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Caroline E. Greene  
*Georgia Southern University*

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College students' attitudes towards adults with developmental disabilities:  
Does direct contact make a difference?

An Honors Thesis submitted in partial fulfillment of the requirements for Honors in  
*Child and Family Development*

By  
Caroline E. Greene

Under the mentorship of Jerri Kropp, PhD & Brent Wolfe, PhD

**ABSTRACT**

Data were collected from thirty college students who participated in an alternative break trip and approximately seventy college students who did not attend the trip. Study subjects served as counselors at a camp for adults with developmental disabilities. Data were collected using five measures: a) before the week started, students filled out a survey which questioned their comfort level and attitude when interacting with this population; b) this same survey was administered to a random sample of college students who did not attend the break trip c) at camp, students kept a journal throughout the week documenting their experiences; d) students answered open ended questions after their experience regarding their attitude and perceptions post-camp; e) the first author actively conducted participant observation throughout the course of the week documenting personal own interactions with the college students. (Analysis of measures d) and e) were not used in this paper.) It was hypothesized is that there would be a direct positive correlation between amount of interaction and the increase of positive attitudes and perceptions of the college students towards adults with developmental disabilities.

Thesis Mentor: \_\_\_\_\_  
Dr. Jerri Kropp

Thesis Mentor: \_\_\_\_\_  
Dr. Brent Wolfe

Honors Director: \_\_\_\_\_  
Dr. Steven Engel

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University Honors Program  
**Georgia Southern University**



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## INTRODUCTION

College students reported uncomfortable feelings surrounding interactions with adults with developmental disabilities (Tervo, 2004); however, adults with disabilities hold jobs, participate in community experiences and engage in recreation activities where they interact with many other individuals. As a result, college students will inevitably interact with adults with developmental disabilities in a vocational, community or recreation setting at some point. Due to these factors, the question that must be asked is “How can direct contact with adults with developmental disabilities influence perceptions and attitudes of college students?”

A developmental disability is defined as “attributable to a mental or physical impairment or a combination of mental and physical impairments, manifested before the person attains age 22, and results in substantial functional limitations in three or more of the following areas of major life activity: self-care, receptive and expressive language, learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency” (Department of Human Services, 2013).

When students are in the primary school systems, sometimes they have exposure to other students with disabilities, but often these individuals with disabilities are in a classroom of their own. This decreases interaction spent between typically developing students and students with disabilities. However, once individuals with developmental disabilities age out of the school system, the interaction with typically developing students tends to decrease. This is also often due to the fact that very few college and universities offer programs for young adults of this population.

Lam used the definition of attitude stating an attitude is “a learned disposition directing feelings, thoughts, and actions” (Lam et al, 2010, p. 2). There is an affective,

cognitive, and behavioral component of this definition. Tervo (2004) went on to define a positive attitude towards disabilities as

A belief that those with disability can be productive community members, decide what is their own self-interest, and lead a normal life. At the affective level, it suggests sensitivity toward positive attributes and liking the person. At the behavioral level, it implies fashioning conditions to help an individual actualize their creative capacity toward self-sufficiency and contribute to the community (p. 908-909).

May (2012) found in a study focusing on college students that “inclusive experiences may serve to foster more positive attitudes about disability and diversity among college students and overall acceptance of students with differences” (p. 244). Research also shows opportunities that bring individuals into close contact with people with disabilities foster awareness and more positive attitudes (Sahin & Akoyl, 2010). Supported by the contact theory that states, “Positive contact between different groups of people can reduce negative biases, stereotyping, expectations, and discriminatory behaviors” (May, 2012, p. 240), direct contact has been proven as an effective measure of reducing these negative attitudes. Contact theory goes on to suggest that, “interactions between individuals with and without disabilities in inclusive settings help foster non-prejudicial attitudes and promote social and personal development among non-disabled individuals” (May, 2012, p. 241). The major key is to facilitate interactions where individuals with and without disabilities are able to interact with each other on mutual ground without any feeling or perception of superiority; however, these opportunities are limited and little research exists in a non- clinical environment.

There are studies that report on the positive impact inclusion has had on individuals with disabilities, but May (2012) sought to measure the impact that inclusion may have on individuals without disabilities who have direct and interactive relationships with this population. The study sought to assess openness to diversity of college students in both

inclusive and non-inclusive college courses both before and after a single course. Data were collected on three different scales: affective, behavioral, and cognitive. The researcher found that individuals who had direct positive interaction with other students with intellectual disabilities reported more favorable changes in attitude towards individuals with disabilities whereas the control group reported no significant change. The findings in this study are consistent with contact theory and “suggest that inclusive experiences may serve to foster more positive attitudes about disability and diversity among college students” (May, 2012, p. 244).

Klooster (2009) found that college students’ attitudes towards this population could be improved through an increase in educational programs utilizing direct contact such as experiential learning camps. One important factor that consistently appeared in this study on nursing students’ attitudes towards people with disabilities was that having a family member with a disability was a predictor of a more positive attitude. Klooster (2009) also found consistencies with other research that says the type of interaction is more important than the quantity of the interaction.

With a recent increase in federal and state legislature to provide inclusive opportunities and rights for individuals with disabilities, people with disabilities are even more integrated into society than ever before (U.S. Department of Justice, 2009). More opportunities have become available for them to have life skills education in order to earn jobs in society. The regularity of interaction between individuals with and without disabilities is why it is important to study the attitudes and perceptions of college students towards adults with developmental disabilities. Experiences are needed where persons with and without disabilities can participate as equals working toward a common goal. This level of equality in

an interaction eliminates the unconscious thought that says, “I have resources you need.” Instead, it says, “We have qualities and interests in common.”

A problem occurs when college students who are pursuing careers in a helping profession (i.e. medicine, therapy, education, nursing, etc.) are not adequately educated or prepared for working with, interacting with, or serving these populations. According to Lam et al, (2010) a lack of disability-specific knowledge and discomfort with working with people with disabilities were main issues identified by students on track to pursue careers in a helping profession (Lyons, 1990). This lack of education and experience does not create “overly hostile” practices from healthcare providers, but it can facilitate less than appropriate care for individuals with disabilities. Lyons (1990) found some unexpected results showing no significant difference in attitudes of occupational therapy students and business students towards persons with disabilities. Lyons expected to find that students pursuing a helping profession would potentially possess an innately more positive attitude; however, the reality of the results was that the students pursuing therapy were “no different in this regard than students’ pursuing a business career” (Lyons, 1990, p. 314). While not every person is in a field where they will actively treat or care for individuals with disabilities, all people will inevitably interact with adults with disabilities at some point in their lifetime. The current study seeks to address this issue and explore the question of, “How can we foster positive experiences for young adults and college students in order to shape and create more positive attitudes and perceptions towards adults with disabilities?”

## **PARTICIPANTS**

Participants of this study consisted of an experimental group (n=30) and two control groups (n=74) of college students from a mid-sized university in the southeast. All



participants in both the experimental and control groups provided written consent, which allowed each student the choice to participate in the research study; some students opted out.

The study contained five original control groups (n=74): one class of upper division Child and Family Development course, one upper division Therapeutic Recreation course, one honors Freshman seminar, two Alternative Break Trip teams (one to the Everglades and one to Cumberland Gap) participating in environmental clean up projects. The goal of the control groups was to match the demographics of the experimental group in order to control confounding variables. After collection of all data, the control groups were collapsed into two groups: one group consisted of students who were in a class that had a focus regarding people with disabilities (Therapeutic Recreation and Child and Family Development) and one did not (freshman year seminar and Alternative Break Trips). While both the freshman seminar class and the two alternative spring break trips focused on service and humanitarianism, they did not focus on disabilities.

The experimental group consisted of college students who volunteered at a camp for adults (20 years and older) with developmental disabilities. The college students served as cabin counselors and program staff, facilitating and participating in activities with the campers throughout the weeklong experience.

A pilot study began in March of 2012 as data were collected from the students on the trip, and the current study extends the pilot study from 2012. Data was collected in March 2013 from the students who volunteered (n=30) along with several control groups (n=74). Tables 1 and 2 include a break down of demographics categorized by gender and year in school. Table 1 separates the different 4 control groups and Table 2 combines the control groups for an overall summary of the control group demographics.

	Experimental Group	Therapeutic Recreation	Child & Family Development	Freshman Seminar Class	Alternative Break Trips	Total Control Group	Total Participants
Male	5	1	0	7	4	12	17
Female	17	21	13	9	6	49	66
No Report	8	0	6	0	7	13	21
Freshmen	4	0	0	15	3	18	22
Sophomore	3	0	0	1	2	3	6
Junior	5	7	5	0	0	12	17
Senior	10	15	8	0	5	28	38
No Report	8	0	6	0	7	13	21

	Experimental Group	Control Group (Disability)	Control Group (No Disability)	Total Control Group	Total Participants
Male	5	1	11	12	17
Female	17	34	15	49	66
No Report	8	6	7	13	21
Freshmen	4	0	18	18	22
Sophomore	3	0	3	3	6
Junior	5	12	0	12	17
Senior	10	23	5	28	38
No Report	8	6	7	13	21

Participants varied in age with the total participant age range being [18-29], which is the same reported age range for the control group. The reported age range for the experimental group was [18- 23]. The average reported age for experimental group, control group, and total participants were each 20.7 years old. Participants represented college students from a variety of majors including:

Accounting, Anthropology, Biochemistry, Biology, Business Chemistry, Child and Family Development, Computer Science, Criminal Justice, Early Childhood Education, Exercise Science, Health Education and Promotion, History, International Studies, Management, Marketing, Mathematics, Natural and Cultural Resource Management, Nursing, Outdoor

Recreation, Psychology, Public Relations, Spanish, Sport Management, and Therapeutic Recreation.

## METHODS

Data were collected utilizing a mixed methods approach to include both qualitative and quantitative methods. Data from the experimental and control groups were collected pre- and post- intervention using the Multidimensional Attitudes Scale toward Persons with Disabilities (MAS) (Findler, Vilchinsky, & Werner, 2007). Participant journals were open ended with no directions to allow participants to explore their own thoughts and feelings in accordance with their own personal experiences regarding the intervention. The purpose of the journals was to offer insight as to the outcomes of the quantitative data. Journals have not undergone systematic data analysis.

The MAS utilized a multidisciplinary approach to measuring attitudes of individuals towards persons with disabilities in order to encompass all three components of attitude: affective, cognitive, and behavioral. At the top of the questionnaire, participants were provided with the following vignette:

Imagine the following situation. Joseph/Michelle went out for lunch with some friends to a coffee shop. A man/woman in a wheelchair, with whom Joseph/Michelle is not acquainted, enters the coffee shop and joins the group. Joseph/Michelle is introduced to this person and shortly thereafter, everyone else leave, with only Joseph/Michelle and the man/woman in the wheelchair remaining alone together at the table. Try to imagine the situation.

After reading the vignette, participants were prompted with the following introduction to the **affective** domain questions.

People experience a variety of *emotions* when they are involved in such a situation. In the next column is a list of possible emotions, which may arise

before, during, and/or after such a situation. Please rate on each line the likelihood that this emotion might arise in Joseph/Michelle.

Participants were asked to rank 1 thru 5, with 1 meaning *Not at All* and 5 meaning *Very Much* in regards to the likelihood that each specific emotion would arise. There are 16 different emotions included in the affective scale, which were taken from the circumplex model of affect and Izard's theory of emotions (Findler, Vilchinsky, & Werner, 2007). Emotions included: a) tension, b) stress, c) helplessness, d) nervousness, e) shame, f) relaxation, g) serenity, h) calmness, i) depression, j) fear, k) upset, l) guilt, m) shyness, n) pity, o) disgust, and p) alertness.

The second domain measured **cognition**. The participants were prompted with the following:

People experience a variety of cognitions when they are involved in such a situation. Following is a list of possible thoughts that may arise before, during and/or after such a situation. Please rate on each line the likelihood that this cognition might arise in Joseph/Michelle.

Participants were asked to rank 1 thru 5, with 1 meaning *Not at All* and 5 meaning *Very Much* in regards to the likelihood that each specific cognition would arise. Cognitions included: a) He/she seems to be an interesting girl; b) he/she looks like an OK person; c) We may really get along well; d) he/she looks friendly; e) I enjoy meeting new people; f) He/she will enjoy getting to know me; g) I can always talk with him/her about things that interest both of us; h) I can make him/her feel more comfortable; i) Why not get to know him/her better; j) He/she will appreciate it if I start a conversation.

The final domain measured was **behavioral**. The participants were prompted with the following:

People experience a variety of behaviors when they are involved in such a situation. Following is a list of possible behaviors that may arise before, during, and/or after such a situation. Please rate on each line the likelihood that Joseph/Michelle would behave in the following manner.

Participants were asked to rank 1 thru 5, with 1 meaning *Not at All* and 5 meaning *Very Much* in regards to the likelihood that each specific behavior would occur. Behaviors included: a) move away; b) get up and leave; c) read the newspaper or talk on a cell phone; d) continue what he/she was doing; e) find an excuse to leave; f) move to another table; g) initiate a conversation if he/she doesn't make the first move; h) start a conversation.

Participants in the experimental group arrived at camp on Sunday, the day before campers arrived (which was Monday). Participants were given informed consent forms and informed that their participation was voluntary, yielding no reward or extrinsic incentive. Participants were then handed the MAS and the questionnaire and given approximately fifteen minutes to complete them. Students were then asked to keep a journal of their thoughts and feelings surrounding their experience throughout the week. The participants were told the journals would be transcribed and anonymous. Participants were asked to turn journals in on a voluntary basis in order to eliminate the feeling that it was a requirement or expectation. Journals could be turned in hand written or typed and blank note pads were provided for participants who had not brought paper or a notebook.

At the end of camp (Friday), participants in the experimental group were given the post- intervention MAS. Participants were asked to complete the questionnaires in a timely manner and return them to one of the three faculty advisors for the trip.

Faculty advisors were given permission to speak with control group participants and leaders of Alternative Break Trips to the Everglades and Cumberland. The researchers were

present to introduce the study, gain participant consent, and administer the pre-questionnaires. The methods and instructions for the control groups mirrored methods and instructions provided to the experimental group. The post-questionnaire instrument was sent to the respective faculty members or trip leaders to administer after the participants returned from spring break. The control group participated in both pre- and post-test questionnaire; however, due to the absence of an intervention and significantly lower return rates on the post-test, only pre-test data were used in this study.

### **DATA ANALYSIS**

Following collection of all questionnaires and journals, data were transcribed and entered into a database. Mean scores were identified for both pre- and post-experimental group questionnaires for each of the three domains: affective, cognitive, and behavioral. The control group participated in both pre- and post-test questionnaire; however, due to the absence of an intervention and significantly lower return rates on the post-test, only pre-test control group data were used in this study.

The control group did not experience an intervention; therefore there should not have been a significant change in the way the participants rated their emotions, cognitions, and behaviors. Pre- and post-test experimental data in all three domains were then compared to the pre-test data from the control group and formatted into charts. After looking for any major differences in the pattern of results from the means of the two control groups that had a focus on disabilities (Child and Family Development and Therapeutic Recreation courses), the data were collapsed. The same was done with the two control groups that did not have a focus on disabilities (Freshman seminar course and Alternative Spring Break trips). At this point, graphs contained 5 sets of data (Pre- and post-experimental, pre-test for two control

groups, and total control group [n=74]). Within each domain, the two control groups were collapsed into one in order to see the overall impact of an intervention. A final graph was created having solely pre- and post- experimental and one control group consisting of all control participants (n=74).

Differences of pre- and post- experimental along with post- experimental and pre-control group were calculated to determine which components of each scale had the maximum and minimum change after intervention for each domain. Focusing on questions that elicited the most change in answer following the intervention, the top three and bottom three were analyzed more closely.

## **RESULTS**

### **Affective Domain**

When examining data on the affective domain, mean scores for each group, differences between the experimental pre- and post- test, and differences between the experimental post-test and control group were analyzed. Results are presented in Table 3 and Figures 1, 2 and 3. Table 3 includes mean scores for each group on the 16 items included in the affective scale. Figure 1 presents the table data in graphical form highlighting the differences between the different groups included in the study. Figure 2 collapses all of the control group data to compare the pre- and post- test data of the experimental group. Figure 3 presents the most significant increases and decreases on item in the affective scale.

**Table 3:** Affective Domain

	<b>Tension</b>	<b>Stress</b>	<b>Helplessness</b>	<b>Nervousness</b>	<b>Shame</b>	<b>Relaxation</b>	<b>Serenity</b>	<b>Calmness</b>
<b>Pre- Test Experimental Group</b>	2.74	2.35	2.29	3.13	1.58	2.68	2.55	2.81
<b>Post- Test Experimental Group</b>	2.33	2.33	2.04	2.92	1.71	2.83	2.64	2.83
<b>Disability Focused Control Group</b>	3.03	2.69	2.35	3.85	2.00	2.52	2.28	2.68
<b>No Disability Focused Control Group</b>	2.50	2.13	2.43	3.37	1.67	2.80	2.27	2.97
<b>Total Control Group</b>	2.77	2.41	2.39	3.61	1.83	2.66	2.27	2.82

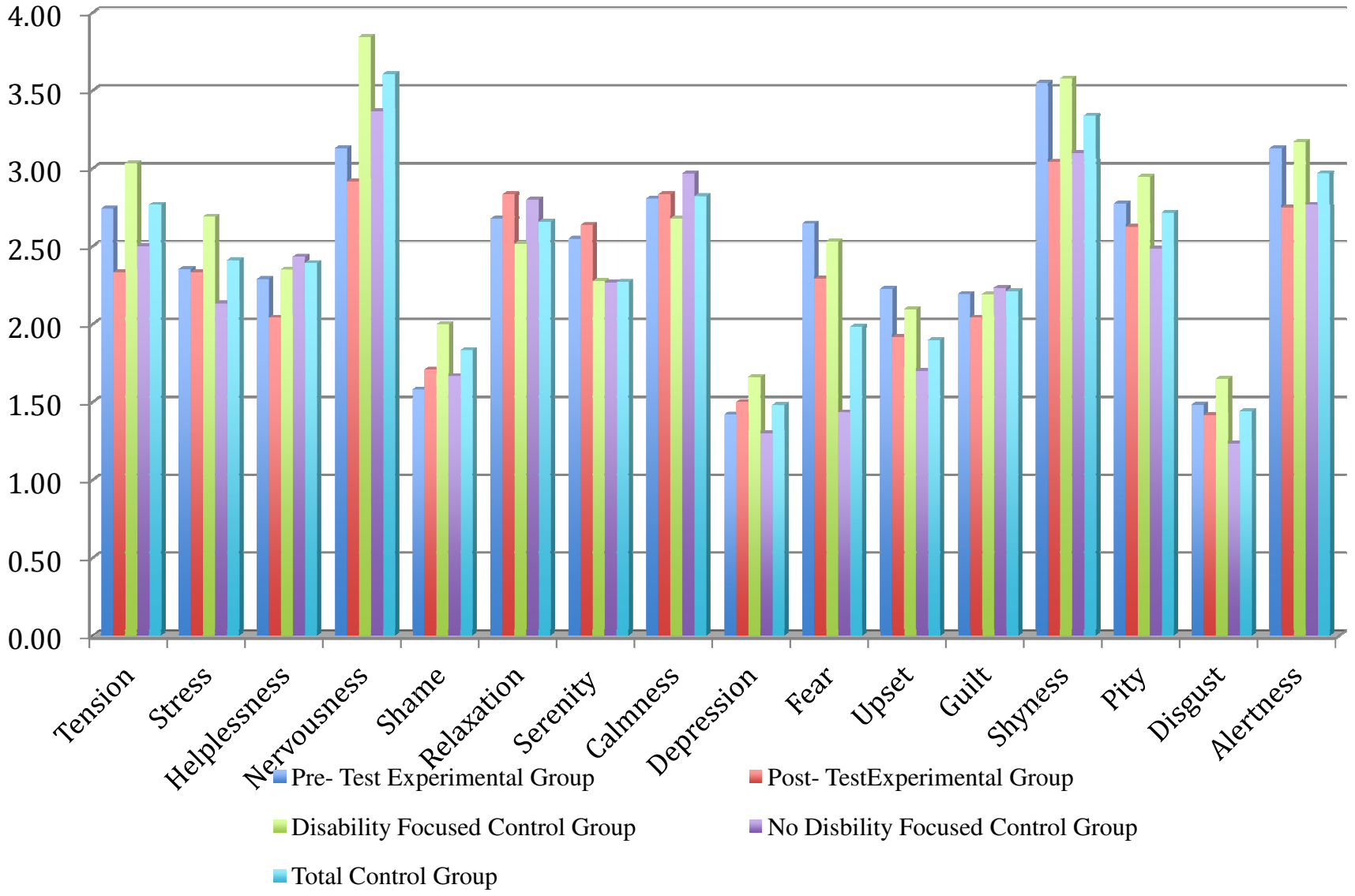
	<b>Depression</b>	<b>Fear</b>	<b>Upset</b>	<b>Guilt</b>	<b>Shyness</b>	<b>Pity</b>	<b>Disgust</b>	<b>Alertness</b>
<b>Pre- Test Experimental Group</b>	1.42	2.65	2.23	2.19	3.55	2.77	1.48	3.13
<b>Post- Test Experimental Group</b>	1.50	2.29	1.92	2.04	3.04	2.63	1.42	2.75
<b>Disability Focused Control Group</b>	1.66	2.53	2.10	2.19	3.58	2.95	1.65	3.17
<b>No Disability Focused Control Group</b>	1.30	1.43	1.70	2.23	3.10	2.49	1.23	2.77
<b>Total Control Group</b>	1.48	1.98	1.90	2.21	3.34	2.72	1.44	2.97



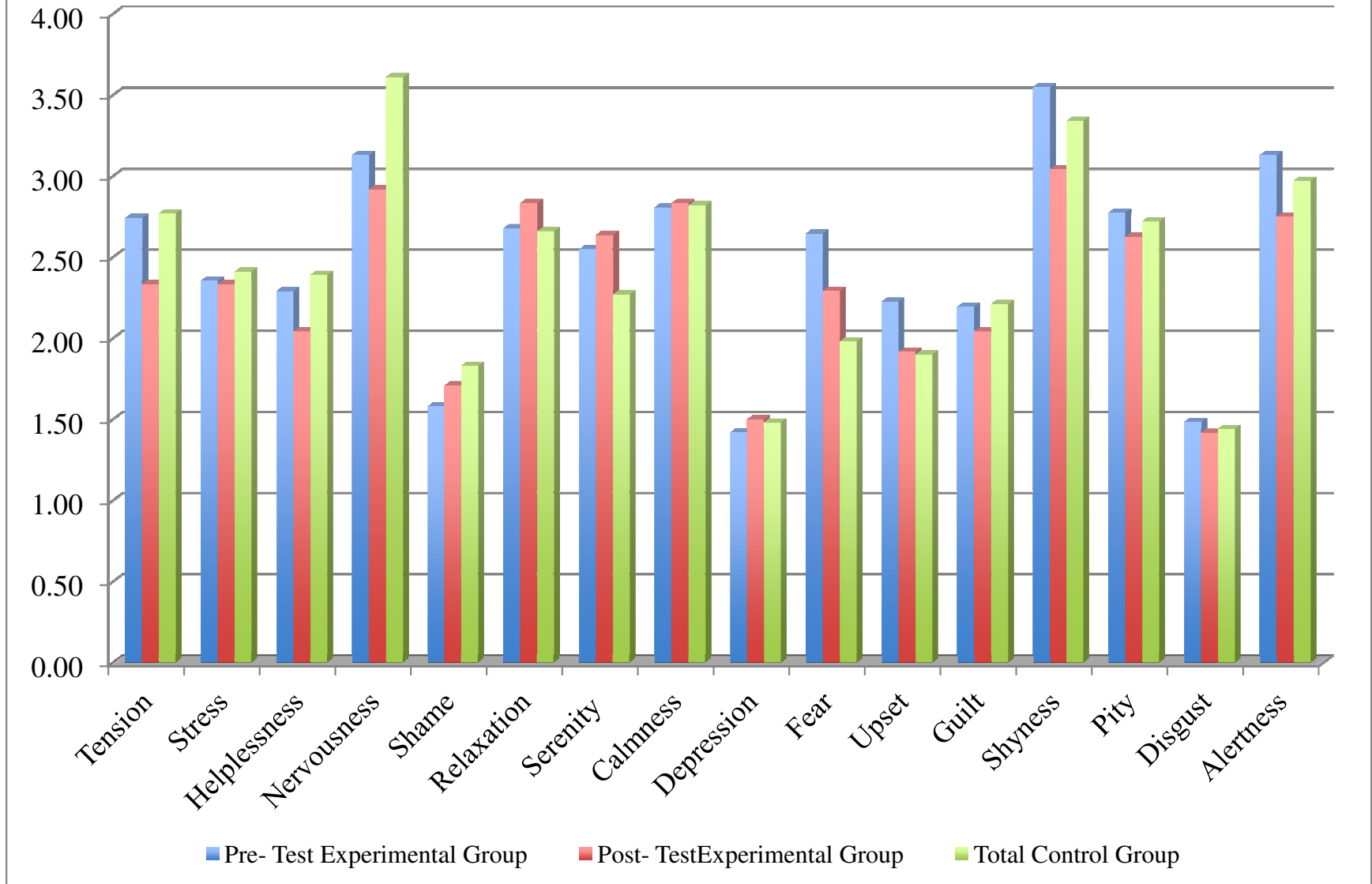
For the experimental group, tension (Pre=2.74; Post= 2.33; Difference: -0.41), stress (Pre=2.35; Post= 2.33; Difference: -0.02), helplessness (Pre=2.29; Post= 2.04; Difference: -0.25), nervousness (Pre=3.13; Post= 2.92; Difference: -0.21), fear (Pre=2.65; Post= 2.29; Difference: -0.35), upset (Pre=2.23; Post= 1.92; Difference: -0.31), guilt (Pre=2.19; Post= 2.04; Difference: -0.15), shyness (Pre=3.55; Post= 3.04; Difference: -0.51), pity (Pre=2.77; Post= 2.63; Difference: -0.15), disgust (Pre=1.48; Post= 1.42; Difference: -0.07), and alertness (Pre=3.13; Post= 2.75; Difference: -0.38), all saw a decrease following intervention with the greatest decreases being in shyness (Difference: =0.51), tension (Difference: -.41), and alertness (Difference: -38). Relaxation (Pre=2.68; Post= 2.83; Difference: 0.16), serenity (Pre=2.55; Post= 2.64; Difference: 0.09), and calmness (Pre=2.81; Post= 2.83; Difference: 0.03) all increased with intervention. Shame (Pre=1.58; Post= 1.71; Difference: 0.13) and depression (Pre=1.42; Post= 1.50; Difference: 0.08) are two negative emotions that actually saw an increase following the intervention. *See Figure 1.*

When comparing differences between the experimental group's post- test and the control group, differences in rankings appeared. While shyness, tension, and alertness saw the greatest decreases between the experimental group's pre- and post- tests, nervousness (Post= 2.92; Control=3.61; Difference: -0.69), tension (Post=2.33; Control= 2.77; Difference: -0.43) and helplessness (Post= 2.04; Control= 2.39; Difference: -0.35) demonstrated the greatest differences when comparing the experimental group's post- test to the control group. Likewise, while serenity, shame, and relaxation saw the greatest increases from pre- to post- test, when comparing the differences between the experimental post- test and the control group, relaxation (Post= 2.83; Control= 2.66; Difference: 0.18), fear (Post=2.29; Control=1.98; Difference: 0.31), and serenity (Post= 2.64; Control=2.27; Difference: 0.36) saw the greatest increases. *See Figures 2 and 3.*

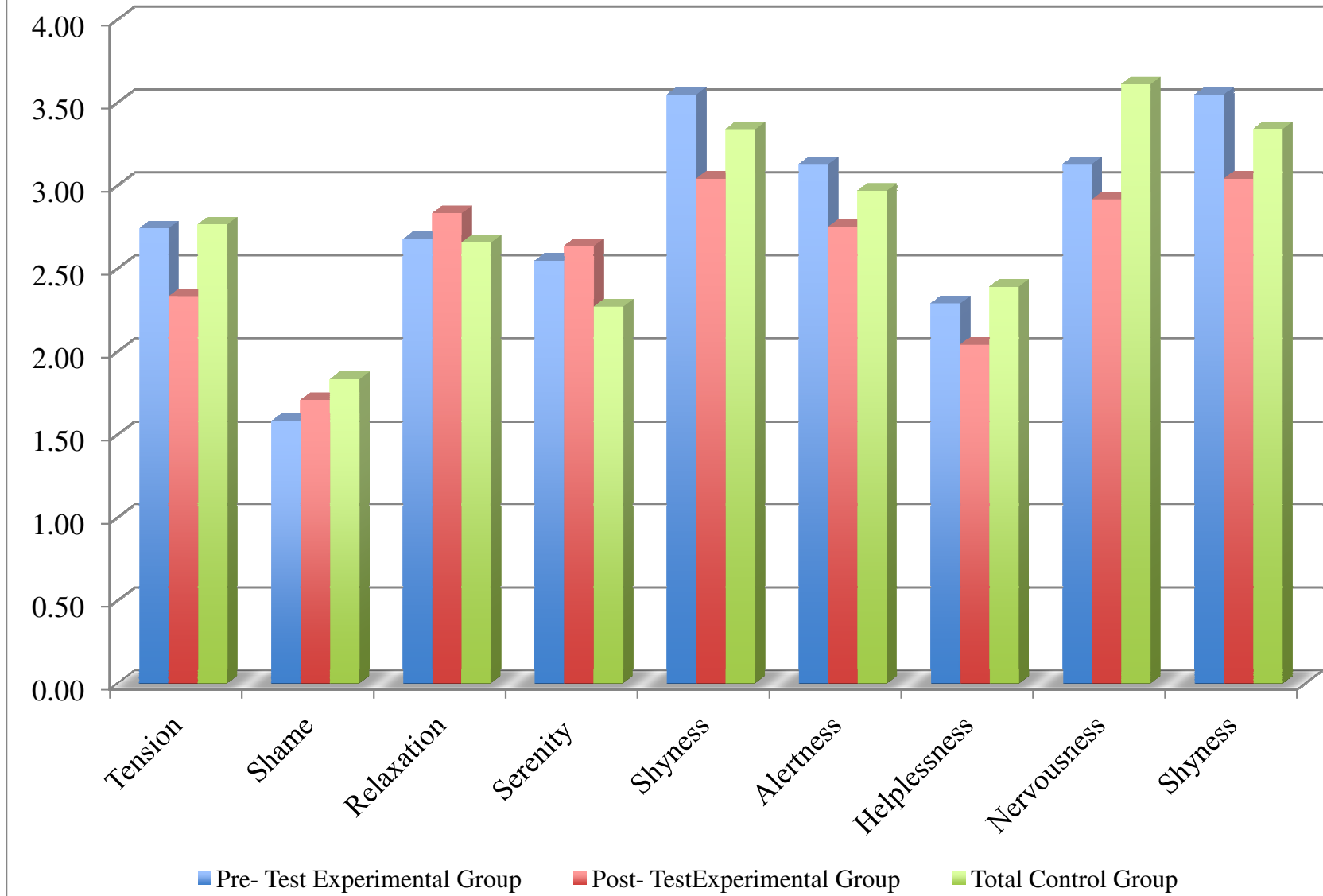
**Figure 1:**Pre- and Post- Experimental, Two Control Groups, and Total Control Groups



**Figure 2:** Pre- and Post- Experimental Group and Total Control Group



**Figure 3:** Greatest Differences Pre- and Post- Test and Total Control Group



## Cognitive Domain

When analyzing data on the cognitive domain, mean scores for each group, differences between the experimental pre- and post- test, and differences between the experimental post-test and control group were analyzed. Results are presented in Table 4 and Figures 4 and 5. Table 4 includes mean scores for each group on the 10 items included in the cognitive scale. Figure 5 presents the table data in graphical form highlighting the differences between the different groups included in the study. Figure 5 collapses all of the control group data to compare the pre- and post- test data of the experimental group.

For the experimental group, (C11) *Seems to be an interesting person* (Pre= 3.68, Post=3.91, Difference: 0.24); (C12) *Looks like an OK person* (Pre=3.55, Post=3.79, Difference: 0.24); (C13) *We may get along really well* (Pre=3.42, Post=3.83, Difference: 0.41); (C14) *He/she looks friendly* (Pre= 3.81, Post=4.08, Difference:0.28); (C15) *I enjoy meeting new people* (Pre=3.84, Post=3.94, Difference:0.12); (C16) *He/she will enjoy getting to know me* (Pre=3.35, Post=3.54, Difference:0.19); (C17) *I can always talk with him/her about things that interest both of us* (Pre=3.32, Post=3.60, Difference:0.29); (C19) *Why not get to know him/her better* (Pre=3.81, Post=4.15, Difference: 0.37); (C20) *He/she will appreciate if I start a conversation* (Pre=3.81, Post=4.02, Difference:0.24), all saw an increases following intervention. The greatest increases were seen in (C13) *We may get along really well* (Difference: 0.41), (C19) *Why not get to know him/her better* (Difference: 0.37), and (C17) *I can always talk with him/her about things that interest both of us* (Difference: 0.29). (C18) *I can make him/her feel more comfortable* (Pre=3.58, Post=3.48, Difference: - 0.10) was the only statement that saw a decrease from pre- to post- intervention. See Figure 4 and 5.

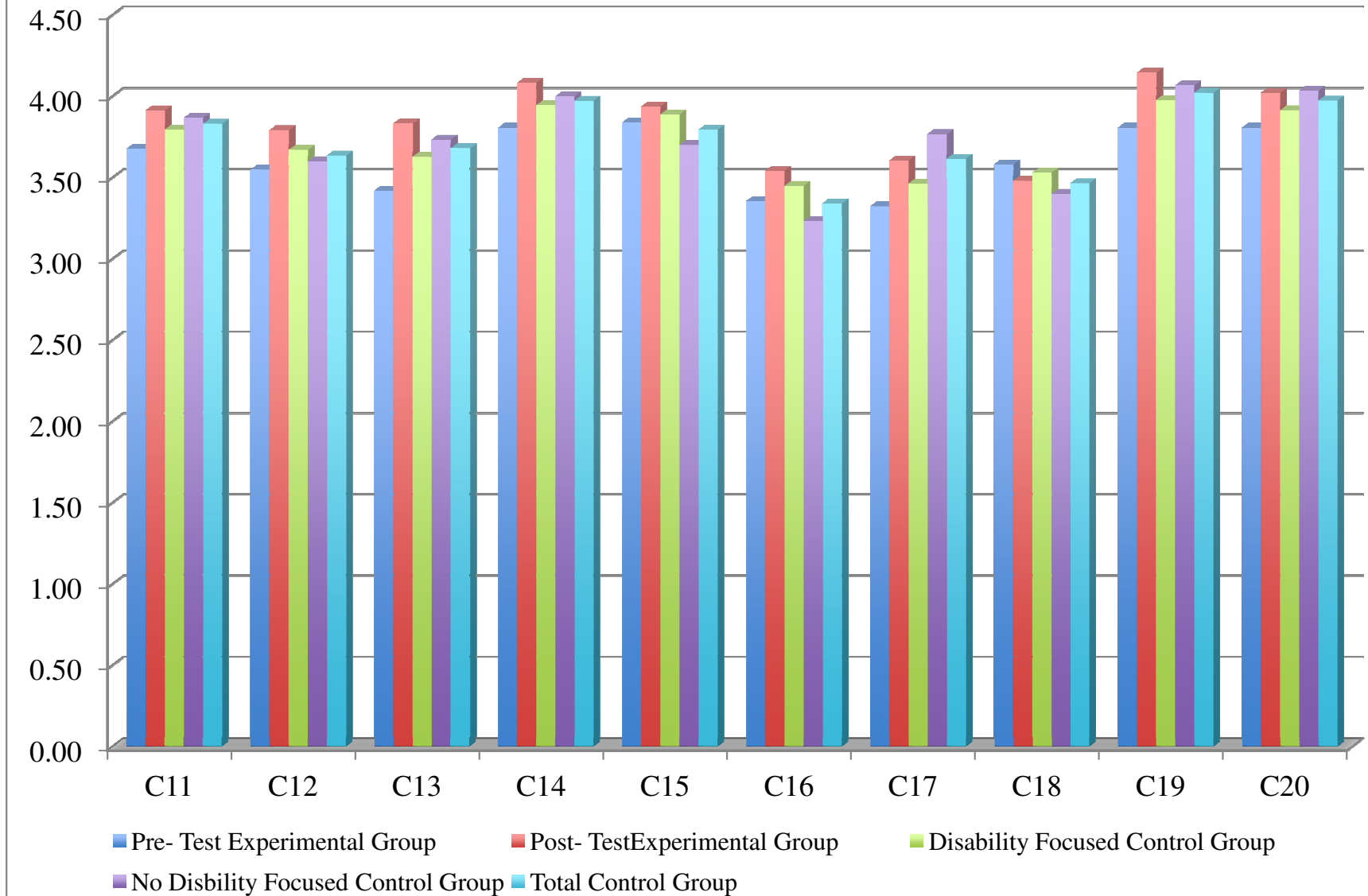
When comparing differences between the experimental group's post- test and the control group, differences in rankings appeared. While (C13) *We may get along really well*, (C19) *Why not get to know him/her better*, and (C17) *I can always talk with him/her about things that interest both of us* saw the greatest increase between the experimental group's pre- and post- tests, (C16) *He/she will enjoy getting to know me* (Post=3.54, Control=3.34, Difference: 0.20) (C12) *Looks like an OK person* (Post=3.79, Control=3.64, Difference: 0.16); (C13) *We may get along really well* (Post=3.83, Control=3.68, Difference: 0.15) demonstrated the greatest differences when comparing the experimental group's post- test to the control group. The only cognition that was not measured with a positive increase was (C17) *I can always talk with him/her about things that interest both of us* (Difference: -0.01). See Figures 4 and 5.

**Table 4:** Cognitive Domain

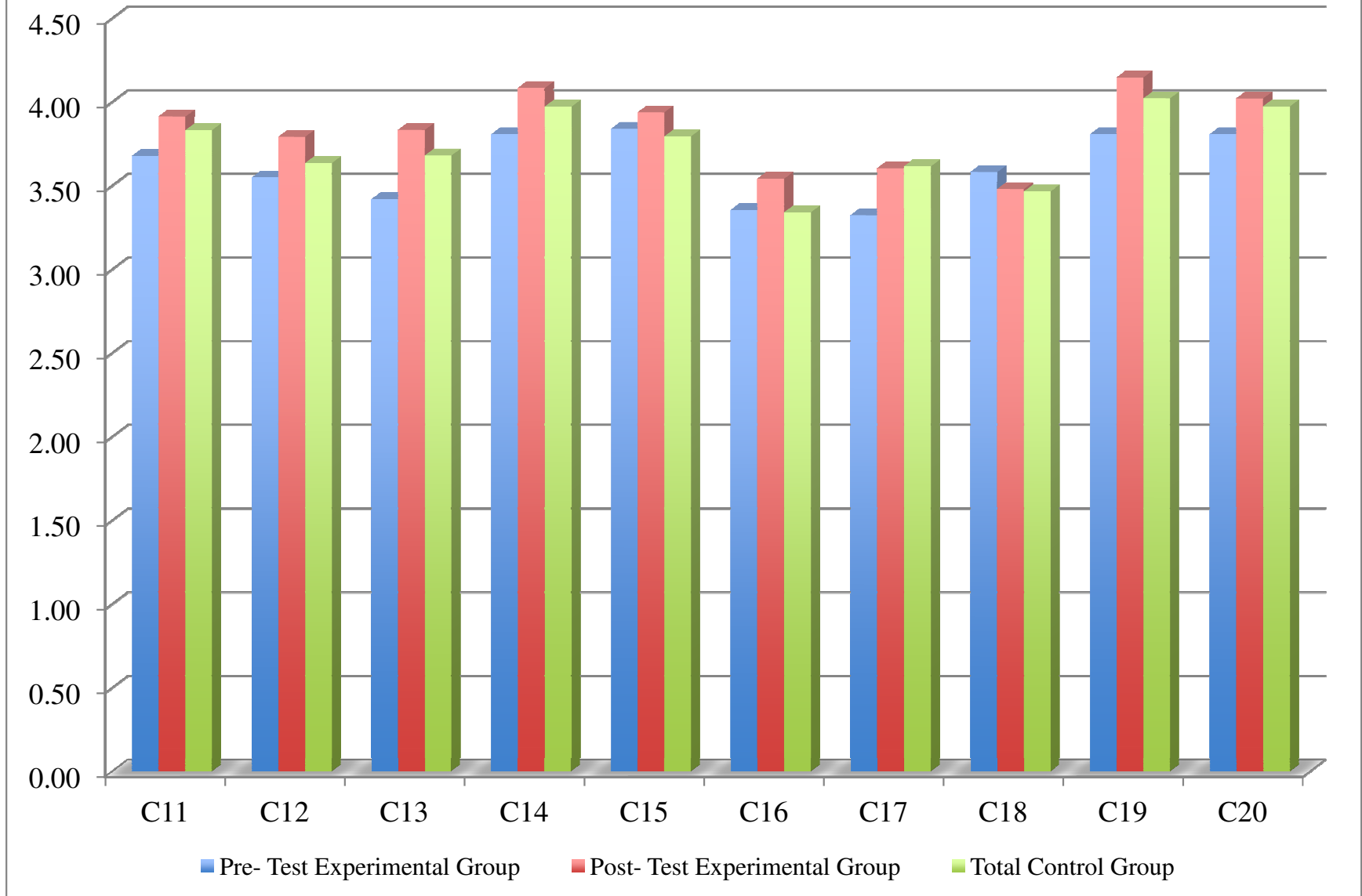
	C11	C12	C13	C14	C15	C16	C17	C18	C19	C20
<b>Pre- Test Experimental Group</b>	3.68	3.55	3.42	3.81	3.84	3.35	3.32	3.58	3.81	3.81
<b>Post- Test Experimental Group</b>	3.91	3.79	3.83	4.08	3.94	3.54	3.60	3.48	4.15	4.02
<b>Disability Focused Control Group</b>	3.80	3.67	3.63	3.94	3.89	3.45	3.46	3.53	3.98	3.91
<b>No Disability Focused Control Group</b>	3.87	3.60	3.73	4.00	3.70	3.23	3.77	3.40	4.07	4.03
<b>Total Control Group</b>	3.83	3.64	3.68	3.97	3.79	3.34	3.62	3.46	4.02	3.97

- C11 Seems to be an interesting person
- C12 Looks like an OK person
- C13 We may get along really well
- C14 He/She looks friendly
- C15 I enjoy meeting new people
- C16 He/she will enjoy getting to know me
- C17 I can always talk with him/her about things that interest both of us.
- C18 I can make him/her feel more comfortable
- C19 Why not get to know him/her better?
- C20 He/she will appreciate if I start a conversation

**Figure 4:**Pre- and Post- Experimental Group and Total Control Group





**Figure 5: Pre- and Post- Experimental Group and Total Control Group**

## Behavioral Domain

When analyzing data on the behavioral domain, mean scores for each group, differences between the experimental pre- and post- test, and differences between the experimental post-test and control group were analyzed. Results are presented in Table 5 and Figures 6 and 7. Table 5 includes mean scores for each group on the 8 items included in the behavioral scale. Figure 6 presents the table data in graphical form highlighting the differences between the different groups included in the study. Figure 7 collapses all of the control group data to compare the pre- and post- test data of the experimental group.

For the experimental group, *(B9) Move away* (Pre=2.26, Post=1.75, Difference: -0.57); *(B10) Get up and leave* (Pre=1.94, Post=1.54, Difference:-0.39); *(B11) Read the newspaper or talk on the phone* (Pre=2.74, Post=2.04, Difference:-0.70); *(B12) Continue what he/she is doing* (Pre=3.29, Post=3.17, Difference: -0.12); *(B13) Find an excuse to leave* (Pre=2.42, Post=2.13, Difference: -0.29); *(B14) Move to another table* (Pre=1.80, Post=1.42, Difference: -0.38), all saw a decrease following intervention with the greatest decreases being in *(B11) Read the newspaper or talk on the phone* (Difference:-0.70), *(B9) Move away* (Difference:-0.57), *(B10) Get up and leave* (Difference:-0.39). *(B15) Initiate a conversation if he/she doesn't make the first move* (Pre=3.77, Post=3.83, Difference: 0.06) and *(B16) Starts a conversation* (Pre=3.81, Post=4.13, Difference: 0.32) all increased with intervention. See Figures 6 and 7.

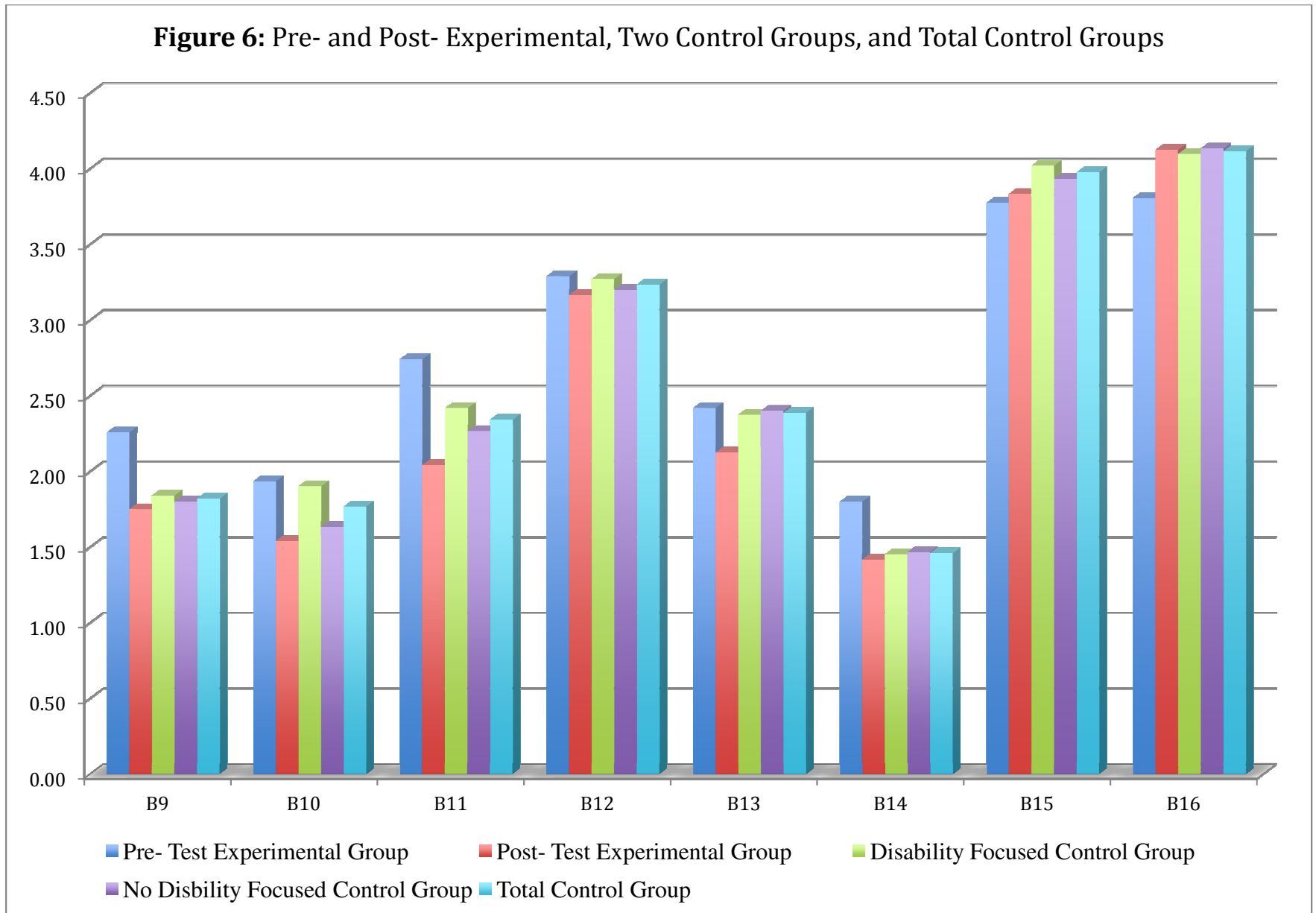
When comparing differences between the experimental group's post- test and the control group, differences in rankings appeared. While *(B11) Read the newspaper or talk on the phone* *(B9) Move away*, *(B10) Get up and leave* saw the greatest increase between the experimental group's pre- and post- tests, *(B11) Read the newspaper or talk on the phone* (Post=2.04, Control= 1.77, Difference: -0.30); *(B13) Find an excuse to leave* (Post=2.13,

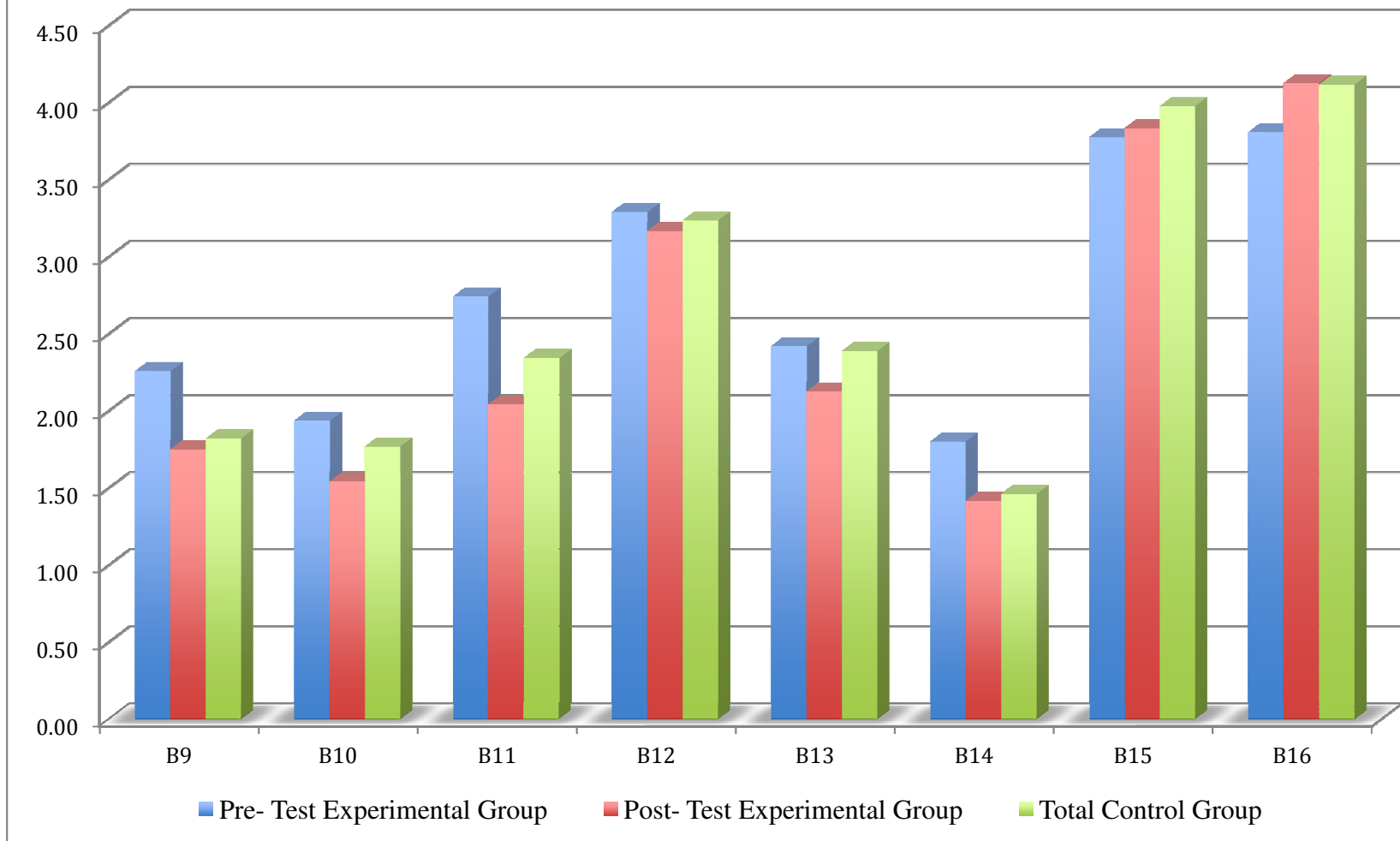
Control= 2.39, Difference: -0.26); (*B10*) *Get up and leave* (Post= 1.54, Control=1.77, Difference: -0.23) demonstrated the greatest differences when comparing the experimental group's post-test to the control group. *See Figures 6 and 7.*

**Table 5:** Behavioral Domain

	<b>B9</b>	<b>B10</b>	<b>B11</b>	<b>B12</b>	<b>B13</b>	<b>B14</b>	<b>B15</b>	<b>B16</b>
<b>Pre- Test Experimental Group</b>	2.26	1.94	2.74	3.29	2.42	1.80	3.77	3.81
<b>Post- Test Experimental Group</b>	1.75	1.54	2.04	3.17	2.13	1.42	3.83	4.13
<b>Disability Focused Control Group</b>	1.84	1.90	2.42	3.27	2.38	1.45	4.02	4.10
<b>No Disability Focused Control Group</b>	1.80	1.63	2.27	3.20	2.40	1.47	3.93	4.13
<b>Total Control Group</b>	1.82	1.77	2.34	3.24	2.39	1.46	3.98	4.12

B9	Move away
B10	Get up and Leave
B11	Read the newspaper and talk on cell phone
B12	Continue what he/she is doing
B13	Find an excuse to leave
B14	Move to another table
B15	Initiate a conversation if he/she doesn't make first move
B16	Start a conversation



**Figure 7: Pre- and Post- Experimental Group and Total Control Group**

## DISCUSSION

### Affective Domain

Each of the 16 emotions reported on the affective scale saw an appropriate change, whether positive or negative, following intervention by the experimental group. The emotions that saw the greatest difference for the experimental group (pre- minus post- test) following intervention were shyness (Difference: -0.51), tension (Difference: -.041), and alertness (Difference: -0.38); these three emotions appeared to decrease as a result of the intervention.

The experimental group underwent two rounds of training prior to interacting with the campers. The first took place at the university of the participants and consisted of workshops that taught basic skills when working with adults with disabilities. Students were encouraged to ask questions and share stories from personal experiences. The second piece of training took place at the camp where the participants would spend the week and was an overnight retreat that consisted of team building activities and workshops specifically designed to provide training to the college students as if they had little to no experience working with adults with disabilities. The trainings focused on topics such as using person first terminology, modeling appropriate social skills, how to empower campers to explore outside of comfort zones, and what to do in the case of emergencies whether medical or other. The last piece of preparation for camp took place the day before campers arrived. This consisted of volunteer expectations and last minute details of things to know.

Those extensive training sessions potentially created emotional build up prior to camper arrival. The day before campers arrived is when the pre- test was administered. This is one reason the mean scores for the experimental group often differed in larger amounts from the control group. One study participant stated in their journal, *“I have been kind of*

*nervous about meeting them and interacting with them. Once we met the campers it was the biggest relief. I didn't know why I was nervous at all.*" One participant noted in his journal, *"All of the campers' problems are new to me since I've never worked with this population."* Participants in the experimental group had been given appropriate amounts of information regarding working with adults with developmental disabilities, but few of them had prior experience, which potentially increased their nervousness, tension, and alertness in general.

The decrease in alertness (-0.38) can also be attributed to the training the experimental group went through. Throughout this training, camp program staff would provide experimental group participants with stories that could be described as "horror stories" in order to create a sense of alertness and awareness to their surroundings such as past injuries or incidents that happened by accident or because of careless mistakes. One student did state, *"Seems like other classmates/volunteers are pumped for Monday for the campers to show up. I still have not felt it quite yet."* When working with a medically vulnerable population, it is crucial to maintain a level of alertness and awareness; however, once the campers arrived, study participants realized it was not necessary to maintain the highest level of alertness and that a comfort level was expected to form throughout interactions.

One interesting finding is that shyness saw the greatest decrease from pre- to post-intervention (-0.51). Shyness is related to nervousness in the sense that people become shy around situations that may be new or uncomfortable to them. One college student addressed shyness by stating: *"I am not all that outgoing, so [I am] making an effort to introduce myself to campers..."* One college student noted towards the end of the week a change in confidence. She said, *"I feel like today I am different, there is nowhere else I would rather spend my spring break. I know that I can make a difference & I've gained the confidence to*



*do it.*” This camp experience offered study participants the opportunity to interact with adults with developmental disabilities in a positive way in order to facilitate an increase in positive attitudes toward the population.

Relaxation (Difference: 0.16), serenity (Difference: 0.09), and calmness (Difference: 0.03) all increased with intervention. While these differences are small, they still exist and are something to note. Relaxation having the highest difference plays hand in hand with tension and alertness. When tension and alertness saw a decrease post intervention, relaxation naturally saw an increase. One volunteer stated, *“Before they arrived, I was nervous and anxious [because] I didn’t know what to expect. After I met the people in my group, I realized there was absolutely NOTHING to be nervous about.”* This statement from a participant also directly addressed the emotion of nervousness, which was ranked in the top when comparing differences between the experimental group’s post- test and the control group.

### **Cognitive Domain**

In the cognitive domain, 9 out of the 10 cognitions measured saw an appropriate increase post- intervention. The greatest increases were seen in (C13) *We may get along really well* (Difference: 0.41), (C19) *Why not get to know him/her better* (Difference: 0.37), and (C17) *I can always talk with him/her about things that interest both of us* (Difference: 0.29). (C18) *I can make him/her feel more comfortable* (Difference: -0.10) was the only statement that saw a decrease from pre- to post- intervention.

With a reported increase in cognition C19 *Why not get to know him/her better*, a study participant addressed the thought in their journal, *“I liked that I got to know each [of] a lot more of the campers.”* Subjects slowly began to realize that it was not them who were going

to teach the campers something, but it was the campers who might just teach them something. One participant stated, *“I have no idea if I said or did the right thing but she seemed to feel better after we talked which was great.”* This statement supports the cognition measured C20 *She will appreciate if I start a conversation.* College students exposed to adults with developmental disabilities in a setting where everyone was equal began to think and feel at ease around this population. They began to realize that they have more in common than they originally thought with the campers. One participant stated, *“I usually don’t remember names well, but each of these campers that I’ve met are so unique that I remember all of them. It may seem like a small detail, but it is a big deal to me.”*

Some of the cognitions measured (C16 *He/She will enjoy getting to know me (0.19)*) did not see as significant of an increase following the intervention. This statement refers to the concept of people without disabilities having something that people with disabilities need, and it allows the person without the disability to say, “Maybe they would enjoy getting to know me, for me.” One of the students mentioned in their journal towards the beginning of the week, *“I can only imagine how great it would be to get to know each of them to the extent to which I have gotten to know my campers [in my cabin].”*

The statement measured in the cognitive domain that did not see a positive increase following intervention was C18 *I can make him/her feel more comfortable (-0.10)*. The college students began the transition from, *“I hope I can make everyone accomplish something this week”* to *“These campers are truly changing my life.”* This transition from realizing that there is nothing that the general public must offer this population other than fairness and an opportunity to meet a new friend is crucial. This is the transition that this camp experience offered these study participants who came from different backgrounds and went back out into different fields.

Most of the students concluded their journals for the week with statements discussing how their attitudes and lives had been changed. One study participant stated, "*I really felt like I could make a difference in someone's life.*" Another stated, "*This is probably the toughest, but most rewarding population I have ever worked with.*" One study participant stated, "*It's so hard to believe that these campers have changed my life so much in just five days.*" Another student said, "*The week is almost over and I am really sad.*" There is no dispute that this intervention facilitated an increase in positive attitudes, especially in the cognitive domain, towards adults with disabilities.

### **Behavioral Domain**

For the experimental group, six of the eight behaviors measured saw an appropriate decrease following intervention with the greatest decreases being in (B11) *Read the newspaper or talk on the phone* (Difference: -0.70), (B9) *Move away* (Difference: -0.57), (B10) *Get up and leave* (Difference: -0.39). While our participants did not directly state in their journals they would rather do these specific actions, they did note actions such as "*I really, really don't want to leave*" and "*I am so comfortable with them [the adults with developmental disabilities].*" Many college students also made comments such as, "*If I had the option to do it all over again, I would.*" Post- intervention these participants ranked on the MAS that they are less likely to move away or get up and leave when joined in company by a person with a disability in a social setting. This camp experience laid a foundation for each one of the participants not only to grow personally, but also professionally in whichever field they choose to pursue.

The final two behaviors in question showed an appropriate increase following intervention: (B15) *Initiate a conversation if he/she doesn't make the first move* (Difference:

0.06) and (B16) *Starts a conversation* (Difference: 0.32) In regards to one conversation a college student was having with a camper he said, “*You could also spend a whole conversation going in circles about nothing at all but in the end the both of you would come out laughing.*” This quote also goes back to the affective domain emotion, relaxation. The hardest part is initiating the conversation, but study participants noted throughout their journals that they spent a lot of time throughout the week laughing and “cutting up” with the campers.

At camp, the subjects began to realize that there is a sense of mutual encouragement that comes from rejoicing in other people’s accomplishments, big or small. One participant noted about a time when his cabin group was at the zip line:

*When it came time for [a camper] to go he wanted me to walk up the tower with him. Once we were at the top he got very scared and didn't want to go anymore saying that it was too scary. Everyone on the ground began cheering for him and he finally was able to muster up enough courage to jump off. Once he did he was immediately loving every minute of it! When he was finished... another camper was also very scare[d] about going up the tower. [The first camper] decided... to try and comfort him... If I could be at camp all day everyday I would do it in a heartbeat!*

All of these findings are consistent with contact theory that states, “Positive contact between different groups of people can reduce negative biases, stereotyping, expectations, and discriminatory behaviors” (May, 2012, p. 240). One study participant said, “*I have come to realize that people are just people. Even though the campers have disabilities, they are able to talk to and communicate with us and each other very well.*” This camp experience reduced the power differential between counselors and campers so individuals with and without disabilities could come together and learn to interact in a more equal arena. One participant noted a way they viewed the campers stating, “*It’s strange to think how different yet how alike our lives are. I wasn’t doing the campers a favor by talk[ing] to them I was genuinely*

*interested in what they had to say. Just because they have a disability doesn't make them all that different from anyone else."* Study participants summarized their experiencing with the realization that the solution is not complicated. One participant noted, *"This week has taught me how much patience we can have with a little understanding and compassion."*

## LIMITATIONS

The MAS consisted of a vignette that asked specifically about an individual who used a wheel chair as a means of ambulation. While a handful of the adults in the intervention did indeed have some physical limitations, all of the adult campers had a type of developmental and/or cognitive disability and none of the campers used a wheelchair. Due to the fact that the MAS poses questions related to an individual in a wheelchair, caution should be utilized when interpreting results from this study. However, the concept of disability is central in both the vignette and the campers; when individuals' knowledge related to disability is minimal, distinctions between different types of disability are often overlooked.

A second limitation is that the demographic questions failed to inquire whether or not the participants in either group had past experience of any sort working or living with adults with disabilities and to what extent. This idea alone would be a new way to analyze the current data and to see whether or not pre-existing relationships or experience influence the way college students perceive the population. It would also offer insight as to why some of the control group may or may not have reported more positive attitudes than the experimental group at times (besides the hypothesis that it was because the experimental group was expecting the intervention).

Another limitation is that the findings in this study have not undergone tests of statistical significance. While, it may be found that some of the smaller differences might not

be considered statistically significant, it is still evident that there is a clear change in attitude on all scales (affective, cognitive, and behavioral) that supports the idea that direct positive contact with individuals with developmental disabilities will increase college students attitudes towards this population.

## CONCLUSION

The current research clearly expressed how an opportunity for direct positive interaction positively influenced college students' attitudes and perceptions towards adults with developmental disabilities. Consistent with other research, the type of interaction is more important than the quantity of the interaction (Klooster, 2009), in this case the type of interaction allowed college students to be equals at camp with adults with developmental disabilities. In some studies, researchers found that students had more favorable attitudes towards individuals with physical disabilities than intellectual disabilities (Lewis, 2009), so with this particular study, it produced results showing a way to help increase favorable attitudes towards individuals with intellectual disabilities. The key distinction appears to be intentionality. If individuals are not intentional about interacting with people with disabilities and if experiences are not intentionally created (e.g., preparing volunteers for what to expect and providing them with the necessary skills to work with individuals with disabilities), then the quality of the experience may be lacking and direct contact may not lead to improved positive attitudes.

The results from this study also have implications for faculty members who teach in traditional helping professions and individuals who are looking to provide experiences for individuals with disabilities. Faculty and teachers who train students to provide healthcare services and interact with individuals with disabilities would benefit from the inclusion of

quality programs where students are provided with the opportunity to have direct contact with individuals with disabilities. Through these intentionally designed experiences, students may be better prepared to care for and serve those with whom they come into contact.

If direct contact has been proven to create more favorable and positive attitudes towards any group of people, then why is there a delay of opportunities? Adults with developmental disabilities are becoming even more integrated into society; it is no longer politically correct, safe, or smart to institutionalize this population. Opportunities must be created so college students can have the chance to interact in a direct and positive way with this population in order to shape attitudes, and one way that has been shown to have these results is through participation in an intentionally designed camp experience.

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