



RESEARCH ARTICLE

PEER TUTORING IN PHYSICAL EDUCATION: A REVIEW OF EVIDENCE BASED PRACTICES

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ABSTRACT

Introduction: Peer tutors are students who assist other students with disabilities to acquire complete skills, tasks and achieve goals. Physical education teachers continue to face many challenges due to large class sizes and a variety of abilities in specific physical activities. **Objectives:** a. To review research on peer tutoring in physical education, b. To discuss evidence-based practices for implementation of peer tutoring programs in physical education and adapted physical education. **Hypothesis:** The study was hypothesised that Peer tutoring strategies in multiple types were used in inclusive physical education programme was given positive results. **Methodology:** Including students with disabilities in physical education may cause many challenges for teachers who are not properly prepared to include students with various disabilities. The active nature of the environment and needs of students with disabilities requires extra instructional adaptations in which unidirectional, reciprocal, cross-aged, and class-wide peer tutoring. Students with disabilities were benefited cognitively, physically and socially through physical activity. Studies indicated that training peer tutors can be an important asset in implementing a program. Benefits for both peertutors and students with disabilities in the three categories of students with autism, visual impairments and severe disabilities were found. Although there are many challenges to a general physical education class and peer tutoring combined with inclusion is beneficial for students with and without disabilities. **Conclusion:** Multiple types of peer tutoring strategies were used in inclusive physical education programme was proved positive results compared to other existing deciplines.

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INTRODUCTION

In special education practices in the United States the lack of a universal definition leads to misunderstandings about inclusion (DEC/NAEYC, 2009). Inclusion is providing students with disabilities opportunities to be educated in general education classes with their peers. The education system in the United States continues to improve educating students with disabilities alongside their peers without disabilities; however, physical education teachers continue to face many challenges due to large class sizes and a variety of abilities in specific physical activities. Problems arise when there are not enough aides to provide for all the needs of students with disabilities. In addition, the typically active nature, equipment, and outdoor environment that physical education entails, creates several challenges for both students with disabilities and the physical education teacher (Klavina & Block, 2008). This may become a challenge as well as affect the success of the physical education program. In order to effectively teach students with disabilities, physical education teachers need help to support unique instructional needs of students in their classes.

Support systems such as trained peer tutors can contribute to a successful physical education program. Peer tutors are students who assist other students with disabilities to acquire complete skills, tasks and achieve goals. In most cases, they are students within the general physical education class who volunteer or are recruited to be peer tutors in classes such as adapted physical education or inclusive physical education. Peer tutoring is a viable solution that can assist physical education teachers with high demand of specific and immediate attention for various unique needs, especially teachers of inclusive physical education classes. Overall, findings conclude that using peer tutoring in physical education leads to positive results: students with disabilities can benefit cognitively, physically, and socially through physical activity. The purpose of this paper was to review research on peer tutoring in physical education and to discuss evidence-based practices for the implementation of peer tutoring. An electronic search was conducted using electronic databases through Humboldt State [For example: SPORT Discuss, PubMed, Cohrane, ProQuest and ERIC]. Search terms included "adapted physical education", "peer tutor", "physical education", "students with disabilities", "special education", "physical activity", and "inclusion". Studies with significant findings were incorporated in the appropriate sections of the review of literature. The following section includes a review of research studies that have incorporated peer tutors into an instructional

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program. The use of peer tutoring allows the teacher increased opportunities for students to practice skills that are adapted for a student with individual needs. A clear benefit is that the individualized attention from the peer tutor can provide immediate corrective feedback (Block & Oberweiser, 1995). The "tutee" receives immediate feedback, which allows him or her to quickly reflect on the component that needs correction. The tutor also gains additional insight into how a skill is performed through repetitive reinforcement of the skill, and by evaluating the "tutee".

OBJECTIVES

To review research on peer tutoring in physical education, b. To discuss evidence-based practices for implementation of peer tutoring programs in physical education and adapted physical education.

HYPOTHESIS

The study was hypothesized that Peer tutoring strategies in multiple types were used in inclusive physical education programme was given positive results.

METHODS AND PROCEDURES

The selected studies met several criteria for inclusion, to investigate the implementation of peer tutoring techniques for students with disabilities in physical education and the use of peer tutors in physical education. Lastly, all literature used was peer reviewed, scholarly or a part of a Ph.D. dissertation.

Attitudes towards inclusion: The Effects of Peer Tutoring in Physical Education Attitudes towards inclusion Qi and Ha (2012) examined teachers', preservice teachers', and students without disabilities attitudes towards inclusion in general physical education. They found 23 studies that surveyed teachers' perspective of inclusive general physical education, and found that lack of training; inadequate preparation and knowledge of students' disabilities contribute to physical education teachers' negative attitudes towards teaching students with disabilities. Physical education teachers' attitudes are important factors in providing meaningful learning experiences when students with disabilities are included in general physical education. Block & Obrusnikova, (2007) in their review found seventeen studies concerning preservice teachers' attitudes towards inclusion of students with disabilities. Those who (a) were female, (b) had taken an APE course, (c) had higher self-perceptions of their competence, (d) had more years in college or university, and (e) majored in physical education in college, had more positive attitudes than preservice teachers who did not have these same qualities. Eight studies revealed that students without disabilities had attitudes similar to the teachers' towards the inclusion of students with disabilities in general physical education. Positive attitudes towards inclusion were associated with female students and individuals who had experience with a family member or close friend with a disability. On the other hand, negative attitudes were associated with those who were not previously experienced with or exposed to students with disabilities. Children on the autism spectrum reported feeling isolated and unsuccessful in general physical education class (Healy, 2013).

This may be due the fact that the physical education teacher was not properly trained to incorporate students with autism. Exposure and increased social interaction of students without disabilities to any individual with a disability may promote positive attitudes, and may eventually lead to a healthy inclusion in all aspects of society. There is strong evidence (Qi & Ha, 2012) that incorporating peer tutors can contribute to positive attitudes towards inclusion of students with disabilities. The goal of inclusion is for children and adults with disabilities to live as fully functioning members in society (Sinibaldi, 1999). Research shows that "inclusion causes no negative effects on peers without disabilities, and through inclusion, students with disabilities can develop positive attitudes toward other students with disabilities" (Block & Obrusnikova, 2007). Also, an effective peer tutoring strategy is extremely vital to foster positive attitudes and maintaining the initiative of students with severe and multiple disabilities (SMD). Peer tutoring has a major impact on interaction and behavior in inclusive physical education. Klavina and Block (2008) reported observable social growth in peer tutors, and acceptance toward classmates with disabilities when teachers used a peer tutoring program. Eight tutors indicated that their attitude toward their peers with disabilities improved. Tutors also mentioned that getting to know their tutee and helping them participate in physical education was the best experience in the study (Klavina and Block, 2008). Individuals can learn to be compassionate through working with persons with disabilities, because they learn to assist others and develop important social connections. Working with students with disabilities has social benefits for the peer tutor. It broadens the peer tutor's perspectives on inclusion and builds acceptance of unique and different abilities.

Effects of Inclusion for Students with Autism: Sherrill (2004) explains that in order for a student with autism to achieve his or her full potential in GPE, instruction must be individualized and in a supportive environment. Children with autism display delays in their physical development and poor motor skills. Due to the fact that children often exhibit clumsiness, it is difficult for them to participate in team sports. However by participating in a broad range of physical activities, a student can begin to develop and enhance his or her motor skills. Peer tutors can be trained to provide individualized instruction to allow students with autism to participate accordingly to their own individual skill level. The development of social interaction skills for students with autism is pivotal in their overall growth and for their capacity to benefit from education programs and services. Due to the nature of the disorder, individuals with autism are generally distant and have poor social interaction skills. The most effective method to teaching these social interaction skills is to use peer tutors in general physical education classes (O'Connor *et al.*, 2000). Peer tutors can learn effective communication skills to interact successfully with students with autism. This helps build social interaction skills in peer groups. Class-wide peer tutoring (CWPT) can be an effective tutoring model for students with autism. The model uses different pairs of students weekly to help individualize education. By using peer tutors, age appropriate motor skills can be taught effectively because the students are in the same age range. This not only gives the student with autism a unique opportunity to learn social interaction skills, but also enhances the social interaction skills of all of the students in the physical education class, because

each student experiences different opportunities to partner as a peer tutor with the student with autism

Effect of Inclusion for Students with Visual Impairments:

“Compared with their sighted peers, students with visual impairments demonstrate significantly less physical activity” (Gronmo & Augestad, 2000). In a literature review conducted by Haegele and Porretta (2015) discussing physical activity for individuals with visual impairments, the major findings show that these individuals face barriers in terms of physical activity. Parents report valuing physical education but are concerned for the safety and lack of opportunities for their child (Perkins *et al.*, 2003). The use of peer tutors can help safely include students with visual impairments in physical education classes. Peer tutoring has been shown to have a positive effect on the academic learning time in physical education classes (Ayers, 2013). Peer tutors were able to increase academic learning and physical education scores for visually impaired students (Wiskochil, Liberman, Huston-Wilson & Petersen, 2007). Wiskochil *et al.* (1999) compared the effects of trained and untrained tutors, and the effects of peer tutors on visually impaired students’ performance of open and closed activities (Ayers, 2013). The study found that all tutees increased their ALT-PE score when partnered with a peer tutor. Training sighted peer tutors on appropriate teaching and feedback techniques improved the outcome goals.

Effects of Inclusion for Students with Severe and Multiple Disabilities (SMD):

A student with SMD has a combination of two or more impairments such as movement difficulties, intellectual disabilities, sensory losses, and behavioral learning difficulties (Oreland, Sobsey & Silberman, 2004). Each of these disabilities is severe and requires constant support. Students with SMD need access to the same curriculum as 10 students without disabilities. Often times, this means that the curriculum needs to be altered to fit the abilities and needs of students with disabilities. Choosing activities in which students without disabilities spend a large amount of time interacting with students with severe and multiple disabilities can support learning key skills. Students with disabilities also need to develop lifetime goals, as well as therapeutic goals (Block *et al.*, 2013). According to Block, Klavina and Flint (2013), therapeutic goals “are often created by the student’s physical and occupational therapists and are designed to improve muscle tone, prevent deformities and assist with functioning.” With instructional support such as the use of a trained peer tutor, these students can successfully be included in a general physical education environment (Block *et al.*, 2013). Social interaction for students with severe and multiple disabilities is a clear benefit of the inclusion model. By interacting with peer tutors the student with SMD learns critical social skills in a fun learning environment. In terms of peer tutoring, unidirectional peer tutors would be most effective in supporting interaction between students with and without SMD, because of their constant interaction with the students at the peer level. It helps the student with SMD develop a comfortable working relationship with his or her tutor, and the student with a disability is able to understand his or her role better.

Peer Tutoring Models: Through the implementation of inclusion, students with disabilities can be successfully integrated into general physical education when given the necessary 11 resources.

Trained peer tutors are one of the main resources that help successfully incorporate these students in the physical education setting. Continuous assistance by adults, instead of peers in the general physical education setting can inherently lead to the social isolation and segregation of students with disabilities. According to Block & Klavina (2008), “several authors have noted that the prolonged and close proximity of adult support personnel adversely affected interactions between students with and without disabilities while at the same time increasing social isolation and loss of independence for students with disabilities.” Through the implementation of an appropriate peer tutoring strategy, interaction between students with blindness, autism, and SMD, and then peers without disabilities can increase, in turn contributing to the engagement of students with disabilities in inclusive general physical education. The effective peer tutoring models used to help actively engage students in GPE include: unidirectional, reciprocal, cross-aged, and class wide peer tutoring.

Unidirectional One-on-One Peer Tutoring:

Unidirectional peer tutoring is the most widely used method of peer tutoring (Cervantes, Lieberman, Magnesio & Wood, 2013). Unidirectional peer tutoring takes place when one student is trained to act as a peer tutor for one student with a disability (Block, 2007). The utilization of unidirectional peer tutoring in general physical education grants students with disabilities extra support and attention from a student who does not have a disability. One advantage to unidirectional tutoring is that each student knows his or her role (Lieberman, 2006). In this method of tutoring, the trained peer 12 tutor serves as the teacher, and provides instruction with supervision. The student with the disability always acts as the student. Unidirectional peer tutoring may be the most effective when the peer tutor works with students with more severe disabilities (Temple & Lynnes, 2008). These severe disabilities may include blindness, cerebral palsy, and autism. There is a need for highly specific support with these disabilities and unidirectional is beneficial because the peer tutor carries the responsibility throughout the program (Lieberman, 2006). This allows peer tutors to become experienced and knowledgeable in working with their tutee.

Bi-Directional or Reciprocal Peer Tutoring (RPT):

Bi-directional peer tutoring generally consists of two students who form a pair. Usually this pair includes one student with a disability and another student without a disability (Utley & Mortweet, 1997). In this method, both students provide one another instructional support. This form of peer evaluation allows both students to feel as though they have an equal status. Bi-directional peer tutoring grants the student with a disability the opportunity to serve as both the teacher and the student, or the tutor and the “tutee”. This method works best with students who have mild to moderate disabilities. These students with disabilities are capable of working and following instruction with a minimal amount of guidance (Cervantes, Lieberman, Magnesio & Wood, 2013).

Cross-Age Peer Tutoring:

Cross-age peer tutoring capitalizes on the age difference between the “tutee” and the tutor. In this method, students with disabilities are tutored by older students without disabilities. The older student generally comes to the class of the younger student to 13 provide instructional assistance. The age difference between the “tutee” and the tutor in this model may cause the younger student to work more

efficiently than he or she would with a younger or same age tutor. This may be attributed in part, to the notion that the older students are much more mature and reliable than same age peers (Block, 2007). One major disadvantage to the cross-age peer tutoring model is that the older students may have to travel from different classes or campuses, and are not always readily available to provide aid when necessary. Consequently, this model of peer tutoring can be very difficult to implement effectively (Block, 2007).

Class-wide Peer Tutoring: CWPT involves pairs of students working together, taking turns providing cues and feedback (tutor), and practicing the skill ("tutee"). Students learn to work cooperatively by giving feedback in a constructive manner, and accept feedback from peers. There are many variations of CWPT, and programs that apply CWPT. An example of a CWPT procedure from Greenwood and Delquadri (1995) follows: (a) review and introduce new learning material, (b) content materials to be tutored, (c) new partners each week, (d) partner pairing strategies, (e) reciprocal roles in each session, (f) team competition for highest points, (g) individual "tutee" point earnings, and (h) tutor feedback. This procedure was used for math and reading, but can be adjusted for physical education. One advantage of CWPT is the ability to supervise student responses (Greenwood and Delquadri, 1995). This allows the teacher more time to monitor student pairs and partners, provide immediate praise, feedback and direction. There may be fewer behavioral issues because students are excited to draw for new partners weekly, and are busy completing their task as a tutor or "tutee". CWPT is highly structured but simple to perform for both the "tutee" and peer tutor. The "tutee" knows what he or she should do to perform the skill, while the tutor knows what components of the skill to provide feedback to the "tutee" and to record data for the teacher. This evidence-based practice grants students multiple opportunities to learn skills when roles are reversed as a tutor and "tutee". During peer tutoring, the teacher monitors students' participation and data sheets, and provides feedback to partners.

Class-wide peer tutoring is the most cost-efficient and simplest method of peer tutoring because students who are already in the general physical education class provide extra instruction and support to students with disabilities (Block, 2007). Table One includes Greenwood and Delquadri's (1995) study which looked at the benefits of classwide peer tutoring for students with disabilities during a 12-year span, from 1983 to 1995. A group of at-risk first graders, who participated in 4-year span of CWPT, were compared to a control group that received only teacher-mediated instruction. Students in the class-wide peer tutoring group had higher measured IQ and achievement than peers that did not participate in the program for the first three years. By the fourth year there were no statistical differences between the two groups. Middle and high school follow-ups were performed to look at the long term benefits associated with the use of class wide peer tutoring. Students with disabilities in elementary, middle, and high school were all observed, through review of special education services received and the rate of these students dropping out of school. Results of the study showed that fewer students who participated in the class-wide peer tutoring program had received special services compared to the control group. The graduation rate for CWPT group was 92.6% in comparison to

the control group at 87%. This data indicates that class-wide peer tutoring is a viable option for physical education teachers to help mainstream students with disabilities.

TRAINING PEER TUTORS

Peer tutors who have not been adequately or properly trained to work with students with disabilities are typically unable to safely perform tasks or may inefficiently instruct students with disabilities. Without the proper and necessary training, untrained peer tutors may cause negatively impact students with disabilities. It is extremely important that students with disabilities participate in the training to enable peer tutors to understand the nature of the disability and how to communicate with the student with a disability. Disability awareness activities are necessary to facilitate this communication. Some of the duties for a peer tutor may include: providing one-on-one instruction (i.e. prompts and feedback), assisting students with skills and tasks and being a role model. Cervantes, Lieberman, Magneso & Wood (2013) note that the training of peer tutors, along with additional support, is critical for the success of the peer tutoring strategy. This is supported by other studies (Block, 2007; Lieberman & Houston-Wilson, 2009; Lieberman, Newcomer, McCubbin, & Dalrymple, 1997). Compared to untrained peer tutors, trained peer tutors tend to have a greater impact on the motor skill performance of students with disabilities, peer tutors also benefit from the experience (Barron & Foot, 1991; Houston-Wilson, Dunn *et al.*, 1997). Tutors must pay attention to the various demands caused by different components of the task, including the physical, instructional, and social components (Barron & Foot, 1991).

Research shows that students with disabilities had more interaction with peer tutors who were trained compared to untrained tutors. As shown in Klavina and Block's (2008) study three students were scored for interaction behaviors between students with severe and multiple disability (SMD) and selected untrained peer tutors. The mean score for student 1 was 23%. Student 2 scored 6.9% and student 3 scored 5.3%. When interacting with trained peer tutors all scores increased. The mean score of student 1 increased to 73%, the mean score of student 2 increased to 60.2%, and mean score of student 3 increased to 63.4%. With regard to the increase of interaction behaviors, researchers have noticed an increase of prompting compared to other instructions. According to Lieberman and Houston-Wilson (2009), and Cervantes, Lieberman, Magneso & Wood (2013), there are ten best practice steps for the training and implementation of peer tutoring. These include:

- Obtain permission from the parents of both the tutor and tutee, as well as from the administration. This permission should be granted prior to starting the program, preferably at the start of the academic school year.
- Develop an application procedure. In this procedure, only eligible students who want to be effective tutors should be considered. This should be conducted prior to or at the beginning of the academic school year.
- Conduct disability activities awareness. The peer tutor must have a general understanding of the student's disability, and that means the child with the disability should be present for the training. This should transpire at the beginning of the training.

- Develop communication techniques. Both terminology and ways to communicate should be taught. This includes sign-language and other communication models. This step is specific to each child's individual disability.
- Teach instructional techniques. These techniques include explanation, demonstration, physical assistance, and effective use of positive and negative feedback.
- Use scenarios. Utilize upcoming units of instruction as well as real life examples. These hypothetical scenarios should be taught throughout the duration of the training program.
- Use behavior management programs. Techniques must be taught that work for children that need behavior management in order for the tutor to effectively teach the student with a disability.
- Test for understanding. Each peer tutor should pass a test regarding all of the training techniques prior to actually beginning the tutoring process.
- Ensure that social interaction is positive and supportive. Students with disabilities should participate in programs with increased peer-to-peer social interaction. This takes place at the beginning of the program as well as throughout the duration of the program.
- Monitor progress. Trained peer tutors must learn to become exceptional teachers. The peer tutors should be given feedback on their teaching throughout the duration of the program.

Implications for Future Research

The majority of studies on peer tutoring programs for students with disabilities in physical education describe an inclusive general physical education context. There is limited research on peer tutoring in self-contained adapted physical education to make a reasonable comparison between the two classroom learning settings. A small number of disability categories were discussed in the studies. More research on peer tutoring for each disability would be needed to better understand the effects of peer tutoring and the various delivery options. There is also need to research which physical education learning activities actually contribute to the overall goal of acquiring physical education skills. Research on peer tutoring in physical education has been ongoing. Although this is encouraging, more research is needed on this topic as the inclusive instruction model is implemented. Additional research must to be conducted on peers in the physical education setting and the potential role of friends. A clear distinction needs to be made between the two different entities to determine if there is a difference in skills acquired by students with disabilities through each interaction. This distinction is important because the physical activity behavior of students with their peers and with their friends differs. Future research should also detail exactly how much knowledge and expertise is needed for effective peer tutoring. Do different skill levels among tutors affect the effectiveness of tutoring interactions? More research is also needed to determine how long peer tutors should be trained, and if training should be an ongoing occurrence for tutors.

Should peer 20 tutors constantly be trained throughout their tenure as tutors, or is training prior to the implementation of peer tutors adequate? By gaining insight on all of these different elements in peer tutoring, the effectiveness of peer tutoring for students with disabilities in physical education can be assessed.

Conclusion

The students with disabilities need to Media for teaching in voice, sign language, combined of both must in the peer teaching. The majority of students with mild to moderate disabilities are typically included in general physical education. Peer tutoring is one evidence-based strategy that has proven to have many benefits. There are multiple types of peer tutoring strategies used in inclusive physical education including: unidirectional, reciprocal, cross-aged, and class wide peer tutoring. Peer tutoring to be successful, the training is essential for peer tutors to be knowledgeable and prepared to work with their tutees.

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