly with individuals with disabilities. These opportunities for intergroup contact have the potential to positively influence kinesiology students' attitudes toward individuals with disabilities. Kinesiology students' biases may potentially serve as barriers, and they may impede the full inclusion of students or clients with disabilities in their future professional practice. Although some research has focused on general attitudes toward individuals with disabilities, the majority of research has narrowly focused on examination of attitudes toward teaching students with disabilities among students in physical education teacher education (PETE), with most employing the theory of reasoned action (*Ajzen & Fishbein, 1980*) as the theoretical framework (e.g., *Folsom-Meek et al., 1999; Hodge & Jansma, 1999; Hodge et al., 2002*). Several studies have also failed to clearly identify the specific method of experiential learning used (e.g., SL, practicum, clinical placement).

Purpose of the Study

The purpose of this study was to examine the effects of a SL experience on the attitudes toward children with disabilities among kinesiology undergraduate students. For the purpose of this study, an attitude was defined as "an individual's viewpoint or disposition toward a particular 'object' (a person, a thing, an idea, etc.)" (*Gall, Borg, & Gall, 1996, p. 273*). The following research questions were examined:

1. How does SL affect undergraduate kinesiology students' attitudes toward children with disabilities?
2. How does SL affect undergraduate kinesiology students' attitudes toward children with disabilities when compared to a control group?
3. Is there a difference in attitudes toward children with disabilities between males and females?

4. Is there a relationship between prior level of contact and attitudes toward children with disabilities?

Methods

Participants

The participants in this study consisted of 82 undergraduate kinesiology majors from a university in the southwestern United States. The experimental participants in the study were 51 undergraduate kinesiology students enrolled in two APE classes with a SL component. Undergraduate kinesiology students ($n = 31$) enrolled in two Foundations of Kinesiology classes in Fall 2013 who had never taken the APE class served as the control group. The undergraduate kinesiology students participating in this study were selected as a result of availability, representing a convenience sample. The university's Institutional Review Board granted approval for this investigation, and participants completed informed consent procedures in accordance with the university's human subject requirements.

Adapted Physical Education Service-Learning Experience

The SL component of the APE course was a university campus-based APA program for children with disabilities from a local school district. The undergraduate students in this study were required to assess motor skills of the children, design and implement developmentally appropriate movement tasks, and develop goals and behavior management skills. A total of 79 elementary ($n = 51$) and secondary ($n = 28$) children with disabilities participated in the APA program in a university gymnasium once a week, approximately 55 minutes per session, for 6 consecutive weeks (a total of 330 minutes). Of the 79 children, 24 were female and 55 male. According to the school district, there were 26 children with intellectual disabilities, 19 with autism, 15 with developmental delays, eight with multiple disabilities, five with other health impairments, three with traumatic brain injuries, two with cerebral palsy, and one with a learning disability.

For each session, classroom teachers, instructional assistants, and an APE teacher observed the interactions between the children with disabilities and undergraduate students in order to monitor for severe behavior problems or accidents. The course instructor supervising the SL provided feedback to the undergraduate stu-

dents. A variety of age-appropriate equipment (e.g., playground balls of different sizes and colors, poly-spots, and batting tees) was provided to the undergraduate students to support their instructional activities. Multiple activity stations were set up to provide structured activities and to maximize activity time for the children.

Each of the undergraduate students was assigned to one child. The instructional session began with warm-up activities such as stretching body parts and/or a game of tag. The main activity component included a variety of gross motor tasks from fundamental motor skills (e.g., balancing, throwing) to more sport-related skills (e.g., bowling, basketball). Small-group activities such as basketball were utilized for children who enjoyed working with peers and more skilled students. The session ended with parachute play, praise, and a preview of the next session.

In order to accomplish learning objectives of the course, different learning tasks were provided to the undergraduate students during the SL experience. Undergraduate students were asked to assess their assigned child using various assessments and design individualized activities. During the first two sessions of the SL, the children's gross motor skills were assessed, and their present level of performance was identified. Information on the assigned child's age, type of disabilities, preferred activities, methods of communication, and mobility level was collected during this time. Then the undergraduate students developed goals and objectives for their assigned child (e.g., "Sam will be able to pass a soccer ball 10 feet away from a partner four successful times out of five trials upon a verbal prompt") and designed instructional activities for each session for the next 4 weeks. In addition, the undergraduate students were asked to identify any inappropriate behavior exhibited by their assigned child and to develop a behavior management plan. Upon completion of the SL, the students responded to a set of reflection questions regarding their SL experience. The questions focused on their perceptions of what activities and instructions worked or did not work, their feelings and attitudes toward individuals with disabilities after the SL experience, and how they would teach this population differently in the future.

Instrumentation

Attitudes Toward Disabled Persons Scale (ATDP). The Attitudes Toward Disabled Persons Scale–Form A developed by Yunker et al. (1970) was used to measure the participants' attitudes toward individuals with disabilities. It is important to note that the

authors will use person-first language to refer to individuals with disabilities. Person-first language is considered the appropriate manner in which to refer to an individual with a disability and is used in order to promote the idea that one's disability is only one characteristic of a person's identity and not the defining characteristic of an individual.

The ATDP uses a 6-point Likert format, with responses ranging from +3 (*I agree very much*) to -3 (*I disagree very much*). There is no neutral point on the scale. The scale score ranges from 0 to 180. High scores are interpreted to represent acceptance of individuals with disabilities, or a favorable attitude toward individuals with disabilities, and low scores represent an unfavorable attitude toward individuals with disabilities (Yuker et al., 1970). Sample items from the ATDP-Form A include "Disabled people are often unfriendly" and "Disabled children should compete with physically normal children." Yuker et al. (1970) reported split-half reliability coefficients for the ATDP ranging from 0.75 to 0.85. Construct validity of the ATDP has been established using other measures of attitudes toward individuals with disabilities. ATDP scores have been found to correlate highly with measures of attitudes toward persons with specific disabilities, prejudice, mainstreaming, and acceptance of disability (Yuker & Block, 1986).

Contact with Disabled Persons Scale (CDP). The participants' contact with individuals with disabilities was assessed using the 20-item CDP developed by Yuker and Hurley (1987). The CDP is designed to measure the quantity and quality of a person's prior contact with individuals with disabilities. The scale uses a 5-point Likert format with responses ranging from 1 (*Never*) to 5 (*Very often*). The scale scores range from "20, indicating a complete lack of contact, to 100, indicating maximum contact" (Yuker & Hurley, 1987, p. 149). Sample items from the CDP scale include "How often have you had a long talk with a person who is physically disabled?" and "How often have you eaten a meal with a person who has a physical disability?" Hunt and Hunt (2000) reported Cronbach's alpha of .91 for the CDP scale.

Procedures

Following the standard procedures established by Yuker et al. (1970), the ATDP-Form A was administered to the participants at three different times: (a) 2 weeks before the SL, (b) during the SL, and (c) 2 weeks after the SL. The CDP was administered only once before the SL experience, along with a demographic form and a

series of questions regarding participants' previous experiences with individuals with disabilities (see Table 1). Both the experimental and control groups completed the scale at the same time.

Table 1. Demographic Information

	Experimental (<i>n</i> = 51)	Control (<i>n</i> = 31)
Age	<i>M</i> = 22.3, <i>SD</i> = 2.3	<i>M</i> = 20.0, <i>SD</i> = 2.3
Gender		
Male	32	10
Female	19	21
Race /Ethnicity		
Black/African American	17	8
White	25	16
Hispanic/Latino	9	6
Classification		
Freshman	1	6
Sophomore	1	15
Junior	19	7
Senior	30	3
Major		
PETE	13	4
General	23	8
Exercise Science	5	8
Athletic Training	7	3
Other	3	8
How many courses have you taken that (outside of kinesiology) dealt specifically with individuals with disabilities? (number of hours)	<i>M</i> = .3, <i>SD</i> = 1.8	<i>M</i> = .64, <i>SD</i> = 1.4
Have you had any experience in teaching individuals with disabilities?	Yes = 16, No = 35	Yes = 9, No = 22
Do you have any family members with a disability?	Yes = 17, No = 34	Yes = 16, No = 15
Do you have any close personal friends with a disability?	Yes = 17, No = 34	Yes = 12, No = 19
Do you have a disability?	Yes = 0, No = 51	Yes = 1, No = 30
How competent do you feel teaching an individual with disabilities?		
Not at all	4	5
A little	7	7
Somewhat competent	22	9
Very competent	9	7
Extremely competent	9	3

Data Analysis

All ATDP and CDP responses were manually entered into SPSS Version 22.0 for statistical analysis. Descriptive statistics were used to describe the group within the sample. The internal consistency of the items of both scales was assessed by calculating Cronbach's alpha (α). An α of 0.70–0.80 was deemed acceptable. Pearson product-moment correlation coefficient (PPM) was calculated to determine the relationship between the ATDP and CDP scales. A $2 \times 2 \times 3$ mixed-design ANOVA was performed to determine the effects of SL on the attitudes of kinesiology students toward children with disabilities. The alpha p value was set at .05 as the acceptable level of significance.

Results

The internal consistency of the items resulted in a Cronbach's alpha ranging from 0.76 to 0.82 for the ATDP scale and 0.91 for the CDP scale. With Cronbach's alpha values exceeding 0.70, both scales were considered acceptable for comparing the experimental and control groups. These results are consistent with previous studies by Yuker et al. (1970) and Yuker and Block (1986).

Table 2 presents the means and standard deviations of attitudinal scores before, during, and after SL by gender and group. Descriptive data revealed that males in the experimental group scored slightly higher than females during and after the SL experience. In the experimental group, females' scores slightly increased during and slightly declined after the SL experience. In the control group, males' scores slightly increased from the first to the second time of scale administration and slightly declined from the second to the third time. Data also revealed that females in the control group slightly increased their attitude scores from the first to the third time of ATDP administration.

The CDP scores ranged from 25 to 80 ($M = 44.8$, $SD = 13.3$). For the experimental group, the mean CDP score was 45, with a standard deviation of 13.1 and a range from 25 to 76. The mean CDP score for the control group was 44.5, with a standard deviation of 13.8 and a range from 28 to 80. An independent t -test revealed no significant differences on CDP scores between the experimental and control groups, $t(80) = .13$, $p > .05$. The PPM correlation coefficient between CDP and ATDP was -0.13, indicating that as contact scores on the CDP scale increase, attitudes toward children with disabilities may decline.

Table 2. Means and Standard Deviations of Attitudinal Scores for Before, During, and After SL by Gender and Group

	Experimental		Control		Total	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Male						
Before SL	109.8	17.9	114.9	16.8	111.0	17.6
During SL	110.6	21.6	115.0	26.3	111.5	22.4
After SL	114.2	17.9	109.06	26.9	113.1	20.1
Female						
Before SL	104.0	15.0	104.2	16.1	104.1	15.4
During SL	106.9	18.3	106.1	16.6	106.5	17.2
After SL	105.3	17.6	109.0	15.3	107.2	16.3

A $2 \times 2 \times 3$ mixed-design ANOVA was calculated to examine the effects of gender (female, male), group (experimental, control), and time (before, during, and after) on the attitude scores of kinesiology students toward children with disabilities. The ANOVA results revealed no significant main effects or interactions. The main effects for gender ($F[1, 77] = 3.20, p > .05$), group ($F[1, 77] = .28, p > .05$), and time ($F[2, 154] = .46, p > .05$) were not significant. The time by group interaction ($F[2, 154] = .18, p > .05$) and time by gender interaction ($F[2, 154] = .31, p > .05$) were not significant. Finally, the time by gender by group interaction ($F[2, 154] = 1.36, p > .05$) was not significant.

Discussion

This study examined the effects of a SL experience on the attitudes of undergraduate kinesiology students toward children with disabilities. The influence of prior contact with individuals with disabilities on undergraduate kinesiology students' attitudes was also explored. In contrast to Roper and Santiago (2014) and Woodruff and Sinelnikov (2015), the results of the present study demonstrated that the SL experience did not significantly influence the participants' attitudes toward individuals with disabilities. The lack of significant difference between the experimental and control groups may be attributed to several factors.

Contact between individuals with and individuals without disabilities has been found to favorably influence attitudes toward individuals with disabilities; attitudes are further enhanced when the contact is of equal status, intimate rather than casual, interactive and pleasant, and focused on common goals (Allport, 1954). Although contact theory was used to design the SL experience, each condition may not have been adequately accomplished. Sherrill

(1993) defined equal status as “a mutually satisfying association in which both individuals contribute in equal amounts, building on each other’s strength” (p. 38). Previous research in SL has found that equal status between students with and without disabilities is helpful in producing positive attitude change (Burns, Storey, & Certo, 1999). In this study, each kinesiology student was assigned one child with a disability. The primary role of each kinesiology student was to teach and assist her or his assigned child while the children with disabilities were passive recipients of instruction. It is possible that these roles may not have been effective in meeting the criteria for equal status. As Sherrill (1993) suggested, “a partnership in which one individual gives and the other receives assistance may not have the same effect as partnerships in which giving and taking are reciprocal” (p. 38). Creating equal status between the kinesiology students and the children with disabilities may be difficult given that the primary responsibility of the kinesiology students was to deliver instruction. Further examination of ways to structure learning environments for achieving equal status relationships is needed. Research also suggests that contact between individuals with and without disabilities must be of sufficient frequency, duration, and closeness in order to facilitate positive attitudinal change (Brewer & Brown, 1998). The SL experience consisted of 330 minutes of contact time (once a week for 6 consecutive weeks, approximately 55 minutes per session). Although the scores on the ATDP did not decline, it is possible that the duration and frequency of contact time during the SL experience may not have been enough to improve the attitudes of the kinesiology students. Previous research has not established a specific amount of contact time needed to produce positive attitudinal change. Folsom-Meek, Groteluschen, and Nearing (1996) found that 54% of their participants’ attitude scores improved significantly when 10 hours or more of practicum experience was provided. Similarly, Hodge and Jansma (1999) reported that PE majors’ attitude scores toward teaching individuals with disabilities were significantly higher at Weeks 10 and 15 compared to Week 1 of their practicum. Such findings indicate that a minimum amount of contact may be necessary to achieve favorable attitudes.

Prior contact with individuals with disabilities has been found to be a predictor of attitudes toward individuals with disabilities (Au & Man, 2006; Hunt & Hunt, 2000; Yunker & Hurley, 1987). The CDP mean score of the experimental group in this study was lower than that of rehabilitation majors (Hunt & Hunt, 2000) and graduate students (Yunker & Hurley, 1987) in previous studies. In addition, 31%

of the participants in the experimental group expressed that they had experience teaching individuals with disabilities, 33% had family members with a disability, and 33% had a close personal friend with a disability. Such findings show that the majority of the participants in the experimental group lacked prior contact with individuals with disabilities, potentially influencing their attitudes toward the children with disabilities.

Research has also found that meaningful and pleasant interactions between individuals with and without disabilities do not occur voluntarily (*Sherrill, Heikinaro-Johansson, & Slininger, 1994*). The present study found a negative correlation ($r = -0.13$) between the ATDP and CDP scores, suggesting that previous contact with individuals with disabilities may not have been of quality or value, increasing the potential for stereotypical and preconceived beliefs. If the participants had negative attitudes toward individuals with disabilities prior to the SL experience, the potential of meaningful and pleasant social interactions may have been hindered.

Gender of the undergraduate kinesiology students in the present study did not show a statistically significant difference in change of attitudes toward children with disabilities. Consistent with Tripp (1988), males in this study showed slightly higher attitude scores than females on the ATDP. Yunker and Block (1986) reported ATDP-Form A median scores of 118.7 for male and 122.4 for female subjects. In this study, male participants' median scores ranged from 102 to 113, whereas female participants' median scores ranged from 102 to 109, representing slightly lower median scores than the normative data (*Yunker & Block, 1986*). This finding is contradictory to previous research that has consistently found females to hold more positive attitudes toward individuals with disabilities (*Hutzler, 2003; Yunker & Block, 1986*).

It is important to address the limitations of the present study. As the participants were obtained through a convenience sample, generalizability of the findings is uncertain. In addition, ATDP scores represent self-reported attitudes that may reflect the influence of social desirability. Furthermore, although it has been widely used to study attitudes toward individuals with disabilities (*Sherrill, 1993*), the ATDP scale is a unidimensional measure of attitudes and may fail to capture other important attitudinal components (e.g., behavioral, affective, or cognitive). Testing effects are also a limitation due to the repeated measures design and could explain the slight increase in ATDP scores on each administration.

Implications

Negative attitudes toward individuals with disabilities are considered barriers for full inclusion (*Shapiro, 1999*). APE instructors should continue to explore how SL methodology impacts students' attitudes toward individuals with disabilities. Although the attitudes of the students in the present study did not significantly shift in a positive direction, it is important to note that they did not shift in a negative direction. The use of SL methodology is critical in the preparation of future undergraduate kinesiology students who will work with individuals with disabilities in different settings. However, instructors using SL methodology to improve attitudes toward individuals with disabilities should carefully consider how the instructional environment is designed and organized. Instructors cannot assume that SL, without careful consideration of the instructional environment, will result in positive attitudinal change toward individuals with disabilities. To ensure that attitudes are positively impacted, special attention to the location, duration and frequency, and quality of contact is needed. Future research using SL methodology should assess the specific conditions in which contact occurs.

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