

THE IMPACT OF PEER TUTORING PROGRAM ON BASKETBALL SKILLS FOR  
CHILDREN WITH A DISABILITY

By

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## **Abstract**

### **THE IMPACT OF PEER TUTORING PROGRAM ON BASKETBALL SKILLS FOR CHILDREN WITH A DISABILITY**

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The purpose of this study was to review evidence-based practices for implementation of peer tutoring programs in general physical education classroom. The Individuals with Disabilities Education Act in 2004 emphasized placing students with disabilities in general education settings (U.S. Department of Education, 2005). Including students with disabilities in general physical education classes may cause challenges not only for the students, but also for the teachers who are often not properly prepared to adapt to students that have various disabilities. Students with disabilities are often behind in their motor development, and because of that, they may benefit from additional instructional adaptations. Support can include a number of different ways of assisting students with special needs. For the purpose of this paper, “support” will be defined as “peer tutor support.” Peer tutoring is a model where peers of the same age or cross-ages provide support to a student with a disability in the general physical education setting. Peer tutors help in the following ways: provide support, provide positive reinforcement, and provide a critical analysis of the skills. Research shows that utilizing peer tutoring can improve the motor performance, as well as, the level of engagement for the student with a disability who is included in general physical education. This study will evaluate

the effectiveness of peer tutor support on the motor skills development for students with disabilities in general physical education. Research demonstrates that peer tutoring combined with inclusion is beneficial for students with and without disabilities. The purpose of this study was to test whether the use of specific feedback, by peer tutors was a successful way to help improve the motor development for students with disabilities.

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## **Introduction**

Research indicates that peer tutor support can be used as effective instructional accommodation to improve academic outcome of students with disabilities (Houston-Wilson et al., 1997; Lieberman et al., 1997, 200; Murata & Jansma, 1997). Physical activity has been shown in research to increase self-esteem leading to a feeling of greater sense of importance (Fox, 1999). Increased self-esteem and outlook on life can lead to a more productive and meaningful life (Fox, 1999). Physical activity has also been shown to decrease symptoms associated with depression (Fox, 199). Additionally, physical activity can lead to many physical benefits, such as: decreased blood pressure and healthy body weight (Janssen & LeBlanc, 2010). Physical education curriculum in public schools is intended to help students gain access to the multiple benefits of physical activity (Centers for Disease Control and Prevention [CDC], 2008). Children who experience disabilities have the right to access physical education as part of their curriculum. The Individuals with Disabilities Education Act 2004 emphasizes teaching students with disabilities in the least restrictive setting, which for most students is the general education settings (U.S. Department of Education, 2004). Including children with disabilities in general physical education classes can be problematic if the teacher is not able to support the individual needs of the students. This problem is exasperated by the large class sizes that are often a reality in general physical education (Tripp, Rizzo & Webbert, 2007)

A support system such as trained peer tutors can be an asset to a physical education program (Ernst & Byra, 1999). Peer tutor support can be an extremely effective strategy leading to skill improvement, and engagement in the activity for students who experience disabilities (Klavina & Block, 2013). This study sought to better understand the effectiveness of peer tutor support when working with students who have a disability in motor skill development. Peer tutor support can be an effective strategy for physical educators to help foster learning for students with disabilities (Klavina & Block, 2013). It is essential that students with disabilities be given the support needed to improve in their motor skills to improve their quality of life (Block & Obrusnikova, 2007). A positive experience in a physical education class for a student with disability can lead to improved health outcomes, increased social inclusion, and improved self-esteem (Block & Obrusnikova, 2007).



## **Review of the Literature**

### **Health Benefits**

Regular physical activity has demonstrated an ability to help prevent major health problems, such as heart disease, obesity, and diabetes (Janssen & LeBlanc, 2010). The prevalence of childhood obesity has increased 300 percent since 1980, and the incidence of Type II diabetes in adolescents has increased tenfold over the past 20 years (National Institute of Child Health and Human Development, 2006). Beyond physical health, exercise has also been linked to improve cognitive functioning (Fox, 1999). Regular physical activity can help keep your thinking, learning, and judgment sharp (Fox, 1999). Additionally, regular physical activity has been linked to strengthen bones and muscles (Centers for Disease Control and Prevention CDC, 2008). This helps with the ability to do everyday activities such as walking, running, climbing stairs, grocery shopping, or playing in an activity (Centers for Disease Control and Prevention CDC, 2008).

The use of school based physical activity programs preventing obesity in typical developing students has been studied extensively (National Institute of Child Health and Human Development, 2006). However, little research has been conducted on classroom based physical activity programs for students with disabilities (Kathy, Patricia, Guili, Bon, & Jim, 2013).

The goal of physical education (PE) is to help students develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to improve physical fitness and adopt a physically active lifestyle (Centers for Disease Control and Prevention, 2008). The vision expressed by Shape America (2018) is to create a nation where all children are prepared to lead healthy, physically active lives. Their mission is to advance professional practice and promote research related to health and physical education, physical activity, dance and sport (Shape America, 2018). With this mission statement, a high quality physical education program is both developmentally and instructionally relevant for all students, including those with disabilities (NASPE, 2007). The No Child Left Behind Act (NCLB) and the Individual with Disabilities Education Act (2004) requires that teachers use evidence-based practice and instructional modification in the least restrictive environment, which for most students means in an inclusive environment. By definition, inclusion is the practice of ensuring the participation of students with disabilities in the general education setting (Wentzell, 2016). IDEA's (2004) preference for inclusion makes it very difficult to justify excluding students with disabilities from general physical education (Oberti v. Board of Education of the Borough of Clementon School District, IDEA, 1412(5)(B), 1993).

### **Inclusion**

The US Department of Education (2015) reported that 6.6 million students with disabilities are included in general education schools. Currently in the field of adapted

physical education there is support to allow students with severe and multiple disabilities opportunities for social and academic benefits afforded by their peers without disabilities (Block, 2007; Causton, Theoharis & Malmgren, 2005; Cullinan, Crossland & Sabornie, 1992; Johnson & Johnson, 1991). Due to the benefits of inclusion more students with disabilities are being included into the general physical education setting (US Department of Education, 2015).

Inclusion is an attitude, a value, and a belief system (Rizzo, Davis & Toussaint, 1994; Tripp, Rizzo & Webbert, 2013). It is the process by which all students with disabilities, regardless of severity, will be educated with their non-disabled peers in general education classes (Rizzo, Davis, & Toussaint, 1994; Tripp, Rizzo & Webbert, 2013). Implementing inclusion can be a challenging task for general physical education teachers because of their lack of knowledge of appropriate modifications and experience working with students who have significant disabilities (Block & Obrusnikova, 2007).

Most public schools utilize some version of inclusion in general physical education, but too often the student with a disability does not meaningfully participate in an instructional program with his or her peers (Tripp, Rizzo & Webbert, 2013). Examples of passive exclusion include the teacher having a student with a disability watch, keep score, clean up equipment, play catch with a paraeducator, or help the teacher with a task (Tripp, Rizzo & Webbert, 2013). In these cases, the student with a disability does not receive the same opportunity for meaningful instruction and active participation as his or

her peers (Tripp, Rizzo & Webbert, 2013). This is not inclusion, but exclusion and produces a negative experience keeping students with disabilities from developing the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to improve in their physical fitness (Tripp, Rizzo & Webbert, 2013). It is important to understand that IDEA mandates inclusion. And, that only when the setting is deemed unsafe or inappropriate, can the student with a disability be placed in a separate setting (Oberti v. Board of Education of the Borough of Clementon School District, IDEA, 1412(5)(B), 1993).

### **Benefits of Inclusion**

Some of the benefits of inclusion for students with disabilities include an increased opportunity for social initiations, and access to peer role models for academic, social and behavior skills. For children with disabilities the social implications of being fully included in a regular physical education can be significant (Block & Obrusnikova, 2007). Inclusion provides the students with the opportunity to interact with their age-related peer group rather than co-existing in separate educational settings (Block & Obrusnikova, 2007). For children without disabilities inclusion offers opportunities to develop relationships with, and be educated about individuals with disabilities (Ozmun, 1994).

Falvey, Givner, and Kimm (1995) reported that students with disabilities had positive feelings when included into the general physical education setting (e.g., proud,

secure, special, comfortable, recognized, confident, happy, excited, trusted, cared about, liked, accepted, appreciated, reinforced, loved, grateful, normal, open, positive, nurtured, important, responsible, grown up) when given the opportunity to participate with their peers. The social and self-esteem benefits of inclusion have been confirmed by multiple studies (i.e., Tripp, Rizzo & Webbert, 2013; Bradley, Zi & Marita, 2012; Block, Zeman, 1996; Cardinal, Yan, Zi Cardinal & Marita, 2012; Houston-Wilson, Dunn, van der Mars & McCubbin, 1997). Conversely, students report that exclusion has significant effect on one's psyches and one's physical activity participation levels (Bradley, Zi & Marita, 2012). Creating a positive experience within physical education for students with disabilities has been linked to a more active life (Bradley, Zi & Marita, 2012). Inclusion provides all students with equal opportunity to develop the knowledge of how to be active and healthy (Bradley, Zi, & Marita, 2012). Instructional planning, and implementation should follow inclusion practices (Tripp, Rizzo, & Webbert, 2007).

### **Challenges of Inclusion**

In the field of physical education, there exists a significant lack of expertise in teachers to implement inclusion of students with disabilities (Block & Obrusnikova, 2007). Teachers are not effectively trained in adapted physical education (e.g., appropriate modifications, development of individualized goals for IEP's, and curriculum design, assessments, and evaluation) (Ko & Boswell, 2013).

Many physical education teachers have a negative perception about including students with disabilities into the general setting (Block & Obrusnikova, 2007). In the past decades, physical education teachers have seen the number of students with disabilities included in general physical education substantially increase. According to Children and Youth with Disabilities in 2015-16, the number of students ages 3-21 receiving special education services was 6.7 million, or 13 percent of all public school students. The U.S. Department of Education (2003), 88% of students with disabilities at the secondary levels (junior and senior high school) receives physical education in the general setting (Piletic & Davis, 2010; Ayers & Housner, 2008). The increased number of students with disabilities in general physical education, has created challenges for physical education teachers who are trying to deliver content for the diverse range of learners (Combs, Elliott & Whipple, 2000).

Studies indicate that general physical education teachers often receive insufficient training to provide a successful inclusive environment (Hodge, Ammah, Casebolt, LaMaster, & O'Sullivan, 2004; Lieberman, Houston-Wilson, & Kozub, 2002; Lienert, Sherrill, & Myers, 2001; Morley, Bailey, Tan, & Cooke, 2005; Smith & Green, 2004; Vickerman & Coates, 2009). While teachers are feeling under prepared to meet the needs of diverse learners, large class sizes pose an even greater challenge for the teacher. The lack of appropriate equipment is often a concern, making the job of providing instruction and support for student growth in the skill development even more difficult.

## **Feedback**

In addition to challenges of class size and appropriate equipment; instructional strategies such as timely feedback is often missing in inclusive classrooms. Feedback should be (a) sufficient in frequency and detail; (b) focus on students' performance; (c) timely in that it is received by students while it still matters and in time for application; (e) appropriate in relation to students' conception of learning (Gielen, Peeters, Dochy, Onghena & Struyen, 2010). Timely feedback in physical education is extremely important for skill development (Cathy & John, 1997). If a student does not receive feedback throughout the course of a class, the student will not know if they are doing the skill correctly. Feedback can be an effective strategy to keep students motivated and engaged in the activity (Cathy & John, 1997). When working with students who have motor delays, specific feedback is an important strategy to aid in skill development. Research demonstrates that students perform better in the motor skills and develop at a faster rate when given specific feedback compared to general feedback (Cathy & John, 1997). Specific feedback statements are preferable when replication, change, or special attention to details, processes, or procedures are sought. Specificity activates cognitive and/or emotional processes that allow learners to grasp and focus on the statement's intention. The more specific the statement, the more effective the message will be (Mosston & Ashworth, 2008). Nonspecific statements are generalities; they do not indicate what was good/bad, wonderful/terrible; however, they do convey an overall message of approval or disapproval. A general message about standards or feelings is

sufficient when addressing a total experience without attempting to reinforce, replicate, or change any particular part. “That was wonderful!” or “Great shot!” provides a satisfying overall assessment; nothing is singled out as being particularly worthy of notice or repetition (Mosston & Ashworth, 2008). It can be challenging for physical education teachers to give enough feedback to support students with disabilities. Due to large class sizes, the physical education teacher must utilize strategies to increase the amount of specific feedback given to students with disabilities. The use of peer tutors, and a physical education program designed with strong fundamental movement skill focus can provide more specific feedback to their students (Bakhtiari, Shafina & Ziaee, 2011; van Beurden, Barnett, Zask, Dietrich, Brooks & Beard, 2003). Peer feedback can be beneficial for learning (Topping, 1998). The main difference between adult and peer feedback is that peers are not domain experts, as opposed to teachers. As a consequence the accuracy of peer feedback varies. Peer judgments or advice may be partially correct, fully incorrect or misleading. Moreover, the peer assessor is usually not regarded as an expert leading to more reluctance in accepting a peer’s judgment or advice (Hanrahan & Isaacs, 2001; Strijbos, Narciss & Du`nnebie, 2010). This lack of authority and expertise of peer tutors may be mitigated through training and supervision.

### **Peer Tutoring**

The inclusion of students with moderate and severe disabilities in general physical education is enhanced by supplementary assistance (Block & Krebs, 1992; Murata &



Jansma, 1997). Typically, the human resource support for students with moderate and severe disabilities includes adapted physical education (APE) specialists or paraprofessionals (Block & Zeman, 1996; Murata & Jansma 1997; Vogler, Koranda & Romance, 200). Excessive adult support can result in an increase dependence on adults and, in turn, create separation from other classmates (Giangreco, Edelman, Luiselli & MacFarland, 1997). Typically developing students participating as peer tutors to support students with more significant disabilities rather than an adult aide, is one way to successfully facilitate inclusion.

Peer tutoring is defined as the process of one student teaching another student. Peer tutor support is seen as one of the oldest forms of collaborative learning. Research indicates that peer tutor support can be used as effective instructional accommodation to improve academic outcome of students with disabilities (Houston-Wilson et al., 1997; Lieberman et al., 1997, 200; Murata & Jansma, 1997). Peer tutoring has been recognized as an effective inclusion strategy for many decades and widely used in inclusive classroom settings (Ernst & Byra, 1999). Due to their same age status peer tutors are unlike assistant teachers or paraprofessionals. Peer tutors provide more natural supports, increase social interactions and communication skills, and enhance students' engagement (Aija & Martin, 2013).

Research on the effects of peer tutors in general physical education provides positive results (Wiskochil, Lieberman, Houston-Wilson & Peterson, 2007). The project

Physical Education Opportunity Program for Exceptional Learners (PEOPLE) was an early effort to develop a peer tutor program in physical education (Irmer, Burkett, Glasenapp, & Odenkirk, 1980). PEOPLE was developed to assist high school students with disabilities to have a successful experience in adapted physical education by providing individualized instruction by trained peer tutors (Long, 1980).

A similar study was done that investigated the effect of untrained and trained peer tutors on improving the motor performance of students with developmental disabilities in integrated physical education classes (Cathy & John, 1997). The researcher found that students with disabilities have delayed motor skills relative to their typical developing peers. The results showed that students with disabilities need additional support in order to improve their motor proficiency. The research method in this study included training peer tutors individually. These sessions included the use of appropriate cueing, feedback, and task analysis of motor skills. Researchers found when students were trained to give students specific cues such as “bend your knees,” those cues put the student in a better position to achieve the critical element of the skill.

The purpose of the current study is to determine the difference between general and specific feedback, when given to students with a disability by trained peer tutors, on the development of specific motor skills including; dribbling, passing, catching, shooting in a general physical education setting.

## Methodology

### Participants

Participants in this study were divided into two groups, a control group and experimental group. Each group consisted of (n=5) typically developing students with (n=5) five students who have a disability. The ten typical developing students will serve as peer tutors for the ten students who have a disability. Students with disabilities were assigned to either the control, or experimental group based on their disability. Two students with intellectual disabilities were assigned to each group. Two students diagnosed on the autism spectrum were assigned to each group. One student with a speech and language impairment was assigned to each group. The ten typical developing students were randomly assigned. The group assignment of the students with disabilities was done to create balanced groups which added validity to the results.

Table 1 Experimental Design Placement

<b>Control Group</b>	<b>Experimental Group</b>
five typically developing students	five typically developing students
two students with intellectual disabilities	two students with intellectual disabilities
two students on the autism spectrum	two students on the autism spectrum
one students with speech and language disability	one students with speech and language disability

## **Recruitment of Participants**

Participants were recruited from the same junior high school where the researcher works as a physical education teacher. The students identified as having disabilities who were invited to participate in the study were in the researcher's general physical education class. The researcher spoke with their special education teacher to share the methodology and to ensure that the study was appropriate for these students. The researcher received full support from special education teacher. Peer tutors were chosen based on the following criteria: (a) appropriate behavior in physical education class as identified by the researcher; (b) high skill level ability in dribbling, passing, and shooting in basketball as identified by the physical education teacher; (c) and a willingness to be involved in the study.

## **Inclusion Criteria**

The criterion for participation for students with disabilities was limited to students who receive special education services. Additionally, students who have disabilities and scored higher than 70 points on the Individual Skill Contest Score Sheet (Figure 1), which would indicate a high level of skill in the three areas being assessed the pre-assessment, were excluded from the study.

## **Instrumentation**

The assessment instrument used in this study was the Individual Basketball Skills Contest scoresheet established by Special Olympics (Figure 3). The assessment was

developed specifically for athletes with low levels of abilities in the fundamental skills required to safely and meaningfully participate in team basketball. The Individual Skills Contest (ISC) for basketball consists of three main events: spot shot, ten-meter dribble, and target pass. The set-up rules and scoring for these events were found on the Special Olympics' website (<https://www.specialolympics.org/basketball.aspx>). To ensure reliability and validity of the results the Individual Skills Contest has a venue checklist (Figure 1), and equipment description (Figure 2) that must be completed before the contest can begin.

<b>ISC Venue checklist</b>	<b>Equipment Number</b>	<b>Required Checked</b>
Regulation basketballs (6 per venue)		
Modified basketballs (6 per venue, if needed)		
Air pump with 3 valve needles		
Chair for division (24 per venue)		
Measuring tape		
“Safe” floor tape (1 roll, 2” wide, per venue)		
Scorer’s table or desk chair (3 per venue)		
Cones: Ten-Meter Dribble (4 per venue)		
Stopwatch: Ten-Meter Dribble (1 per venue)		
Basket with net for Spot Shot (1 per venue)		
Copy of ISC rules at each event (3 per venue)		
Water coolers & cups (3 per venue)		
Scorecards (per athlete during classification)		
Shore sheets (per division during competition)		
Clipboards with pencils (per division)		
P.A. System (per venue)		
Inside Signage (per event)		
Families, Honored Guests, and spectator seating		
Award stands		
First-aid kit		
Equipment to sweep, clean, and clear courts		

Figure 1 Venue Checklist

Field Personnel	Number	Required Checked
ISC Manager		
Registrar		
Staging personnel		
Escorts (1 or 2 per division)		
Officials (1 per event)		
Scorers (1 per event)		
Timers (for Ten-Meter event only)		
Basketball Retrievers (per event needs)		
Medical staff (1 per venue)		
Security (optional)		

Figure 2 Event Equipment Descriptions

### Peer Tutor Training Program

Peer tutors received two days of 30-minute training sessions led by the researcher to prepare them for their role as peer tutors. Day 1 of the training session included demonstrations from the researcher covering the critical elements to passing/catching, dribbling, and shooting. Peer tutors were given a written guide (see Table 3) of all the critical elements for passing/catching, dribbling, and shooting. Protocol for the training is included in the appendix. The peer tutors were shown visual images from the Special Olympics website, showing proper techniques for performing the skills of passing/catching, dribbling, and shooting (see Figure 5). Additionally, peer tutors participated in role playing exercises with various feedback scenarios (see Table 2) including examples of specific instructional cues the peer tutors could use as a guide to better prepare them for their role in either the control where peer tutors will only give general feedback or experimental group where peer tutors will give only specific feedback.

During the second day of the training session, peer tutors were shown how to assess participants using the individual skills score sheet (see Figure 3) for all three events; the target pass, ten-meter dribble, and the spot shot. Upon completion of the training sessions, peer tutors demonstrated in the implementation of these techniques to the researcher a minimum accuracy of 4 out of 5 times for each discrete motor skill. Peer tutors also completed an exam, written by the researcher that covered the critical elements of each skill (see Figure 3). The peer tutor exam took place after the second session of training. A score of ninety percent or better was required for peer tutors to participate in the study. The critical elements chart (Table 3) shows the motor skills that were taught to the peer tutors including feedback cues that were given to students who have disabilities. The critical elements chart came from the USA Basketball Youth Development Guidebook (Nelson, Logan & USA Basketball Staff, 2014). The targeted basketball motor skills were selected to help students be more successful when playing a game of basketball.

### **Experimental Design**

This study utilized an experimental design in which independent variables were manipulated to judge their effects on the dependent variable. The independent variable had two levels (a) specific feedback, and (b) general feedback given by peer tutors during the skill development activities (i.e., days 2 through 8). The dependent variable used in this study was the change in performance level (see Figure 3) of the participants' motor

development in dribbling, passing/catching, and shooting a basketball. The peer tutors in the control group were instructed to give general feedback throughout the training sessions. Peer tutors in the experimental group were instructed to give specific feedback throughout the training sessions. As stated earlier feedback can be an effective strategy to keep students motivated and engaged in the activity (Cathy & John, 1997). Specific feedback statements are preferable when replication, change, or special attention to details, processes, or procedures are sought. Specificity activates cognitive and/or emotional processes that allow learners to grasp and focus on the statement's intention. The more specific the statement, the more effective the message will be (Mosston & Ashworth, 2008). Nonspecific statements are generalities; they do not indicate what was good/bad, wonderful/terrible; however, they do convey an overall message of approval or disapproval. A general message about standards or feelings is sufficient when addressing a total experience without attempting to reinforce, replicate, or change any part (see Figure 4).

Table 2 General and Specific Feedback Examples

<b>General Feedback</b>	<b>Specific Feedback</b>
Great shot	You did an excellent job using your finger pads while dribbling
Very good, All right, way to go!	Good job stepping towards your target when passing the ball
Good try	You did an excellent job keeping your hands up to catch the ball



General Feedback	Specific Feedback
That was wonderful!	Next time you shoot remember to follow through and snap your wrist
This is much better	Terrific job bouncing the ball close to your body
Not bad	Nice pass! Next time remember to push thumbs down and out
Wrong	Good job dribbling next time try being gentle when dribbling the ball

Participants with disabilities in the control and experimental group completed the pre intervention assessment (see Figure 3). The researcher collected the pre intervention data from each peer tutor. Following day one, this study followed an experimental design where peer tutors were assigned randomly to an athlete who was either in the control or experimental group.

Days two through seven, students in the control and experimental group completed a sequence of station activities that reinforced the critical elements of dribbling, passing/catching, and shooting. Training days began with group warm up exercises for five minutes. The researcher set up six different stations that each pair of students would work at for five minutes. The total intervention time was thirty-five minutes each training day. Peer tutors were shown instructions on how to participate at each station one day ahead of time. Peer tutors would participate, and give feedback to

their athlete to their assigned group (control or experimental). Day two and three focused on the skill of passing/catching. Day four and five focused on the skill of dribbling. Day six and seven focused on the skill of shooting. After eight days of instruction and feedback participants in the control and experimental group completed the post intervention assessment (Figure 3). The researcher then collected post intervention data from each peer tutor.

### **Data Analysis**

The researcher ran a compared means paired sample t-test for all participants between the pre and posttest to look for a significant difference ( $P < .05$ ) in score. This analysis was done to determine whether the peer tutor supported the motor development of his or her partners with disabilities. The researcher used a compared means paired sample t-test to compare each motor skill; shooting, dribbling, passing/catching to determine whether there was a significant difference ( $P < .05$ ) between the pre and posttest for all participants. This analysis was done to find which skills showed significant difference in score.

In the ANOVA analysis the independent variable is the intervention each group received (experimental, and control group). The dependent variables are the pretest and posttest scores. An ANOVA analysis was used to determine the difference among the control, and experimental group.

An additional ANVOA analysis was ran to see if there was a significant difference between the two groups (control, experimental) in any of the three motor skills: dribbling, shooting, passing/catching. This analysis was done to find whether any of the motor skills showed a significant difference in score.

A Factorial ANVOA test was ran to determine if there was a significant difference in score based on participants' disability. The dependent variable was the difference of score between the pre and posttest. The independent variables were the placement (control and experimental group), and disability classification (intellectual disability, speech and language impairment, and autism). This analysis was done to find any trends among peer tutor support and specific disability motor development to determine if the peer tutor intervention was more effective for a specific group of participants.

EVENTS		1	2	Attempts		5	6	Results
				3	4			
Target Pass (0,1,2,3 pts)								
Ten-meter Dribble Points								
Spot Shot	1 <sup>st</sup>							
Spot Shot	2 <sup>nd</sup>							
							Total	
Athlete's Name: _____				Group (M/F): _____				
Classification (age): _____				Group assignment: _____				

Figure 3 Individual Athlete's Score Sheet

Table 3 Critical Elements of Motor Skills

<b>chest pass cues</b>	<b>chest pass critical elements</b>	<b>bounce pass cues</b>	<b>bounce pass critical elements</b>	<b>dribbling cues</b>	<b>Dribbling critical elements</b>	<b>Jump shot cues</b>	<b>jump shot critical elements</b>
use two hands	ball held in two hands at waist level	use two hands	ball held in two hands at waist level	gentle push	Relaxed hand control	base firm	wide base, feet at shoulder-width
step to target	step toward receiver	step to target	step toward receiver	use fingers pads	push ball with finger pads	elbow under ball	move ball upward with two hands
push out	Extend arms parallel to floor, rotate palms outward	push Down and out	extend arms down and out, rotate palms outward	keep ball low	Dribble knee to mid-thigh	jump straight up	arm extends fully, wrists and fingers snap toward basket
Pass to chest level	receiver moves to receive ball at chest level	bounce close to target	bounce at 2/3 distance between passer and receiver	head up	head up and eyes scanning	extend arm	Jump straight up off of two feet
				protect ball	body between ball and defender	follow through	ball released at height of jump

Name: \_\_\_\_\_

**Peer Tutor Exam**

Please list the following critical elements for each skill

1.) Passing

- a.
- b.
- c.
- d.
- e.

Please add any additional critical elements :

2.) Shooting

- a.
- b.
- c.
- d.
- e.

Please add any additional critical elements :

3.) Dribbling

- a.
- b.
- c.
- d.
- e.

Please add any additional critical elements :

Figure 4 Peer Tutor Exam

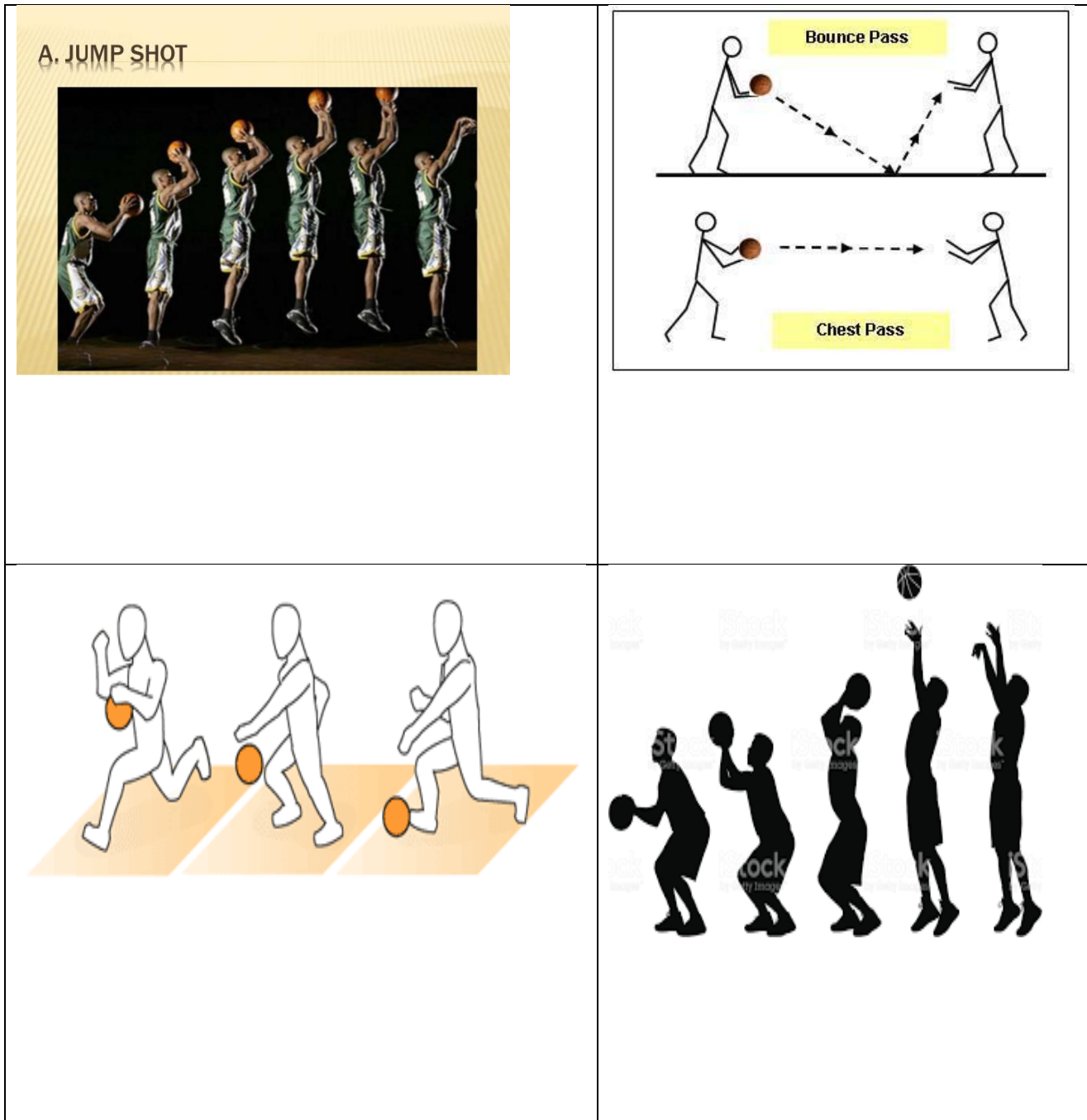


Figure 5 Visual Examples for Passing/Catching, Shooting, Dribbling

## Results

The purpose of this study was to determine the difference between general and specific feedback given to students who have a disability by peer tutoring in physical education in relation to basketball skills. Table 4 presents the difference in score results of the compared sample T-test for all participants (i.e., control, experimental groups) between the pre- and posttest assessment. The results show to be highly significant ( $P=.002$ ). The data shows that across all participants the score improved significantly over the course of the intervention. Table 5 presents the difference in score results for dribbling for the pre- and posttest which is highly significant ( $P=.01$ ). The data shows that the difference between the pre- and posttest score for passing/catching is highly significant ( $P=.006$ ). Table 6 presents the results for the difference in shooting score for the pre- and posttest that was not a significant change in performance ( $P=.81$ ). This data shows participants improved significantly in their ability to dribble, pass/catch, but did not show enough improvement in shooting for it to be significant regardless of the type of feedback received.



Table 4 Paired Samples Test Difference in Score

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper				
Pair 1	Score on test before training - Score on test after training	-12.00	8.49	2.68	-18.07	-5.92	-4.46	9	.002

Table 5 Paired Samples Test Dribbling, Passing/Catching, Shooting Difference in Score

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower Upper				
Pair 1	PreTestDribbling – PostTestDribbling	-8.00	8.70	2.75	-14.22	-1.77	-2.90	9	.017
Pair 2	PreTestPassingCatching - PostTestPassingCatching	-3.60	3.16	1.00	-5.86	-1.33	-3.59	9	.006
Pair 3	PreTestShooting – PostTestShooting	-.40	5.25	1.66	-4.15	3.35	-.24	9	.815

The purpose of the ANOVA test was to find whether there was a significant difference between the two independent variables. Table 6 ANOVA between subjects analysis identifies differences between groups (control and experimental). The experimental group had a higher Mean score than the controlled group, but the results were not significant ( $P= 0.08$ ). Although the results were very close to a significant value ( $P= 0.05$ ), the data shows that there is no significant difference between the two groups overall score. Figure 6 shows the specific feedback group as an overall higher Mean

score for their performance, but it is not a significant difference. Table 7 The Levene's test of Equality of Error variances is homogeneity of variance test. If the Levene's P value is significant than we can conclude that the Null hypothesis is incorrect, and the variances are significantly different. Table 7 shows Levene's test of Equality of Error Variances has a (P= 0.16). When the P value is greater than .05 there is not a significant difference in the different groups. The ANOVA test of between- subjects effects shows that while there is a difference among the control and experimental group the change in score was not significant (P= 0.08).

Table 6 Test of Between-Subject Effects Control, and Experimental Group

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	211.60	1	211.60	3.86	.085
Intercept	1440.00	1	1440.00	26.27	.001
<b>Group</b>	<b>211.60</b>	<b>1</b>	<b>211.60</b>	<b>3.86</b>	<b>.085</b>

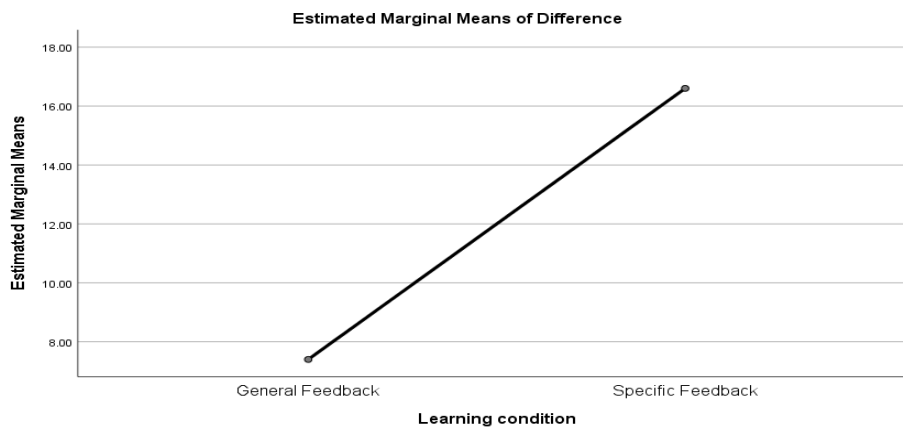


Figure 6 Estimated Marginal Means of Difference Score

Table 7 Levene's Test of Equality of Error Variances

		Levene Statistic	df1	df2	Sig.
Difference	Based on Mean	<b>2.34</b>	<b>1</b>	<b>8</b>	<b>.164</b>

ANOVA between subject's analysis identifies differences between groups (Control, experimental) in each of the motor skills being assessed in the present study. Table 8 represents the results of the between subject analysis on dribbling. Figure 7 shows the Mean score was higher for the specific feedback group, but those results were not significant ( $P=.26$ ). Table 9 represents the results of the between subject analysis on passing/catching. The data shows that there was not a significant difference between the two groups ( $P=1.00$ ). Table 10 represents the results of the between subject analysis on shooting. The data shows that there was not a significant difference between the two groups ( $P=.90$ ).

Table 11 represents the difference in mean score from the pre- and posttest based on the learning condition and disability of each participant. The data illustrates that participants in the specific feedback group had an overall higher mean score in dribbling, passing/catching, and shooting than participants in the general feedback group.

Table 8 Test of Between-Subjects Effects Difference Dribbling Score

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	102.40 <sup>a</sup>	1	102.40	1.41	.26
Intercept	640.00	1	640.00	8.83	.01
<b>Group</b>	<b>102.40</b>	<b>1</b>	<b>102.40</b>	<b>1.41</b>	<b>.26</b>

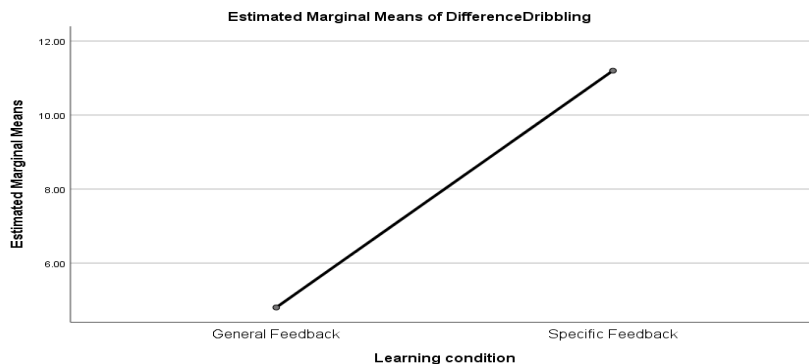


Figure 7 Means Score Difference in Dribbling

Table 9 Test of Between-Subjects Effects Difference in Score Passing/Catching

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.00	1	.00	.00	1.00
Intercept	129.60	1	129.60	11.46	.010
<b>Group</b>	<b>.00</b>	<b>1</b>	<b>.00</b>	<b>.00</b>	<b>1.00</b>

Table 10 Tests of Between-Subjects Effects Difference in Score Shooting

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	.40	1	.40	.01	.90
Intercept	25.60	1	25.60	.91	.36
<b>Group</b>	<b>.40</b>	<b>1</b>	<b>.40</b>	<b>.01</b>	<b>.90</b>

Table 11 Descriptive Statistics Difference in Score

Disability	Learning condition	Mean	Std. Deviation	N
Intellectual disability	General Feedback	10.50	.70	2
	Specific Feedback	20.00	9.89	2
	Total	15.25	7.93	4
Autism	General Feedback	4.50	6.36	2
	Specific Feedback	9.50	9.19	2
	Total	7.00	7.07	4
language impairment	General Feedback	7.00	.	1
	Specific Feedback	24.00	.	1
	Total	15.50	12.02	2
Total	General Feedback	7.40	4.39	5
	Specific Feedback	16.60	9.50	5

Disability	Learning condition	Mean	Std. Deviation	N
	Total	12.00	8.49	10

Figures 8 through 10 show the mean score difference between participants disability, group placement, and motor skill. There was no significant difference among disabilities compared to group placement, and assessment score difference. Figure 8 shows that the specific feedback group improved greater or equal to the general feedback group in dribbling. Figure 9 represents passing/catching participants in the specific feedback group improved equal or greater than the general feedback with the exception for participants who have intellectual disability. Figure 10 represents shooting participants with intellectual disability and speech and language impairments score equally. The participants who that have Autism scored lower in the posttest for both groups.

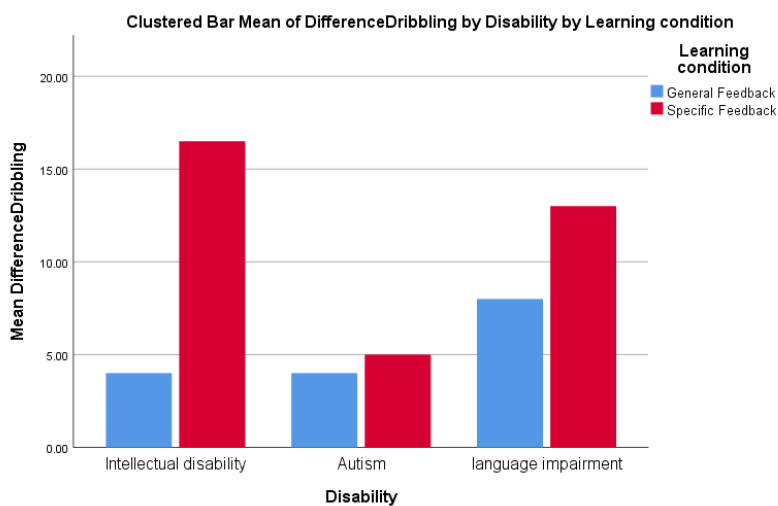


Figure 8 Clustered Bar Mean of Difference Dribbling Score by Disability by Learning Condition

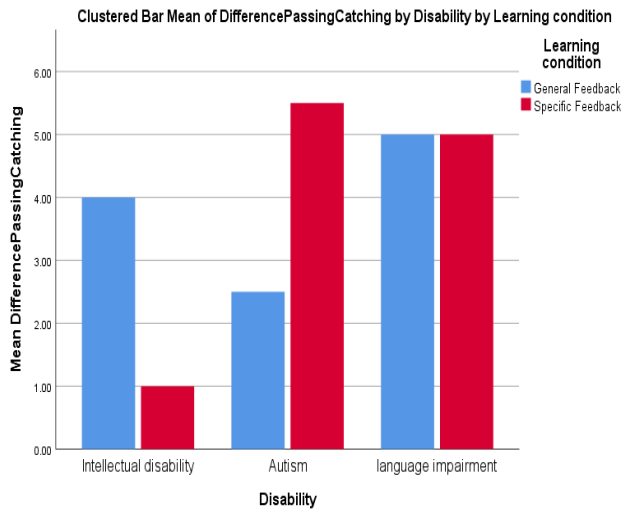


Figure 9 Clustered Bar Mean of Drifference Passing/Catching by Disability by Learning Condition

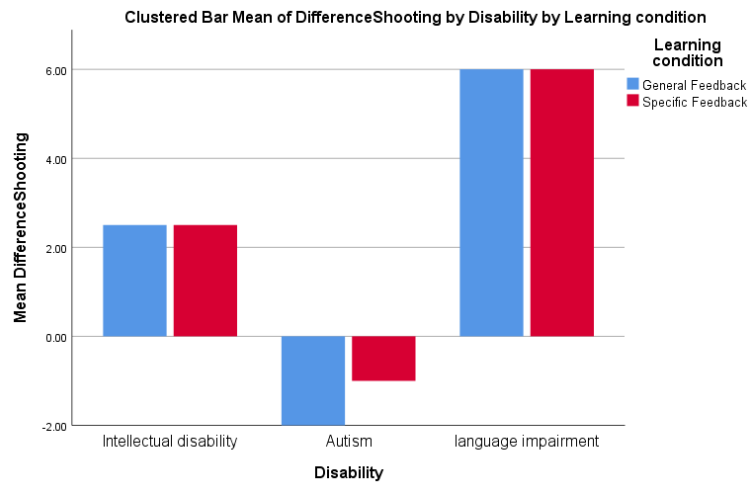


Figure 10 Clustered Bar Mean of Difference Shooting Score by Disability by Learning Condition

## Discussion

There are several positive outcomes of inclusion in general physical education based on research over the years. Those positive outcomes for students who have a disability come when they are given the proper support needed to be successful. Students with developmental disabilities need additional support to improve their motor proficiency and to be successfully integrated into the general physical education class. Historically, students with disabilities who are integrated into regular physical education classes often do not have adequate support services to ensure success. The use of trained peer tutors can be a viable option for providing students with disabilities additional and individual support.

In this study, the peer tutor training program consisted of teaching the peers how to present cues and how to break down the motor skills so that the students with disabilities could understand what they needed to do. Upon completion of the training sessions, peer tutors demonstrated the implementation of these techniques with the researcher a minimum of four out of five times for each discrete motor skill. Peer tutors also completed an exam, written by the researcher, which covered the critical elements of each skill (see Figure 4). The peer tutor exam took place after the second session of training. A score of ninety percent or better was required for peer tutors to participate in the study. Following the training program peer tutors were split into two groups (control and experimental) and randomly assigned to a student who has a disability. Based on the

student the peer tutor was assigned to the peer tutor delivered either specific or general feedback cues.

It was predicted that the participants who have a disability would score relatively low in the baseline Special Olympics skills contest. It was also predicted that the use of trained peer tutors giving specific feedback verse general feedback would affect the motor performance score at the end of the intervention. Although research has verified that specific feedback is a more effective strategy when supporting a student, this was not the case for the present study. The experimental group that received specific feedback from trained peer tutors did not show a significant difference in their motor performance compared to the control group.



## Conclusion

Based on the analysis of the data, it was concluded that trained peer tutors were effective in assisting students with disabilities to reach a higher level of motor performance. Participants score difference was significant between the pre and posttest. Also, when looking at the specific skills the data showed that dribbling, passing/catching there was a significant difference in score. The only score that did not show a significant difference in score was shooting. Shooting is often considered the hardest skill to master. The researcher believes that the intervention time was too short to see any significant improvement in shooting. The study did not verify that the type of feedback had an effect for motor development related to basketball skills. There were trends in the findings that suggest that the experimental group improved more than the control group but not at a statistically significant level ( $P= 0.08$ ). One potential reason why there was not a significant difference between the two groups is that there was a significant difference between the pre- and posttest score for all participants. All participants' skills improved with individualized attention from trained peer tutors. Due to both groups improving their overall score there was not a large enough difference between feedback type groups. Figure 8 shows that the specific feedback group improved greater or equal to the general feedback group in dribbling. Figure 9 represents passing/catching participants in the specific feedback group improved equal or greater than the general feedback with the exception for participants who have intellectual disability ( $n=2$ ). Figure 10 represents

shooting participants in the specific feedback group improved equal or greater than the general feedback group with the exception for participants who have Autism which scored lower in the posttest for both groups.

### **Limitation**

One limitation to the present study was the number of participants being evaluated for skill development. When the sample size is small it is harder to show a significant change between the control group and experimental group. The sample size was chosen to simulate a general physical education class. Another limitation in the present study is that the study did not evaluate the frequency of the feedback. Because the study did not measure the frequency of feedback there is no way to tell the amount of feedback given to the athletes by the peer tutors. The length of the intervention was also a limitation to the present study. If the length of the intervention was longer the results between the two groups could show a significant difference in skill development.

### **Future Study**

Although the results were not significant, future studies should continue to look at the effect of specific cues delivered by peer tutors compared to using general statements for corrective feedback. Future studies should examine the amount of feedback that should be given throughout the intervention. Additionally studies should examine students with different types and levels of disabilities, such as physical and behavioral disabilities, to track motor development. Finally, future studies should examine the length

of the intervention to allow participants with disabilities the chance to increase their levels of motor performance.

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