THE POSITIVE EFFECTS ON ATTITUDE AMONG HIGH SCHOOL STUDENTS TOWARDS STUDENTS WITH AUTISM SPECTRUM DISORDER

By

Mario Castillo-Urbina

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Committee Membership

Dr. David Adams, Committee Chair

Dr. Chris Hopper, Committee Member

Dr. Jill Pawlowski, Committee Member

Dr. Rock Braithwaite, Committee Member

Dr. Sheila Alecia, Program Graduate Coordinator

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ABSTRACT

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Inclusion in the classroom requires that the local education agency provide services (i.e., direct, related) to support each student's needs. Students' attitudes towards their peers with disabilities have been researched and reported through the years however, little work has examined these attitudes in a physical education setting (Archie & Sherrill, 1989; Block & Malloy, 1998; Block & Zeman, 1996; Tripp, French, & Sherrill, 1995). Researchers have reported that individuals avoid talking to students with disabilities because of pre judgments they have made prior to any contact (Sherill, 1998). Based on contact theory (Alport, 1935) meaningful and purposeful interactions between individuals with differences should result in positive attitudes changes towards each other (Broadhead, 1985; Sherrill et al, 1994). Therefore, the purpose of this study is to determine if the attitudes of typically developing student's changes based on positive and meaningful interactions with a student with ASD in the physical education setting. The researcher has hypothesized that student's attitudes will positively change with increased positive and meaningful interactions with a student with ASD in the physical education setting. All participants within this study will complete a pre and post survey with data being collected and analyzed by the researcher.

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CHAPTER I: INTRODUCTION

Inclusive Physical Education

An estimated 1 out of every 68 children living in the United States has a diagnosis of autism spectrum disorder (ASD) (CDC, 2014). The Individuals with Disabilities Education Improvement Act (IDEIA, 2004) emphasized placing students with disabilities, including those with ASD, into the least restrictive environment. The Wisconsin Education Association Council (WEAC, 2001) defines inclusion as a commitment to educate children to the maximum extent in the classrooms they attend (i.e. least restrictive environment). The US Department of Education (2013) reported that about 96 percent of students with a disability, including those with ASD, are educated at the local education agency and about half of those students will spend his or her days in a general education classroom. Inclusion in the least restrictive environment classroom requires that the local education agency provide services (i.e., direct, related) to support each student's needs. The philosophy guiding inclusion is that these services will allow each student to keep pace or catch-up with his or her typically developing peers (Elkins, Van Kraayenoord, & Jobling, 2003). Inclusion in physical education is believed to facilitate students' understanding of the social, psychological, and physical concepts needed to participate (Block & Obrusnikova, 2007). For these reasons, physical educators and adapted physical educators need to understand how to properly integrate students with ASD into their general physical education classroom.

Autism Spectrum Disorder

The American Psychiatric Association (APA, 2013) defines autism spectrum disorder (ASD) as a group of developmental disabilities causing persistent difficulties in verbal and nonverbal communication, as well as, restricted and repetitive behaviors. A diagnosis of ASD can be given between 18 to 24 months (Johnson & Myers, 2007), although many children are not diagnosed till after four years of age, with boys being five times more likely to be diagnosed than girls (CDC, 2016). A diagnosis of ASD will be given based on the level of severity observed in the child's behavior (APA, 2013). A Level 1 diagnosis is given when the child has noticeable impairments in social communication, has difficulty initiating social interactions, and loses interests when he or she is unsuccessful. A Level 2 diagnosis is given when the child has deficits in verbal and nonverbal social communication skills, has limited intention of social interactions and abnormal responses to social responses from others, and requires substantial support. Finally, a Level 3 diagnosis is given when the child has severe deficits in verbal and nonverbal communication skills, severe impairments in functioning, limited initiation of social interactions, minimal social response, and needs substantial support at all times.

Barriers to Participating in Physical Education

For children with ASD, communication delays may result in difficulty having conversation with others (Lord, et al., 2013), which may include a failure in verbal communication without compensating with alternative communication methods (Lord,

Cook, Leventhal, & Amaral, 2013), or, demonstrating echolalia (Lord et al., 2013). Researchers have reported that children with ASD have limitations in imitative and imaginative play (Lord, et al., 2013), restricted or repetitive behavior, (e.g. unusual preoccupations), and sensory seeking behaviors (e.g., repetitive hand and finger movements). For a child with ASD all or some of these behaviors may appear depending on the child's environment and severity of diagnosis (Bishop, Richer & Lord, 2006). Therefore, successful inclusion of children into the general physical education classroom with their typically developing peers can be difficult.

Benefits of Physical Education for Students with ASD

Physical education services have often been overlooked for students with disabilities including those with ASD (Ellis, Cress, & Spellman, 1992). The U.S Department of Health and Human Services (HHS, 2011) outlines the importance of physical activity for the youth in America, including the prevention of chronic diseases, weight control, conditioning of heart and lungs, increased energy and self-esteem, and relief of stress (HHS, 2011). Exercise has been shown to decrease self-stimulation and maladaptive behavior in children with ASD (Celiberti, Bobo, Kelly, Harris, & Handleman, 1997; Elliott, Dobbin, Rose, & Soper, 1994).

Benefits of physical education are not just physical in nature but social as well. Sowa and Meulenbroek (2012) conducted a systematic review, which had students with ASD take part in-group interventions while in the physical education setting. There was little to no increase of social interaction in the eight studies provided (Sowa &

Meulenbroek, 2012). Sowa and Meulenbroek (2012) stated that the lack of increase might have been due to the little to no meaningful interactions within the staff and students. Owen-Deschryver (2008) noted that the nature of social interactions affects social development of children with ASD where contact made by a peer allows the student with ASD an opportunity to practice a response. (Owen-Deschryver, et al., 2008). DiSalvo and Oswald (2002) indicated that if peers have social interactions with students with ASD more frequently, the students with ASD can be involved in more interactions, which will allow more opportunities for reinforcement and appropriate social responding. Students participating in physical activity in the physical education setting provide natural opportunities to interact. Typically developing students interact with students with ASD allows them to be a part of the natural school climate and foster greater independence (Harper, Symon, & Frea, 2008). Therefore, contact theory will be used to foster peers to provide the student with ASD the opportunity to increase their social behaviors, alongside reducing stigma towards children with ASD.

Attitudes towards Students with Disabilities

Attitude is defined as "a person's enduring favorable or unfavorable cognitive evaluations, emotional feelings, and action tendencies toward some object or data," (Boone & Kurtz. 2002 pg. 281-282). Students' attitudes towards their peers with disabilities has been researched and reported through the years although the physical education setting is a small subgroup of this research (Archie & Sherrill, 1989; Block & Malloy, 1998; Block & Zeman, 1996; Tripp, French, & Sherrill, 1995). These studies

have had mixed results with children without disabilities expressing, in some cases, positive and other cases negative attitudes towards their peers with disabilities including ASD (Block, 2017; Klavina & Rodionova, 2015). Obrusnikova (2011) reported that negative attitudes towards students with disabilities may lead to bullying and exclusion from the general physical education (GPE) class. Huzler (2003) found attitudes play a significant role in the success of a classroom, which indicates the importance of creating positive attitudes between students with and without disabilities. Attitudes of children without disabilities towards peers with disabilities have been shown to be alterable when consistent positive interactions that are personal and direct (Klavin and Rodionova, 2015; Yuker, 1988). One method for facilitating positive behaviors is through the principles of contact theory (Allport, 1954).

Contact theory posits that personal interactions between individuals with differences will produce a change in attitude when those interactions are frequent, peaceful, and meaningful (Allport, 1954; Broadhead, 1985; Sherrill et al, 1994). Previous research has supported the efficacy of using contact theory in physical education (Broadhead, 1985; Sherrill et al, 1994). Based on this theory the researcher has hypothesized that student's attitudes will positively change with increased positive and meaningful interactions with a student with ASD in physical education.

Purpose

The purpose of this study was to determine if the attitudes of typical developing student's change based on the inclusion of a student with ASD in the physical education

classroom. The researcher hypothesized that the inclusion of a student with ASD would result in a positive significant change in the attitudes of the typical developing students towards the students with ASD.

Literature Review

The purpose of this review is to examine current literature that includes: (a) literature related to including children with ASD into the physical education class. (b) literature related to the application of contact theory (Allport, 1954) in predicting the attitudes of typically developing peers towards children with disabilities, including ASD, (c) literature related to participation barriers in physical activity for children with ASD, and (d) literature related to the benefits of physical activity for children with ASD.

While there has been limited research on typically developing student's attitudes towards a student with ASD in the physical education classroom, there has been a myriad of research on this topic in the general education classroom (Obrusnikova et al., 2010; 2011; Verderber, 2003). Additionally, there has also been little research focused on inclusive attitudes of high school students, despite positive results in past studies reporting on positive interactions when students with disabilities taking part in general physical education at the elementary and middle school levels (Block, 1995; Goodwin, 2001; Hutzler et al. 2002; Obrusnikova, 2003; Watkinson & Goodwin, 2000; Verderber, 2003). This is demonstrated by the following studies where positive results were reported towards students with all types of disabilities at the high school levels (Kalvas et al., 2013; Klaymon et al., 2010; Obrusnikova et al., 2010, 2011).

Place (2001); and Obrusnikova, Block, and Dillon (2010), demonstrated that typically developing students were willing to take part in a physical activity with their peers who had an intellectual disability. A study by Tripp (1995) facilitated direct contact between 3 to 4 students with disabilities and hundreds of their peers to see if there was a change in attitude towards the students with disabilities. The results indicated positive, but not significant changes in attitude that lead the authors to speculate that it may have been due to the number of participants and not enough direct personal contact. Teachers' positive attitudes also play a role in student's attitudes towards students with ASD. Previous research by Harrower (1999) has shown a positive increase towards students with ASD, most have come from teachers' attitudes towards students with ASD (Klein & Hollingshead, 2015; Rodríguez, et al., 2012).

Benefits of Physical Education for Students with ASD

The Centers of disease Control and Prevention (CDC) has recommended that children ages of 5 to 17 years should participate in a minimum of 60 minutes of daily physical activity (CDC, 2015), but most do not meet it (USDHHS, 2000, 2002). One environment to support increased physical activity is physical education. General physical education provides a number of opportunities for children with and without disabilities to benefit both physically (e.g., increased cardiovascular endurance) and socially (e.g., increased opportunities for peer interaction) (Grenier, Miller, & Black, 2017). Engaging in physical education has also been shown to reduce stereotypical behaviors for children with disabilities (Levinson & Reid, 1993; Prupas & Reid, 2001).

Ellis, Cress, and Spellman (1992) have stated that students with ASD have been overlooked when taking part in physical education due to the lack of knowledge from teachers, staff, and students.

Todd and Reid (2006) reported a study in which students with disabilities take part in physical activity with generally developing students. Results indicated a positive significant interaction within the class. Similar studies have also shown that people with ASD tend to have poor motor functioning and low motivation, which can make physical activity a challenge. (Koegel, R., Koegel, L., & McNerney, 2001; Reid, O'Connor, & Lloyd, 2003). Rosser and Frey (2005) stated that students with ASD are more likely to take part in physical activity in class than any other time outside of school. Ample amount of consistent research has shown that students do best when taking part in short burst of physical activity (Trost et al., 2002; USDHHS, 2000). Studies have also shown that with ample amounts of support and time, children with ASD can get enough physical activity (Llewellyn & Hogan, 2000; pan & Frey, 2006). Including short bursts of physical activity and ample amount of support in the physical education setting, students with ASD improve in social and physical aspects. Therefore being able to take part in the general physical education setting.

Barriers to physical activity

There are a number of barriers that prevent children with ASD from participating in physical activity. Reported barriers include, attitudes of typically developing peers (Columna, Dillon, Norris & Dolphin, 2015; Kalymon et al., 2010; Obrusnikova et al.,

2012; Perkins et al., 2013), parents' lack of knowledge (Perkins et al, 2013), insufficient finances (Columna, Dillon, Norris & Dolphin, 2015), and teacher's prior training with students with disabilities (Columna, et al., 2015; Kalymon et al., 2010; Obrusnikova et al., 2012; Spencer-Cavaliere & Watkinson, 2010). Pan and Frey (2005) reported that children with ASD engage in less than 60 minutes of physical activity a day and have suggested the decline of physical activity in children with ASD is due to the loss of recess time, decreased physical education requirements, and limited engagement in physical activity after school. For children with ASD who may demonstrate a tendency to avoid physical activity also exhibit social attributes (e.g., limited attention span, sensory processing delays) along with narrow interests (Rosenthal-Malek & Mitchell, 1997).

Community barriers have also been suggested; such as lack of accessible physical activity programs influencing participation of children with ASD which may be contributed to limited attention span, poor coordination, difficulty coping with certain auditory, visual, and tactile stimuli in large, open spaces, deficits in interpersonal relationships, and narrow interests. Exclusion of students with ASD from physical education causes the students to feel isolated and different, resulting in lack of participation and physical activity (Block et al., 2005; Hutzler et al., 2002; Obrusnikova et al., 2010). Exclusion of students with disabilities leads to the typically developing students' attitudes affected by the lack of knowledge they have towards the students with disabilities in their class (Block, 2007; Livneh, 1986; Obrusnikova, 2011). Which leads to the purpose of including a student with ASD in the general physical education setting.

Framework of Investigation: Contact Theory

Allport's (1935) contact theory posits that when individuals with differences come together and there is frequent, peaceful, and meaningful interactions, the attitudes of both groups will change. Favorable contact conditions lead to improved relations and more positive attitudes due to equal status between classmates. It also becomes rewarding to individuals with and without disabilities. Students are involved in common goals, and should continue over time (Allport, 1935). Unfavorable contact conditions occur when competition takes place in class, the environment is unpleasant, forced, and frustrating for students who take part in it and results in negative attitudes (Allport, 1935). Thus, when having students make social contact in physical education it must be personal and by choice (Yuker, 1988). For example, a student with ASD who makes contact with a typically developing student will produce a change in attitude if those interactions are meaningful and consistent.

CHAPTER II: METHOD

The purpose of this investigation was to determine if the attitudes of typically developing children changed based on consistent and meaningful interactions with a child with ASD in the physical education (PE) setting. The researcher hypothesized that the inclusion of a child with a disability in PE would have a positive impact on the attitudes of the typically developing children. The remaining portion of this chapter will address the method used to compare the attitudes of typically developing children before (pre) and after (post) towards the student with ASD. Therefore, information in this chapter is presented in the following sections: (a) Participant Information, (b) Instrumentation, (c) Procedure, (d) Research Design, and (e) Data Analysis.

Participant Information

Four typically developing children between the ages of 14 to 15 years attending a school in California were recruited for this investigation. Each participant demonstrated a willingness to take part in the study (i.e., signed parental consent), and had been participating in the PE class for the whole year. Additionally, all participants agreed to take part in a one-day training session by the primary researcher prior to this investigation beginning.

Instrumentation

Participant's attitude (pre, post) was measured using the *Chedoke McMaster Attitudes Towards Children with Handicap* (*CATCH)* (Rosenbaum, Armstrong, & King, 1986). The *CATCH* (Rosenbaum et al., 1986) includes36 questions, which cover three separate domains (i.e., cognitive, affective, behavioral). Each domain represented 12 questions. For example, "I would be happy to have a child with ASD as a friend" covered the behavioral domain. "I would invite a child with ASD to my birthday party" covered the cognitive domain and "children with ASD feel sorry for themselves" covered the affective domain (Bossaert & Petry, 2013).The *CATCH* (Rosenbaum et al., 1986) has been used for children ages 9 to 16 (Bossaert & Perry, 2013, Vignes et al., 2009) and translated in many countries, such as the US, France, Netherlands, and Israel (Bossaert & Perry, 2013, Bossaert et al., 2011, Holtz & Tessman, 2007, Vigness et al., 2009). According to Vignes (2009) and Rosenbaum (1986), the *CATCH* has demonstrated valid and reliable results with a high consistency ($\alpha = .90$). All questions are Likert Style questions with each question allowing the participant the opportunity to choose from: strongly agree, agree, cannot decide, disagree, and strongly disagree (Bossaert & Petry, 2013). After completing the survey the primary researcher added up the total gross score, and divided that score by the highest possible score for the whole survey (i.e., 144).

Procedure

Recruitment of Participants

Recruitment of participants through purposive sampling (Tongco, 2007) began after gaining institutional review board (IRB) approval from Humboldt State University (HSU). Upon IRB approval the primary researcher provided a flyer and brief verbal description of the investigation to the class where the child with ASD was set to participate. All potential participants were responsible for providing parent approval (i.e., consent form) and verbal assent to the primary researcher before participating in this investigation. The primary researcher assured the class that participation in this investigation is voluntary. All signed consent forms were turned into the primary researcher with the first four students being included in this investigation.

Performance Setting

This investigation took place in the school gymnasium (i.e., regular general physical education setting). The gymnasium consists of wood floors and adjustable bleachers that can be moved if extra space is needed. Each day the class of students entered and exited from the north side of the gym. During this investigation the primary researcher was stationed on the south side of the gym in an area that allowed him to observe the behaviors of all the participants.

Program Planning

The activity that took place during this investigation was badminton. Badminton is leisure sport that can provide the individual's participating a moderate to vigorous activity (MVPA). Badminton can also be played with a number of modifications (e.g., extra bounce) that provides each individual the opportunity to successfully participate with minor rule changes. By the end of the unit, the expectations were that each student would understand the simple rules and how to play the game of badminton. The student with ASD is given the same expectations. The primary researcher believes the participants will have consistent and meaningful interactions as badminton allows for teamwork and communication.

Research Design

In this investigation a within-participant experimental design (Triona & Klahr, 2003) was adopted. Each participant was assessed at baseline (i.e., pre-survey), intervention, and post. Surveys were completed on the first day of the study and after the last session on the last day of the study. Each participant was allowed a total of 30 minutes to complete the survey during his or her 5th period class (i.e., class that followed PE class).

To avoid crossover effect (Alberto et al., 2005), the four typically developing participants were randomly assigned to work with the student with ASD at different times of the day. Each participant randomly selected a marked tennis ball with a number (i.e., 1,

2, 3, 4) representing the role that each participant for that day. Numbers marked on each tennis ball represented the following order:

1. Participant will spend time with student with ASD during roll call
2. Participant will spend time with student with ASD during warm up.
3. Participant will spend time with student with ASD during activity
4. Participant will spend time with student with ASD during closing time of class.

Participants' rotated through the rolls for the following days in the study. For example, on day 1 of the study if the participant picks out number 4 (i.e., participant will spend time with the student with ASD during closing time of class), the participant will spend the remaining time of class after the activity, which is 10 minutes, with the student with ASD. On day 2, the participant will then move to number 1 (i.e., participant will spend time with student with ASD during roll call), the participant will be spending time with the student with ASD for 10 minutes as the teacher takes roll. This process of rotating through the four possible assigned working times with the child with ASD continued throughout the investigation. Since the participants were not the same sex with the student with ASD they would enter different locker rooms. During the activity portion of the class, the four participants will be with student with ASD in one group. Within this time, the participant who is directly assigned to work with the student with ASD will take on the leadership role while the other participants provide direct support for the group.

Participants were given the opportunity to select a numbered ball out of a bag that would determine their interaction sequence with the student with ASD. The following

stations were possible rotations: roll call, warm-up, activity, dress down for each participant based on their random number selected. Each student participant would have his or her respective times to make meaningful contact with the student with ASD. Table 1 indicates the schedule the participants had when spending time with the student with ASD.

Table 1 Participant schedule - First week

Day	Roll Call	Warm Up	Activity	Dress Down
Day 1	Participant 1	Participant 2	Participant 3	Participant 4
Day 2	Participant 4	Participant 1	Participant 2	Participant 3
Day 3	Participant 3	Participant 4	Participant 1	Participant 2
Day 4	Participant 2	Participant 3	Participant 4	Participant 1
Day 5	Participant 1	Participant 2	Participant 3	Participant 4

Data Analysis

The data analysis used though the SPSS software in which the paired sample T-Test will be used for Pre and Post *CATCH* survey scores to assess changes in attitude toward the child with ASD. The paired sample T-Test was used because there is only one group and the primary researcher is collecting data at two different times. Significance level of the t-test will be set at 95% ($p < .05$). To check if any assumptions were violated was used to look for outliers. The dependent variable was measured on a continuous

interval scale (i.e. 0 to 4 Likert scale). (i.e., negatively/positively influence data). Normality was examined through the Shapiro-Wilk test.

CHAPTER III: RESULTS

The purpose of this study was to determine if the attitudes of typical developing student's changed based on the inclusion of a student with ASD in the GPE setting. The study took place at a local high school in California with ninth grade students. The recruiting process took place with a verbal announcement given to the class a week before that study began. The announcement consisted of the researcher introducing the study and benefits to all possible participants. The researcher predicted an alternative hypothesis in which there would be a positive significant change in attitudes towards the student with ASD based on a systematic procedure developed in Chapter II of this Thesis. Therefore, the following sections within this chapter will consist of: (a) Participant Demographics, (b) Baseline, (c) Intervention Phase, and (d) Group Results

Participant Demographics

All participants for this study were between 14 to 15 years of age, and attended a public school in California. All four participants were selected through an established criteria developed by the Thesis Committee and the primary researcher for this Thesis. See Table 3.1 below for each participant's demographic information.

Table 2 Participant Demographics

Participant	Age	Gender	Grade level
Participant 1	14	Female	9
Participant 2	15	Female	9
Participant 3	14	Female	9
Participant 4	15	Female	9

The *CATCH* (Rosenbaum et al., 1986) survey started with questions for students depicting on whether they had a disability, had a friend with ASD, and/or family member with ASD. Table 3.1 shows each participant's numbers for each answer.

Table 3 *CATCH* demographics questions

CATCH question	Yes	No
Do you have a disability?	0	4
Do you have a friend with a disability?	3	1
Does anyone in your family have autism?	0	4

Baseline

The *CATCH* (Rosenbaum et al., 1986) consisted of 36 questions with three separate domains (i.e., affective, behavioral, and cognitive). Scoring was based on a five point likert scale (i.e., 0 to 5). All questions were split into positively worded (i.e., I would invite a child with autism to my birthday party) and negatively worded questions.

(i.e., children with autism feel sorry for themselves). In order to receive a score, participants completed the survey during the school's 30-minute study hall. The scorer had all participants put their initials instead of their names to remove any bias. See table 5 for an illustration scoring procedure for the Catch (Rosenbaum et al., 1986) survey.

Table 4 Positively and Negatively worded scores

(+) Worded response:	Score	(-) Worded Response:	Score
Strongly agree	4	Strongly agree	0
Agree	3	Agree	1
Can't decide	2	Can't decide	2
Disagree	1	Disagree	3
Strongly disagree	0	Strongly disagree	4

The survey was scored in the following procedure: a) the primary researcher scored all questions in the appropriate manner (i.e., positive, negative), (b) the primary researcher totaled scores for each participant by dividing the total gross score by the total possible points possible. Doing this allowed the primary researcher the opportunity to provide a percentage for each section of the *Catch* (Rosenbaum et al., 1986) survey.

Individual *CATCH* scores

The highest possible score for each domain would be forty-eight. Individually, participant 2 scored the highest in both the behavioral (i.e., 46%) and affective (i.e., 40%). Participant 4 scored the lowest in all three domains with scores of 23% for affective domain, 24% cognitive domain, and 28% for behavioral domain. Additionally,

Participant 1 scored 27% in affective, 28% in behavioral, and 30% in the cognitive domain. Lastly, Participant 3 scored 39% in affective, 37% in behavioral, and 39% in the cognitive domain.

Group *CATCH* scores

Results from the *CATCH* (Rosenbaum et al., 1986) survey had split high and low scores. Lowest scores came from participant 4 (i.e., 52%) and participant 1 (i.e., 59%).. The highest scores came from participant 2 (i.e. 80%) and participant 3 (i.e., 79%). Collectively, the participants scored the highest in the behavioral domain with seventy-two percent, lowest in the cognitive domain with sixty-four percent, and in between, the behavioral domain with sixty-seven percent. See table 4 for an illustration for each participant's total gross score and percentages.

The participants' average score for the behavioral domain was 72 percent, 5% higher than the next domain. Thus, indicating that the participants scored higher on questions such as, "I would tell my secrets to a child with autism" indicating they would develop social relationships with a child with ASD (Rosenbaum et al., 1986). The participants scored 64% in the cognitive domain as a whole, which shows they do not necessarily understand a child with ASD (Rosenbaum et al., 1986).

Table 5 *CATCH* survey scores at baseline

Student Participant	Affective	Behavioral	Cognitive	Total	%
Participant 1	27	28	30	85	60%
Participant 2	40	46	30	116	80%
Participant 3	39	37	39	115	79%
Participant 4	23	28	24	75	52%
Total %	67%	72%	64%		

Post-Study Demographics

At the conclusion of the study, the student participants took the post-study *CATCH* (Rosenbaum et al., 1986) survey during study hall. The students were given the survey and instructed to fill it out completely and as honest as possible. The student participants were given until the end of study hall to complete the survey. The student demographics had no drastic change. Participant 1 indicated that she had a friend with ASD, which was the student that took part in the study. Participant 2 changed her response on "Does anyone in your family have autism?" From "no" to "yes" classifying the student with ASD as her friend.

Table 6 Post-Study demographics

CATCH question	Yes	No
Do you have a disability?	0	4
Do you have a friend with a disability?	3	1
Does anyone in you family have autism?	1	3

Post-Study *CATCH* survey

Individual *CATCH* Scores

Individually, student participant 2 received a total score of eighty-four percent, which was a four percent increase. Participant 2 had a seven point increase in the cognitive domain with a score of thirty-seven and a one point increase in the affective domain with a score of forty-one. Participant 2 still scored high in the behavioral domain with a score of forty-three but was a three point decrease from the pre-study survey.

Participant 3 scored the second highest with a percentage of seventy-eight. The score was a one percent decrease from the pre-study. Participant 3 scored the highest of all other students in the cognitive domain with a score of forty-three, which was a four point increase from the pre-study survey. Participant 3 had a decrease in score in the affective domain by two (37) and behavioral domain by four (33).

Participant 1 scored about the same as the pre-study survey. Total, the student scored sixty percent. There was no change from the pre-study survey. Participant 1 also scored the same in the cognitive domain. She had a slight one point increase in the

behavioral domain with a score of twenty-nine. She also had a slight one point decrease in the affective domain with a score of twenty-six.

Participant 4 remained to score the lowest. Participant 4 scored seven percent lower than the pre-study with a percentage of forty-five. Participant 4 scored lower than anyone else in all of the domains. She scored twenty-one for the cognitive domain, which was a two point decrease. Participant 4 also had a one point decrease in the cognitive domain with a score of twenty-three. She had a seven point decrease in the behavioral domain with a score of twenty-one.

Group *CATCH* scores

As a whole, the students scored highest in the cognitive domain with sixty-nine percent. The cognitive domain increased by five percent from the pre-study survey. The behavioral domain scored at sixty-five percent, which was a seven percent decrease from the pre-study survey. The affective domain decreased by two percent from the pre-study with a score of sixty-five percent. After the exposure of a child with ASD, the participants' average scores fluctuated from the pre-survey. The behavioral domain went down and the cognitive domain went up. This indicates that the participants grasped a better understanding of a child with ASD, which may have led to a decrease of the behavioral domain.

Table 7 Post-study *CATCH* survey

Student Participant	Affective	Behavioral	Cognitive	Total	%
Participant 1	26	29	30	85	60%
Participant 2	41	43	37	121	84%
Participant 3	37	33	43	113	78%
Participant 4	21	21	23	65	45%
Total %	65%	65%	69%		

Data Analysis

The *CATCH* (Rosenbaum et al., 1986) survey was used in this study to indicate if there would be any significant change when typically developing students made meaningful contact with a student with ASD while taking part in GPE. The paired sample t-test revealed no statistical significant difference in attitude scores from Pre (M = 65.75, SD = 15.88) to Post (M = 66.75, SD = 16.99), t (4) = -.336, p< 0.759 (two-tailed). The mean increased in attitude scores was -1.000 with a 95% confidence interval ranging from 65.75 to 66.75. The primary researcher did not go further into checking for assumptions (i.e., Shapiro-wilk test).

Summary of Results

The change from Baseline *CATCH* results to the post study *CATCH* results show little change in attitude towards student with ASD. Participant 2 had a 4% increase between the two *CATCH* surveys, showing the highest of all participants. Participant 4

had a 7% decrease between the two *CATCH* surveys, which was the largest decrease among all participants. As whole, the participants' score for the behavioral domain decreased and cognitive domain increased after the study. Despite these changes, the paired sample t-test showed that there was no significant increase in attitude towards children with ASD.

CHAPTER IV: DISCUSSION

The purpose of this study was to determine if the attitudes of typical developing students towards children with ASD change based on the inclusion of a student with ASD in the physical education classroom. The researcher hypothesized that the inclusion of a student with a ASD would result in a positive significant change in the attitudes of the typically developing students towards the students with ASD. Attitudes were measured using a pre and post survey (i.e., *CATCH*; Rosenbaum et al., 1986) over a 4-week time period in which the student participants spent meaningful contact time with the student with ASD. According to Bossaert and Petry (2013) the *CATCH* (Rosenbaum et al., 1986) allows the primary researcher to understand the participant's attitudes by also indicating the following domains (affective, behavioral, and cognitive). The *CATCH* (Rosenbaum et al., 1986) was used as a baseline survey and as a post study survey such as similar studies in order to discover any change in attitudes from the student participants (Bossaert & Perry, 2013, Bossaert et al., 2011, Holtz & Tessman, 2007, Vigness et al., 2009).

Participant Results

A total of four female participants took part in this study. Researchers have reported that females tend to provide better results in attitude change when spending time with children with disabilities, including ASD (Hazard, 1983; Slininger, Sherrill & Jankowski, 2000; Block & Dillon, 2010). Studies have demonstrated that typically developing students do not spend time with students with disabilities due to the lack of pre-existing

knowledge of the student or disability (Columna, Dillon, Norris & Dolphin, 2015; Kalymon et al., 2010; Obrusnikova et al., 2012; Perkins et al., 2013). Based on direct observations by the researcher throughout this study these behavior was consistent in the 4 participants' as all participants identified in the pre-survey that they did not know the student with ASD was a student at the school. Additionally, two of the participants scored low in the cognitive domain portion of the *CATCH* survey (59% and 52%) which indicates the participants have a below average understanding of a child with ASD (Bossaert & Petry, 2013).

Contact theory states that people who spend meaningful time together will most likely have a change in attitude (Allport, 1935). The data collected from the pre and post survey demonstrated that only 1 participant increased her total score (i.e., 4%), while the rest of the participants demonstrated a decrease or no change from pre to post results. Within this study 1 participant was observed by the researcher as being able to maintain a meaningful relationship with the student with ASD. This indicates that the 3 of the 4 participants were not successful in developing a meaningful and purposeful relationship within the timeframe of this study. The researcher believes that these outcomes may have been due to the environment (i.e., gym) and the activity (i.e., competitive) that the group of participants were placed. This belief is supported by Tripp, French, and Sherrill (1995) who reported that competition and uncomfortable environments may cause relationships to decrease.

CONCLUSIONS, SUMMARY OR RECOMMENDATIONS

The participants may not have been able to develop a meaningful relationship for the following assumptions; (a) the participants may have been uncomfortable in the setting, (b) the participants possibly became frustrated when working with the child with ASD at different points of this study, and (c) the participants and child with ASD did not have enough time prior to this study beginning to develop an understanding of each other's likes and dislikes. Researchers have demonstrated that if people seem to be forced into spending time with a person who may seem different, there will most likely not change in attitude (French & Sherrill, 1995). Therefore, children must want to spend time with a child with a disability, including those with ASD, in order to see attitude change (Columna, Dillon, Norris & Dolphin, 2015; Kalymon et al., 2010; Obrusnikova et al., 2012; Perkins et al., 2013). While the results of this study did not align with the researcher's hypothesis, this study did provide evidence for continued research pertaining to including children with disabilities, including those with ASD into the physical education setting.

Future Research would consider a larger study group of typically developing students (n=30) in order to run the *CATCH* and find any significant change. Another suggestion would be to train the participants for a longer period (i.e., 1-2 weeks) in order for them to help the students with disabilities, including those with ASD. The final consideration would be to expand the length of the exposure time from 4 weeks, to 6-10 months in order for attitudes to change permanently.

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APPENDIX

CATCH Questionnaire

-There are no right or wrong answers. We just want to know your ideas.

-Please do not read ahead.

-Think about each sentence carefully.

Questionnaire

Grade: _____

Date: _____/ /_____

Month Day Year

1. Do you have a disability? Yes: ____ No: ____

a) If yes, what is your disability?

_____

_____

2. Do you have a friend who has autism? Yes: ___ No: ___

a) If yes, does he/she go to your school? Yes: ___ No: ___

b) What is his/her name?

_____

3. Does anyone in your family have autism? Yes: ___ No: ___

a) If yes, is it your:

Mother: ___ Father: ___ Brother/Sister: ___ Grandparents: ___

Aunt/Uncle: ___ Cousin: __

Examples of how to fill out the form:

1. I enjoy talking to old people.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

2. Old people have difficulty remembering things.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

1. I wouldn't worry if a child with autism sat next to me in class.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

2. I would not introduce a child with autism to my friends.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

3. Children with autism can do lots of things for themselves.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

4. I wouldn't know what to say to a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

5. Children with autism like to play.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

6. I feel sorry for children with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

7. I would stick up for a child with autism who was being teased.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

8. Children with autism want lots of attention from adults.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

9. I would invite a child with autism to my birthday party.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

10. I would be afraid of a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

11. I would talk to a child with autism that I didn't know.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

12. Children with autism don't like to make friends.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

13. I would like having a child with autism live next door to me.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

14. Children with autism feel sorry for themselves.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

15. I would be happy to have a child with autism for a special friend.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

16. I would try to stay away from a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

17. Children with autism are as happy as I am.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

18. I would not like a friend with autism as much as my other friends.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

19. Children with autism know how to behave properly.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

20. In class I wouldn't sit next to a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

21. I would be pleased if a child with autism invited me to his/her house.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

22. I try not to look at someone who has autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

23. I would feel good doing a school project with a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

24. Children with autism don't have much fun.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

25. I would invite a child with autism to sleep over at my house.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

26. Being near someone who has autism scares me.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

27. Children with autism are interested in lots of things.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

28. I would be embarrassed if a child with autism invited me to his/her birthday party.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

29. I would tell my secrets to a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

30. Children with autism are often sad.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

31. I would enjoy being with a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

32. I would not go to a child with autism's house to play.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

33. Children with autism can make new friends.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

34. I feel upset when I see a child with autism.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

35. I would miss recess to keep a child with autism company

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE

36. Children with autism need lots of help to do things.

a) STRONGLY DISAGREE
b) DISAGREE
c) CAN'T DECIDE
d) AGREE
e) STRONGLY AGREE