

Creating successful experiences for deaf children in physical education and athletics:

A review of the literature

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Title of Synthesis Project: Creating successful experiences
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Abstract

The purpose of this synthesis project was to investigate ways of creating successful experiences for children in physical education and athletics. A literature review was conducted in an effort to explore physical activity participation among deaf students, determine barriers to participation and make suggestions for teachers and coaches.

Results indicated that deaf children struggle to participate in physical education and sports due to communication barriers and social anxiety. Also, there is a significant gap in success and attitudes about physical activity between deaf students who go to deaf schools and those who attend general schools. Deaf students in deaf schools have more positive attitudes toward physical education and sports than those in general schools. Additionally, most adapted physical education teachers in general schools do not have adequate knowledge of American Sign Language or other methods of communication to interact with deaf students. Peer tutors were a useful intervention in some cases. The barriers to communication need to be studied more thoroughly in order to help teachers and coaches eliminate or lessen the struggles that deaf students face.

Chapter 1

Introduction

For deaf people, hearing loss occurs when the inner ear is damaged; therefore, deaf people are not able to hear any sounds or to understand speech clearly. In fact, some deaf students/athletes can read lips, but would only understand 20 to 46% of what is said (Schultz, Lieberman, Ellis, & Hilgenbrinck, 2011). This percentage shows how important it is to provide American Sign Language (ASL) or other visual means to ensure successful through communication (Schultz et al., 2011).

Sometimes, teachers expect to communicate with deaf students through their cochlear implant. However, the problem is deaf students risk injury to themselves or damage to the implant when using the cochlear implant during participation in physical education class. Sweat or moisture can cause problems for cochlear implants. Therefore, deaf students will often come to the class without the cochlear implant and will not be able to listen to the teacher through their voice.

At the same time, deaf students have the right to learn the same curriculum as their hearing peers. Physical educators should make sure that they provide equal information for both deaf and hearing students (Schultz et al., 2011).

American Sign Language is common to all settings; therefore it is highly recommended for physical educators to use ASL to teach deaf children to help them to understand what is going on in the class (Schultz et al., 2011). Physical educators do not have experience with ASL or other approaches to communication; therefore, today's children and teens who are deaf still struggle with communication and understanding in

physical education (Schultz et al., 2011; Liberman et al., 2000; Kurkova, & Scheetz 2016) which shows the need to adjust strategies for deaf students/athletes' success.

When being placed in general schooling, deaf children have struggled to keep up in physical education class. A lot of deaf students experience major difficulties in communication (Lieberman, Dunn, Mars, & McCubbin, 2000) because most teachers are not sure what strategies they need to use to integrate one or more deaf students with other hearing students in physical education class. For example, Schultz, Lieberman, Ellis and Hilgenbrinck (2011) provide a case which shows this problem: "The student using sign language introduces himself through an interpreter who says, 'Hello, Ms. Cooper. My name is Josh. I just enrolled here and was told to join this PE class.' Ms. Cooper is surprised and confused; she had not been informed that she would have a new student, let alone a deaf student. She asks Josh if he is hearing impaired, and Josh signs, 'No, I am DEAF.' To one of his interpreters, who replays the message to Ms. Cooper. Ms. Cooper is unsure how to respond; she is naïve about deafness and Deaf culture" (p. 51). Often the deaf students will not get all of the required information through physical education class, since teachers are not sure about teaching deaf students. Therefore, there need to be strategies to help physical educators teach hearing and deaf students in the class. The first day of class, physical educators can discuss with hearing students the need for deaf students to feel socially comfortable with his or her classmates. This allows them to become aware of issues deaf students face (Reich & Lavay 2013). The hearing students will understand where deaf students are coming from. That way, hearing students will know what they need to do with a deaf student in sports or physical education classes, like using demonstrations, facial expressions, gestures, and other body language to

communicate with deaf students.

Statement of the Problem

All people, regardless of ability, need to be able to participate in physical activity for their physical, social, and emotional health. It is important for deaf and hard of hearing students to have access to communication in that pursuit. They need to be able to understand what is going on in physical education and athletics and able to participate equally in all activities. Therefore, deaf and hard of hearing students will need physical educators who are able to teach deaf and hard of hearing students by using different kinds of communication such as gesture, sign language, or spoken language. In addition, physical educators, coaches, and parents need to be aware of deaf culture and barriers that keep deaf children out of activity and find ways to overcome those barriers. If deaf students have barriers with communication, then physical educators, coaches, and parents need to become better prepared to teach deaf students and thereby, provide equal access to children who are deaf and hard of hearing in order to be successful. It is important for the students to understand everything as much as they can. Then they will be able to develop knowledge about how important it is to keep involved with a variety of activities after school and throughout their lifetime. The following questions will be answered through this review of literature:

1. How do the motor skills of children who are deaf compare with children who are not deaf?
2. What are the facilitators of participation in physical education and athletics for children who are deaf? What kinds of strategies are most effective?

3. What are the challenge/barriers faced by deaf students in physical education and athletics? How can these barriers be overcome?
4. What are some of the best practices teachers and coaches should consider when working with deaf students?

Purpose of the Study

The purpose of this synthesis project was to determine the current barriers to physical activity that children who are deaf are facing in order to explore ways of creating successful experiences for deaf children in physical education and athletics.

Operational Definitions

1. Inclusive Physical Education- Including all the services for physical education to get all deaf students involved into the class (Kurkova, 2015).
2. Cochlear Implant (CI)- A medical device installed in the brain near the left or right ear to stimulate hearing via nerves for a deaf person (Kurkova, 2015).
3. Adaptive communication skills- Deaf students will communicate in a different way. Teachers will need to use sign language, whiteboard, finger spelling, speaking, or gestures. In addition, some will have to use body language and facial expression and eye contact with the student. Eye contact helps the feeling of direct communication. Also, teachers could use the interpreter to communicate with deaf students in the physical education class (Zaccagnini, 2005).
4. Interpreter- A person who will listen to the teacher's voice and use sign language to communicate with deaf students through teacher's voices and

speaking to teachers what deaf students say through sign language (Zaccagnini, 2005).

5. American Sign Language (ASL) - The utilization of facial expression, body language, and specific hands to create the linguistics of ASL communication (Kurkova et al., 2016).
6. Deaf plus- A deaf person with additional disabilities.

Assumptions

1. Deaf children face barriers to participation in physical activity.
2. Deaf children struggle with access to appropriate communication strategies.
3. Deaf or hearing students deserve a quality education and communication access for physical education class and athletics.
4. Subjects answered questions truthfully.

Delimitations

1. The literature review included years from 1990-2015
2. Subjects included deaf children involved in physical education, athletics or physical activity
3. Research related to children who were deaf or hard of hearing but not deaf plus.

Limitations

1. Parents, teachers, coaches, and physical activity instructor's experience or lack of experience working with deaf children.
2. Limited by the small number of deaf participants involved in each study.

3. Communication regarding research questions in various studies was limited to electronic surveys due to the fact that respondents were separated by large distances.

Chapter 2

Methods

The purpose of this synthesis was to explore ways of creating successful experiences for deaf children in physical education and athletics. Another purpose was to make recommendations for what still needs to be done to help deaf students become more successful in physical activity situations. The key results this synthesis produced several strategies for better communication with deaf students in physical education class and/or in coaching situations.

The literature selected for this synthesis was through The College at Brockport's library website. "Databases by subject" was chosen under Recreation & Leisure Studies; then a search was completed through SPORTDiscus, Academic Search Complete, Education Source, and Communication & Mass Media Complete in EBSCO host. The searches provided hundreds of results, and eight articles were selected which met the criteria, and were available as full texts from academic, peer-reviewed journals.

Keywords used in the search were *physical education, deaf students/hearing implant students, deaf athletes/hearing implant athletes, inclusive physical education, adaptive communication, cochlear implant, American Sign Language, and communication strategies*. A search with the keywords "physical education to deaf students" in the title field produced 562 results. The results were narrowed down by scholarly journals to 336 results. Then the results were narrowed again by reducing the range of years from 1952-2018 to 1990-2018, producing 280 results. These articles would be eliminated if the word "deaf students" or "physical education" was not part of the title. The articles found were: "Communication Strategies Used by Physical Education Teachers," "Emotions in the

Physical Activities of Czech Students Who Are Deaf and Hard of Hearing in General and Special Education,” “Health-Related Fitness of Deaf Children: How Do They Measure Up?” “How Physical Education Teacher Education Majors Should Be Prepared to Teach Students With Hearing Loss: A National Needs Assessment,” “Motor Skill Performance and Sports Participation in Deaf Elementary School Children,” and “Sports Activities as a Factor in Socialization of Deaf Students.”

Another search done through Academic Search Complete and SportsDISCUS started with “deaf* OR hearing impair*” AND “athlete*” as the keywords in the title field. This search showed 427 results without limiting to full text, scholarly, peer-reviewed journals and allowing publication dates from 1943 to present. Once this search was narrowed to full text only, it brought the results down to 198. Scholarly, peer-reviewed journals brought it down again to 106 results, and then publication dates from 1990 to present narrowed the results even further to 96. The articles found were: “Challenges and Opportunities in Psychological Skills Training in Deaf Athletes” and “The Comparison of Social Anxiety Levels Between Adolescent(s) Hearing-Impaired Athletes and Normal Healthy Athletes.”

In order to establish a critical mass, articles needed to pertain to the research questions. Articles needed to pertain to physical education and success for deaf athletes/students when participating in physical education class or sports. Research articles used in the synthesis had to be about deaf students who were able to become successful in sports/PE class.

Because of the lack of research, I was unable to find more than 10 to 15 articles. By searching through those articles' reference lists, I found additional articles, including:

“Communication Strategies Used by Physical Education Teachers and Coaches in Residential Schools for the Deaf in the US” and “Peer Tutors’ Effects on Activity Levels of Deaf Students in Inclusive Elementary Physical Education.”

A total of nine articles were selected related to deaf students’ success in PE class and sports. The articles included approximately 600 participants and came from journals such as, *Psychologist*, *Acta Facultatis Educationis Physicae Universitatis Comeniange*, *Journal of Physical Education and Sport*, *Palaestra*, *American Annals of the Deaf*, *Adapted Physical Activity Quarterly*, and *Ovidius University Annals*.

The articles included both qualitative and quantitative methods. The literature review included four articles that were quantitative, three articles that were qualitative, and two that were a mix of both quantitative and qualitative. Thus, researchers used observation and scoring for some studies and questionnaires such as surveys, interviews, or online questions in others. Quantitative is more helpful for motor skills and finding what children’s skills are. Qualitative is helpful for finding barriers being faced with surveys and questionnaires to find more information about their experiences.

Chapter 3

Review of Literature

Everyone needs a social life and participation in physical activities for their physical and mental health reasons, including those in the deaf community. Deaf students need to have opportunities to improve their physical activity levels and social life as much as those who are not deaf. According to Dummer, Haubenstricker, and Steward (1996), "Sport also socializes people who are deaf into the community at large because it provides an equal playing field where communication between people who are deaf and those who are hearing is not a significant barrier-both groups can interact with one another on a meaningful and nonthreatening basis" (p. 400). Chapter three will be a discussion about social anxiety, motor skills performance, communication strategies, and physical education teachers' preparation to teach deaf students. The purpose of the literature review is to establish what has been found and what still needs to be found.

Motor Skill Performances

Hartman, Houwen, and Visscher (2011) performed research on deaf students' motor skill performance to see if deafness affects their balance. The purpose of the study was to demonstrate the importance of improving deaf children's motor skills in an effort to keep them involved in sports participation.

Fifty one deaf children aged 6-12 participated in this study. They were enrolled in special schools for deaf children in Northern Netherlands. Six children had other physical problems, three children had cochlear implants and they were eliminated from this study since the study targeted only deaf children without other disabilities. There were 42 native Dutch children who were included the study.

The data were analyzed using SPSS for windows 11.0. Deaf children were asked to complete a short questionnaire about their outside of school activities, such as being involved in organized sports. The children took two general physical education classes of 45 minutes each to do gymnastics, swimming, sport skills, and self-defense. The authors analyzed the data using the percentage of children with borderline and definite motor problems compared with the percentage of children with no motor problems. They also included IQ levels (Hartman et al., 2011).

The result showed that 61.9% of the deaf children in the study had motor problems with manual dexterity, 52.4% with ball skills, 45.3% with balance skills. The evidence showed that deaf children have more problems with balance than the normative sample. However deaf children who participated in organized sports performed better on ball skills than those who did not.

Dummer, Haubenstricker, and Stewart (1996) investigated deaf students from two schools. One school was from the Midwestern region of the United States, while another school was from Ontario, Canada. This purpose of the study was to assess the fundamental motor skills of deaf children and compare them with hearing students. They investigated deaf students who have above 55 Decibels (dB) in the better ear. There were 211 students, but 10 children were excluded due to being deaf plus. Therefore, there were 91 girls and 110 boys, between age 4 to 18 years, totaling 201 students altogether.

This study utilized both Qualitative and Quantitative research methods. First, the Test of Gross Motor Development (TGMD) included visual demonstrations and sign language to communicate instructions. They scored the students on seven locomotor skills and five object-control skills. For example, to obtain a perfect score of 4 points on a skill

such as the overhand throw, they observed rotation of the hip and shoulder to a point where the non-dominant side of the body faced the target, weight transferred by stepping with the foot opposite the throwing hand, and follow-through of the throwing arm after ball release (Dummer et al. 1996). The seven locomotor skills were run, gallop, hop, leap, horizontal jump, skip, and slide. The five object-control skills were two-hand strike, stationary bounce, catch, kick, and overhand throw (Dummer et al. 1996).

The quantitative research was asking deaf students to throw as far as they could, kick as far as they could, jump as far as they could and run as fast as they could. The quantitative data consisted of was the collected times and distances for these skills. Researchers measured the students' jump and throw distance and running speed based on TGMD.

The TGMD results showed that deaf students scored lower than same aged children who can hear on seven locomotor skills (run, gallop, hop, leap, horizontal jump, skip, and slide) and five objects skills (two-hand strike, stationary bounce, catch, kick, and overhand throw). The results demonstrated that deaf students scored higher at age 4 and younger, but scored lower at age 5 and older. Hearing students scored higher after age 4. The researchers believed that this is because deaf students had formal schooling at an earlier age than hearing students and had physical education as part of their curriculum (Dummer et al. 1996). Once both deaf and hearing students enrolled the school and physical education (after four years of age), the results were different.

Fitness Levels

Ellis, Lieberman, Fittipauldi-Wert, and Dummer (2005) studied fitness levels in deaf versus hearing athletes. The purpose of their study was to contribute to deaf people's

knowledge of how important it is to participate in physical activities for their well being and health. Ellis et al. (2005) found results related to deaf children had troublesome that many studies showed levels of deaf children have lower of fitness than hearing children. Therefore, the researcher decided to study deaf children's fitness levels with respect to the Healthy Fitness Zone standards, determine any gender differences; and determine any age differences. (Ellis et al. 2005). The participants in the study included deaf children with 97 males and 54 females in fourth grade from both general and deaf schools. Regular schools provided communication by speech, total communication, and ASL. Deaf schools provide ASL only.

The methods used physical fitness tests evaluate to cardiorespiratory endurance as measured by Progressive Aerobic Cardiovascular fitness in endurance (PACER), percent body fat, height, weight, flexibility, abdominal strength and endurance, upper body strength and endurance, push ups to measure of physical fitness. The test is intended for children age 5 and older. PACER was deemed more effective as a way to determine CR endurance more accurately than the one mile run.

The results were the data for the performance of deaf children on a Fitnessgram test battery modified for ease of understanding. The results showed that deaf children were physically fit. The analysis showed that these deaf children, 61.9% of boys and 72.2% of girls between the age of 6-11 years, satisfied the expectation of healthy fitness criteria of at least four of six tests (Ellis et al. 2005). The results of this study indicate that deaf children demonstrated the same level of physical fitness as hearing children. Fifty two deaf students didn't meet the criteria of four out of six test scores at the HFZ because of percent body fat. Thirty eight students had high percent body fat and demonstrated

poor PACER performance. Therefore, the three most important findings of this study are:

1. Based on results of the Fitnessgram test, deaf children are more similar than dissimilar to hearing students in the area of physical fitness;
2. The modified Fitnessgram test is effective for deaf students;
3. Deaf children can be successful in physical fitness testing.

Psychological skills

The purpose of Clark and Sachs' (1991) study was related to deaf athletes and how they communicate to each other in the National Deaf Volleyball tournament. Since most deaf athletes came from both mainstream and deaf schools, they mostly used American Sign Language. Clark and Sachs consider it important that deaf athletes have their own cultural identity and their own unique identity and they never look at themselves as disabled at all except by language. It is useful to compare students with athletes because communication issues in adolescence contribute to similar difficulties in adulthood. In athletes, we see that it is important to have communication access to be able to follow directions and be able to participate in sports. It is more a perspective of deafness as a communication disability, not a physical one. (Clark & Sachs, 1991) There are Special Olympics and Paralympics that provide opportunities for deaf athletes. (Clark & Sachs, 1991; Kurkova et al., 2016; Lieberman et al., 2000)

Clark and Sachs (1991) used an assessment of psychological Skills Inventory for Sport with deaf athletes. The participants included 26 females with a hearing loss 55 dB or more in the better ear. There were six women's and ten men's teams in the National Deaf Volleyball Tournament. The data was collected through the Psychological Skills Inventory for Sport (PSIS) and a videotaped ASL version. There were six components of athletic performance: anxiety, concentration, confidence, mental preparation, motivation,

and teamwork. The components were rated from strongly disagree to strongly agree. The venue consisted of the National Deaf Volleyball Tournament and 26 women and 14 women took the ASL version of the PSIS and 12 women took the English version. The biggest difference between ASL and English was found in the anxiety and confidence scores. The 14 women who took the ASL version of the assessment had 3.0 higher PSIS factor scores for anxiety than those who took the English version and those who took the ASL version had 3.3 higher PSIS factor scores for confidence than those who took the English version.

Communication Strategies

Within deaf schools:

Kurkova and Scheetz (2016) sought to collect information related to communication strategies and instructional techniques for deaf students, including coaching and physical education teaching strategies. This study utilized a questionnaire which was answered electronically by coaches and PE teachers. The survey included questions regarding a) types of sport coached/PE classes taught; b) mode of communication used; c) coaching and teaching techniques; d) coaching and teaching strategies; e) breakdowns in communication; f) advice to new coaches and teachers starting out in the field (Kurkova et al., 2016). Each of the eighty four schools received the survey and cover letter for physical education teachers and coaches for Schools for the Deaf. The purpose was to investigate how physical educators and coaches communicate with deaf athletes/players. Only 32 individuals responded out of 84 individuals. The results showed that ASL is the most used communication strategy in school/sport with 96% of respondents utilizing ASL (Kurkova et al., 2016).

Some other effective methods of teaching deaf student were using white boards (74%), modeling the skill for the players (96%), and re-teaching by other students/team members (78%). The scores were also above 40% for use of pictures (41%), smart board (41%), YouTube demonstrations (41%), and videos with closed caption (44%). The evidence supports the current use of techniques in which coaches have to rely on modeling, re-teaching by other team members, and the use of white boards (Kurkova et al., 2016).

Within mainstream schools:

Most deaf students are placed in mainstream schools. They have major difficulties in communication and are often not able to follow instructions. In addition, more deaf students experience social rejection and isolation (Lieberman, Dunn, van der Mars, & McCubbin., 2000).

Lieberman, Dunn, van der Mars and McCubbin (2000) performed a study to observe how many deaf students would improve in regular physical education class with the help of a peer tutor. In regular education, deaf students often only have the deaf education consultant and an interpreter to communicate with the teacher or other students. One major limitation for deaf students is that they may become isolated from teachers and peers (Lieberman et al., 2000). Therefore, this study explored ways to make improvements for deaf children to have a good experience in physical activity. The study method included eight deaf student participants (four girls and four boys) and an equal number of trained, hearing peers in grades 4 to 6 without any disabilities who used ASL as their primary means of communication. These students were called "peer tutors." The setting was a regular physical education class with a trained physical educator for 45

minutes twice a week. Students had to learn ball skills, basketball, jump rope, hockey, and softball. The teacher had 10 years experience of teaching PE class, but did not know sign language and did not use it in the classes. An interpreter was in the class the whole time to explain to the deaf students whatever the teacher said in the class.

Data collection utilized the System for Observing Fitness Instruction Time (SOFIT) and used videotaping for a 5 month period. The researchers observed the baseline mean and intervention percent to show the students' performance in the gym. The dependent variable was moderate to vigorous physical activity (MVPA). Results indicated that the deaf students improved their performance by a peer tutor with a low of 19% and a high of 41.5% difference in gain after having a peer tutor. For example, one deaf student improved their performance by 41.5% to 63.5%. Therefore, the conclusion was that peer tutoring is effective in physical activity settings for deaf students.

Kurkova (2015) collected positive and negative emotional reactions from physical education students who were deaf and hard of hearing in the Czech Republic. In total there were 7 deaf students and 125 hearing students attending general school, and 32 deaf students who attend schools for the deaf. The purpose of the study was finding the emotional levels between deaf students who attend general school and deaf schools. The procedure was a questionnaire to determine the emotional reactions in physical education. These were divided into ten dimensions: D1 to D5 in positive attitude while D6 to D 10 in negative attitude towards physical education and sports. Results indicated that there were significantly higher values found in deaf students who were attending a general school than in students in schools for the deaf. Deaf schools tend use sign language for communication, while general schools tend to have a spoken speech and total

communication (different kind of communication including signed, oral, auditory, written and visual aids) for deaf students.

Data analysis used Statistica 10.0 software, and this data was quantified using positive points for each dimension of the questionnaire. Results showed the positive attitude within the 1-5 range. Students in schools for the deaf range 4.9 for feeling of energy, while general schools range only 3.9. That indicates that deaf students in schools for the deaf had more positive attitudes than deaf students in general schools. The last question was related to attitudes towards PE/sport and showed a large gap between general school score of 3.3 and deaf school score of 4.5 (Kurkova, 2015). There were 3 other kinds of questions, in which both deaf schools and general schools had similar results: penchant for risk, excitement; feeling of relaxation; and feeling of mastery, self-confidence.

The results showed the negative attitude from 1 – 5 range for each dimension. Deaf schools have a lower range than general schools in all of the categories:

Feeling of fatigue – General school (GS) 4.0 / Deaf school (DS) 2.9

Feeling of anxiety, tension – GS 3.0 / DS 2.7

Feeling of anger – GS 4.1 / DS 2.8

Feeling of discomfort – GS 4.3 / DS 2.1

Negative attitude toward PE/sport – GS 4.4 / DS 1.6

(Kurkova P., 2015)

Both results from positive and negative showed that deaf students at schools for the deaf have much more positive and less negative reactions to physical activity than deaf students in mainstream settings. The results proved that deaf students in general schools

have high demand to read lips to understand what teacher's instruction. It leads them to fatigue and work harder to read lips; therefore deaf students will not be able to hear through hearing aid and lead them to concern and anxiety about communication misunderstandings, delayed reactions and damage to their hearing aid in contact sports performed in basketball or soccer. The author mentioned that deaf students in schools for the deaf showed lower values of negative attitudes toward physical education than deaf students who went to general schools because of reduced physical fitness, curricular focus, and personality of the physical education teacher.

How Physical Education Teachers Can Be Prepared to Teach Deaf Students

Zaccagnini (2005) gathered information related to physical education in both deaf and mainstream schools with 25 or more deaf or hard of hearing students. The first goal was to determine how deaf students are being served in physical education programs; the second goal was to investigate the differences and similarities between physical education programs in deaf institutions and mainstream schools; the third goal was the development of a curriculum. A fourth goal was to find areas of focus for the curriculum and methods of teaching appropriate for teachers who will be teaching deaf students. (Zaccagnini, 2005)

The method of data collection was preparation of a survey that was grouped in four categories: demographic information, physical education program requirements, physical education for multi-handicapped hearing impaired students, and physical education curriculum. There are three questions that were open-ended by narrative response.

Data was collected and analyzed from the surveys using Microsoft Access database. This analysis can identify the characteristics of the physical education programs for deaf and hard of hearing students in programs in grades K-12. There are seven different

categories: basic motor skills, individual and dual sports, team sports, physical fitness, gymnastics, aquatics, and dance and recreational activities. The information was collected by yes or no answers and open-ended questions.

Eighty six survey participants responded the survey questions which asked if students got their full physical education requirement in ways other than the traditional physical education courses. Thirty six percent of students responded yes, while sixty four percent of students responded no. Those students who responded yes fulfilled the requirement most frequently through varsity sports, band, cheerleading, adapted physical education, and dance.

There were four questions related to multi-handicapped hearing impaired (MHHI) students. The response rate for the survey in general, however, was most related to deaf students. Most of teachers were not aware about MHHI, but 75.3% of teachers taught for MHHI and 24.7% of teachers did not. It is a challenge for teachers to provide physical education opportunities for all students, even those who are prepared to teach adapted physical education. There were 47.2% of teachers who had adapted physical education certification/endorsement, while 18% responded that their state did not. The other 34.8% of teachers did not know.

Social Anxiety

Mustafa, Metin, Cecilia, and Hacer (2011) analyzed the difference between deaf and hearing students' anxiety levels. The participants were 50 deaf and 50 hearing athletes. Social anxiety was defined as fear of being watched by others (Mustafa et al., 2011). The purpose of this study was to compare social anxiety between deaf and hearing athletes in sport and determine whether deaf athletes are more socially anxious than hearing

athletes. Researchers wanted to see if deaf athletes tend to have social phobias.

The first method of data collection was to gather heights and weights through electronic weighing machines. The researchers also administered the Social Anxiety Measure in Adolescents. Researchers adapted the (SASC-R) into the Social Anxiety Scale for Adolescents (SAS-A) by changing some wording. SAS-A consisted of 22 items, structured with three factors, including fear of negative evaluation (FNE), social avoidance and distress (SAD-General) and social avoidance and distress specific to new situations (SAD-NEW). The statistical analysis showed fear of negative evaluation in both deaf and hearing athletes and social avoidance and distress in general in both deaf and hearing athletes. Except for the social avoidance specific to and distress situations of deaf and hearing athletes are different from between deaf and hearing athletes. Deaf athletes have been struggled with this part because it's difficult time to face the new situations that deaf athletes were not sure about this.

Chapter 4

Summary and Discussion

This chapter summarizes the findings from the review of literature on barriers to physical activity for deaf children with access of communication and discusses the results. Deaf children continue to face barriers to physical activity. A total of 9 articles showed the major reasons why deaf students struggled with their physical activities and motor skills. Some physical educators thought deaf students could not do anything because they could not hear anything. It is not true; the results showed that deaf students have difficult times in motor skills due to their inner ear balance. But other results showed that deaf students could do the same things as hearing students. Communication is the one of the biggest barriers found in the articles through research. Deaf students had to go through life with no communication with their own parents (hearing parents), teachers not knowing sign language, losing confidence with physical activities due to others looking at deaf students differently, less opportunities deaf students in physical activities, and a lack of modifications.

How do the motor skills of children who are deaf compare with children who are not deaf?

Dummer, Haubenstricker, and Stewart (1996) and Hartman, Houwen, and Visscher (2011) conducted studies related to motor skills performance by deaf students. Evidence showed that deaf students have some difficulties with motor skill performance such as catching, overhand throw, run, gallop, hop, leap, horizontal jump, skip, and slide. The results showed that hearing students have higher scores than deaf students after age 4. But, researchers discovered that deaf and hearing students had the similar results before age 5. A possible reason of the difference between 4- and 5-year-olds is communication needs. It is possible that balance issues

are not as important as communication. Another article provided evidence that deaf students' Fitnessgrams are similar to hearing students when they are given modified Fitnessgram tests, which are effective for deaf students. Deaf students are able to do physical activities when they have access to communication and a modified test. Radomir, Slavnic, and Kovacevic (2012) concluded that "deaf children of deaf parents achieve better academic results, having better language development as well as social relationship than deaf children whose parents are not deaf" (p. 4). Additionally, they concluded that, related to locomotor skills, deaf children reached or exceeded an average level of performance for their age (Radomir, Slavnic, & Kovacevic, 2012). This is showing how powerful ASL communication is to deaf students/athletes who are able to understand and show their own performance.

What are the challenge/barriers faced by deaf students in physical education and athletics? How can these barriers be overcome?

Articles reviewed as part of this synthesis project were related to communication barriers and social anxiety as two reasons why deaf students struggle to participate in physical education and activities. More deaf students are placed in mainstream schools where they will not be able to have a full understanding of what they need to do in physical education due to teachers not knowing sign language. Kurkova and Scheetz (2016) showed the results from deaf schools' methods and how teachers use their skills to teach deaf students. There are 96% of teachers in deaf schools using sign language to teach deaf students to participate in sports and physical education class. Not only that, they also used white boards (74%) and Re-teaching by other students/team members (78%). There are three kinds of strategies for deaf students to be able to learn and play properly in sports. Deaf students are very successful in deaf schools and are able to participate in many different kinds of sports such as basketball, soccer, volleyball, football,

and other sports. Deaf students will communicate to each other to play in sports. Most of deaf students used ASL to communicate. However, more deaf students have been being placed in mainstream schools from 1980 to present and have had reduced access to sign language. These mainstream teachers have no experience in sign language. When deaf students do not have access of language, it leads to a lack of physical activities.

Deaf students begin losing their confidence after age 4 because of relying on sign language. Deaf students need to have access to language to understand what they need to do in physical education and other classes and help them gain confidence. Kurkova (2015) showed a chart comparing deaf students who attend deaf schools versus other deaf students who attend mainstream schools. The results showed that the positive dimensions of emotional reactions from deaf students in deaf schools range was 4.9 and deaf students in general schools range was 3.9. In feeling of energy, deaf schools range was 4.5 and general school range was 3.3 in positive attitude toward PE/sport. Therefore, deaf schools performed higher in positive dimension than general schools. Again, the chart compared the negative range of 1-5, and deaf students in deaf schools have a lower range for the negative range 1-5 than deaf students in general schools. This is related to feelings of fatigue, anxiety, anger, discomfort and negative attitude toward PE/sport. Deaf students in general schools average 3.96 from a range of 1-5 as negative dimensions. Deaf students in deaf schools average 2.28 from a range of 1-5 as negative dimensions.

Emotional	Deaf students in Deaf schools	Deaf students in General Schools
Feeling of fatigue	2.9	4.0
Feeling of anxiety	2.0	3.0
Feeling of anger	2.8	4.1

Feeling of discomfort	2.1	4.3
Negative attitude toward PE/Sport	1.6	4.4

This demonstrates how much emotional difference there is between general and deaf schools. This article concluded that deaf students become more negative due to lack of communication and become angry for not being able to understand what they need to do in class. In addition, deaf students become more uncomfortable being around hearing students because deaf students will not understand what other students are talking about or they have difficulty trying to communicate with hearing students or teachers during physical activities.

Radomir, Slavnic, and Kovacevic (2012) studied social interaction with hearing students and the difficulties for deaf students when communicating with hearing students. Deaf students struggle to have social interaction with other hearing students because they are different. Therefore, it leads to deaf students' loss of confidence and increased anxiety about social interaction with others.

Deaf students also have a fear of being unsuccessful in physical activities. Hartman et al. (2011) suggest that young deaf people choose to avoid going to sports or physical activities because of difficulty with social interaction. An important issue for deaf children is communication and academic learning, physical activity, and social activity requires a lot of effort from deaf children (Radomir et al., 2012).

On the other hand, peer tutoring is another option to solve the problem of communication. That is another way for deaf students to follow instruction. When peer tutors were involved in physical classes, deaf children improved their understanding of physical activities. Eight students improved their percent of understanding of the physical activity being

taught on average from 19% to 41.5% (Lieberman et al. 2000). Deaf students increase in physical activity level after 2 to 4 weeks because the peer tutor benefited them greatly.

What are some of the best practices teachers and coaches should consider when working with deaf students?

Clark and Sachs (1991) discussed ways to work with deaf athletes and help them improve in different physical activities. It is important for deaf athletes to benefit greatly from appropriate training. Many deaf people are excellent athletes at elite levels, winning gold medals in the Olympics, and playing professional football in the National Football League (Clark & Sachs, 1991). This article provided six different ideas for sport psychologists interested in working with deaf athletes. These techniques are useful for teachers and coaches or anyone else interested in working with deaf people.

1. Use eye contact, wave of the hand, tap on the shoulder, or tactile signal to gain attention.
2. Communication methods to fit with other deaf athletes' preference of communication such as ASL, signed English, gesture, lipreading, speech, or writing. You have to be aware of differences in communication methods with each of the deaf athletes on one team.
3. Use facial expression and body language when talking. If you do not know ASL then learn how to use ASL because it will help you a lot.
4. Use an interpreter.
5. Speak clearly and slowly.
6. Use visual means of communication, such as blackboard, overhead projector, hand gestures, sign language, body language, facial expressions, or videotape.

(Clark & Sachs, 1991)

Chapter 5

Conclusion and Future Recommendations

Today, deaf students still struggle with physical activity but studies have shown that the primary reason for this involves barriers to communication (Lieberman et al., 2000). Deaf students who attend general school often lose their confidence in physical education or sports because of lack of communication (Kurkova, 2015). Without being able to understand what is going on or what is expected, whether in a class or in sports, deaf students will not be able to perform well. Additionally, a lack of social interaction with other students increases the negative attitude deaf students have toward physical education (Kurkova, 2015). Deaf students also have increased social anxiety because of an inadequate knowledge of social and etiquette rules. This anxiety leads to deaf students holding a view of physical activity that causes them to avoid it, particularly when interacting with hearing students (Lieberman et al., 2000). Thus, research indicates that it is still a struggle for deaf students to participate in physical activities.

Research also shows that, in deaf schools, students will have better opportunity to gain a positive attitude because of the full access to language and social interaction with other students (Kurkova, 2015).

For deaf students who go to general schools, physical educators need to learn strategies to interact with these students such as using sign language, white boards or an interpreter (Kurkova et al., 2016). Working with peer tutors who are trained in these strategies can also help deaf students achieve success. Deaf students will improve their performance after having a peer tutor to give them better ideas of what they need to do in

physical education class or sport and they become more aware and able to perform better (Kurkova et al., 2016).

If teachers and coaches want to include deaf students, then they have to learn to use sign language, gestures, and white boards and be able to incorporate better communication methods.

Future Research Needs

There are not enough studies that look at the way deaf schools operate and how deaf students in those schools have more access to communication and better opportunities for socialization. Researchers may find additional benefits related to deaf schools. Deaf students might have better performance in physical education class or sports to show more evidence compared with general schools.

Maryland School for the Deaf, Fremont School for the Deaf (California), Indiana School for the Deaf, and Texas School for the Deaf enroll the largest numbers of deaf students in United States. Students in these schools are very successful in physical education classes and sports (Reference?). If researchers pay attention to these schools, they may be able to learn the reasons they are so successful when some of the smaller schools are not.

References

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Zaccagnini, K., (2005). How physical education teacher education majors should be prepared to teach students with hearing loss: A national needs assessment. *American Annals of the Deaf* 150(3), 273-282.

Appendix A

Grid Articles

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
Clark, R., & Sachs, M. (1991) Challenges and opportunities in psychological skills training in deaf athletes. <i>Sport Psychologist</i> , 5(4), 392-398.	The purpose of this study was measure psychological skills of deaf athletes through by PSIS (The Psychological Skills Inventory for Sport, into the cultural language of persons who are deaf: ASL, American Sign Language is the most common. This study will research the linguistic backgrounds of deaf athletes which they will use the communication with the world.	The National Deaf Volleyball Tournament provided 26 female participants in this study. 6 women teams were in the tournament included deaf Olympians. They seem come from diversity of groups who participants in the tournament. 14 female took the ASL version of the PSIS and 12 took the English Version. There were also divided 4 groups from 26 players. Group 1 featured Olympic players (8) Group 2 developmental team member (7), Group 3 recreational participants (7) and group 4 former Olympic team member (4).	They research on 6 components of athletics performance and competition: anxiety, concentration, confidence, mental preparation, motivation, and teamwork. It measures through 5 possible ratings for each statement, ranging from strongly disagree to strongly agree.	The result showed no difference between the versions. The feedback from players, most deaf athletes who took the PSIS-ASL videotaped version was positive. They expressed an interest in learning more about their psychological skills through ASL videotape. This article also explain how to teach Deaf students such as have to eye contact and attention of the deaf athlete (Read #1 to 6) the whole information in there.	The discussion about many opportunities for sport psychologists to work with deaf athletes that will benefit for both. - eye contact and attention of the deaf athlete. - a wave of the hand - a tap of the shoulder - communication methods like use ASL, pigeon signed English, gestures, lipreading, speech, writing, and find out how the deaf athlete's preference. - Use facial expressions and body language when talking. If you do not know ASL then you should learn it.	Additional what's exactly messages did they said something about learning from PSIS ASL and PSIS English. 26 deaf athletes probably should have tried both to see how they feel about ASL and English.

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Kurkova, P., & Scheetz, N. (2016). Communication strategies used by physical education teachers and coaches in residential schools for the deaf in the U.S. <i>Acta Facultatis Educationis Physicae Universitatis Comenianae</i>, 56(1), 1-15.</p>	<p>This study used a questionnaire through online surveys which aims to gather information about communication and instructional techniques like coaching strategies for deaf students' access of language.</p>	<p>In total 84 schools for the deaf received the online surveys. These surveys were for Physical Educators to answer the questions to investigate how coaches and physical educators communicate with deaf athletes/players. -Total 13 questions in the survey -7 questions with the multiple-choice questions -3 of the questions included additional information. -6 questions were open-ended.</p>	<p>This study is using the qualitative analysis to find trends and themes.</p> <p>a) types of sports/PE classes that were offered and that the individual completing the survey taught/coached; b) mode of communication used; c) coaching/teaching techniques that were implemented; d) coaching/teaching strategies that were incorporated; e) how breakdowns in communication occurred; f) advise to new coaches/teachers starting out in the field.</p>	<p>In total 84 schools for the deaf received the online surveys. However, only 32 individuals responded to the surveys.</p> <p>-38% return rate. The table 2 showed the American Sign Language was the highest percent (96%) used in deaf schools.</p> <p>-Table 3 showed the techniques used to teach new plays or skills used the most successfully for deaf athletes were: modeling the skills for the players (96%), white boards (74%), and re-teaching by other students/team members (78%), are working well for deaf students to understand.</p>	<p>The authors wanted to determine how coaches and PE teachers communicate with deaf students. The goal was to capture communicate/instructional techniques, and coaching strategies. The collected information will be beneficial among the PE teachers/coaches who are working with deaf athletes. The conclusions showed that often deaf students prefer gestures when communicating with them. Also, the researchers helped coaches to develop critical cultural awareness of what it means to be deaf. They will then have more opportunities to participate in sports through communication strategies. If both coaches and deaf athletes will be able to communicate with each other, it will benefit them both.</p>	<p>This study was focused on deaf schools. Although it was helpful to find information through deaf schools which showed how much they use their language to communicate with deaf athletes, additional studies could look at public schools' methods for deaf students.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Kurkova, P. (2015) Emotions in the physical activities of Czech students who are deaf or hard of hearing in general and special education. <i>Journal of Physical Education and Sport</i> 15(4), 823-828.</p>	<p>This study's purpose is to compare the emotional reactions in the physical education for deaf or hard of hearing students who attend general schools versus deaf schools.</p>	<p>Participants in the study were students who are deaf or HOH but not deaf plus in general schools with 7 students about age 14 and who come from Czech Republic. These students were also compared with other hearing classmates with 125 students about age 13. Again, 32 deaf students from deaf schools and about age 15. Deaf schools tend to have sign language as their communication while general schools tend to use total communication and spoken speech. (1)</p> <p>- Researchers used the questionnaire to answer from 1 to 5 range (1 Feeling of energy to 10 a negative attitude toward physical education and sports) and answer YES (0) NO</p>	<p>-use the Statistica 10.0 software to process data.</p> <p>-Time and frequency data -(Mann-Whitney U test)</p> <p>- Data were quantified using positive points for each dimension of questionnaire and represented in a group via the arithmetic mean</p>	<p>It showed the resulted was that deaf students who deaf and hoh had high point values in their positive emotional reactions from deaf schools than general schools.</p>	<p>Questionnaires showed that Deaf or Hoh students feel balance positive relationship in PE without worry about read lips. Deaf students will be able to pay attention to teachers through sign language instead work harder to read lips or delayed reactions.</p>	<p>I believed that article is very excellent. It would be nice if the article will be able to included the record tape or observe how they reactions from general or deaf schools.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Ellis, K., Lieberman, L., Fittipauldi, Wert, J., & Dummer, G. (2005) Health-related fitness of deaf children-How do they measure up? <i>Palaestra</i>, 21(3), 36-43.</p>	<p>The purpose of study is research deaf people's physical fitness positively contribute to the general of health and well-being of an individual. The health related to their level of cardiorespiratory endurance, muscular, strength, and endurance, and body fat through daily living and recreational activities. Also, studies find that most deaf children demonstrate lower levels of fitness than hearing children.</p>	<p>Physical fitness was testing on-</p> <ul style="list-style-type: none"> -cardiorespiratory endurance -progressive aerobic cardiovascular endurance -run (PACER) -percent body fat -flexibility -abdominal strength and endurance -upper body strength and endurance tests from the fitness gram test battery. <p>There are all deaf children</p> <ul style="list-style-type: none"> -97 males -54 females -participants from either regular or special schools. <p>-range of communication includes speech, total communication, and American Sigh Language (ASL).</p>	<p>Analysis on performances</p> <ul style="list-style-type: none"> -fitnessgram test battery -MANOVA results for age and gender effects. 	<p>The resulted showed that simple modifications will successful for deaf children to participants the physical fitness tests. Also, deaf and hearing children with similiar age related trends in fitness found within the literature for hearing children. These results serve as further evidence that deaf children are similar to hearing children with respect to fitness trends and expectations.</p>	<p>The results showed that deaf children are more similar with hearing children with modified fitnessgram test.</p> <p>The problem was 52 participants were not meet the criteria of four out of six test scores in the HFZ including PACER performance and percent body fat.</p> <p>The results of this study will need deaf children be tested using the same physical fitness tests as hearing children with only simple modifications, but this study was focusing on similar age-related trends in fitness.</p>	<p>This research could have included communication since deaf children will understand clearly by verbal or ASL to see how could they follow the direction.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Zaccagnini, K., (2005). How physical education teacher education majors should be prepared to teach students with hearing loss: A national needs assessment. <i>American annals of the deaf</i> 150(3), 273-282.</p>	<p>This study used surveys to gather information from deaf and mainstream schools to prepare for deaf students. There are 4 goals . The first one was how deaf students in grade K-12 go through PE programs and the depth of curriculum and credentials needed to teach. The second one was investigate the differences and similarities between PE programs in deaf and mainstream schools. The third one was providing Gallaudet University the information to use in development of a curriculum that prepares for students who come out from deaf or mainstream schools. The fourth one was to find methods of teaching for deaf students' needs.</p>	<p>Survey items with four categories: demographic information, physical education program requirements, physical education for multiply handicapped hearing impaired (MHHI) students, and physical education curriculum.</p> <ul style="list-style-type: none"> -There were 27 questions -24 simple answer questions. - 3 questions were open ended. 	<p>Researcher identified the characteristics of the PE programs serving deaf and hard of hearing students from K – 12 grades, number of PE classes per week, length of classes, and curriculum and assessment requirements. These were grouped in seven categories:</p> <ul style="list-style-type: none"> -basic motor skills, -individual and dual sports -team sports -physical fitness -gymnastics -aquatics -dance and recreational activities. 	<p>Regard, The open questions – Teachers' characteristics included good communication skills, fluency in American Sign Language (ASL).</p>	<p>The key conclusions and recommendations are PE majors seeking positions in programs that serve deaf students it is important to have a background of adaptive PE, bachelor of science degree in PE state certification, knowledge and skills in fitness and fitness training, and ASL fluency.</p>	<p>This article was focused in many different kinds of preparing for students' PE classes. This article mentioned about one is crucial part is communication and teacher's preparation with disabilities' needs.</p> <p>Other recommendations focused on good interpreter, good communication skills, fluency in ASL, high expectations for students.</p> <p>Teachers must have knowledge of the field of health and physical education and the ability to teach and coach a variety of activities, and skills to deal with various behavioral issues and maintain a positive educational environment for students.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Hartman, E., Houwen, S., & Visscher, C. (2011). Motor skill performance and sports participation in deaf elementary school children. <i>Adapted Physical Activity Quarterly</i> 28(2), 132-145.</p>	<p>The purpose of this study to examine motor performance in deaf children because they have problem with motor physical through by balance skills and ball skills. This study is importance of improving deaf children's motor skills performance to keep them involve in sports participation.</p>	<p>51 deaf children aged 6-12 participate in this study. They were coming from special schools for Deaf children in northern Netherlands. 6 children have other physical problems, 3 children had cochlear implants, 9 children were excluded from this study population. There were 42 native Dutch children.</p>	<p>The data were analyzed using SPSS for windows 11.0.</p> <p>Children were asked to complete a short questionnaire about their activate involvement in organized sports. The analyzed using the percentage of children with borderline and definite motor problems compared with the percentage of children with no motor problem include IQ levels.</p>	<p>The results show that deaf children have motor problem.</p> <ul style="list-style-type: none"> - 61.9% for manual dexterity, -52.4% for ball skills -45.3% for balance skills. <p>-evidence showed that deaf children have more problem with manual dexterity; ball skills, and balance than normative sample. However deaf children who participated in organized sports performance better on ball skills than those who did not. Therefore, there is no evidence for motor skills performance and sports participation. Whoever deaf students participate sports will show their results that deaf children can perform ball skills relatively successfully compared with others.</p>	<p>It was tough to test on few deaf students while they could test a lot of hearing students in one school while only one or few deaf students. We should have test 40 deaf athletes who actually like to participate sports and other 40 hearing athletes to compare each other to see if there's any difference.</p>	<p>The next time the researchers could research on 20 deaf athletes who actually play sports and other 20 hearing athletes who actually play sports too. So, the results probably will be differently than they have in the original research.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Dummer, G., Haubenstricker, J., & Stewart, D., (1996). Motor skill performances of children who are deaf. <i>Adapted physical activity quarterly</i> 13 (4), 400-414.</p>	<p>This purpose of the study was to assess the fundamental motor skills of deaf children and compare them with hearing students.</p>	<p>91 girls and 110 boys between age 4 to 18 years, total 201 students altogether. This is both Qualitative and Quantitative research to Test Gross Motor Development (TGMD) include visual demonstrations and sign language to communicate instructions. They scored on students' locomotor skills and five object-control skills.</p>	<p>Analysis used by TGMD with 7 locomotors skills</p> <ul style="list-style-type: none"> - run - gallop - hop - leap - horizontal jump - skip - slide <p>Five object control skills</p> <ul style="list-style-type: none"> - Two hand strike - Stationary bounce - Catch - Kick - Overhand throw 	<p>Deaf children has more score than hearing children during age 4 years. However, the deaf children's score is lower than hearing children after age 4.</p>	<p>Children should go to schooling at an earlier age than hearing students and had physical education as part of their curriculum.</p>	<p>Researchers recommendations of expand the opportunities for their students who are deaf and participate sports with peers who can hear.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Lieberman, L., Dunn, J., & McCubbin, H. (2000). Peer tutors' effects on activity levels of deaf students in inclusive elementary physical education. <i>Adapted Physical Activity Quarterly</i>, 17(1), 20-39.</p>	<p>This study was analyzing the effect of trained peer tutors on the physical activity levels of deaf students. Peer tutors used sign language and basic teaching strategies. The deaf students will then be able to follow and improve their performance.</p>	<p>8 deaf students (4 boys and 4 girls) with trained hearing peers in grades 4 to 6. -8 deaf students will go through by peers tutors in inclusive elementary schools. -8 deaf students has loss of 55 decibels or greater, no secondary disabilities, and use of sign language as their primary means of communication. -8 deaf students also enrolled in the same PE class as the hearing students, good behavior, no close friendship with the deaf students, and willingness to participate. -They learned physical education skills.</p>	<p>This analysis is Quantitative Visual analysis which coded presence of peer tutoring behaviors, evidence of changes behavior of the deaf students, evidence of changes in behavior of the peer tutors, evidence that these changes corresponded with the experimental manipulation of the intervention across participants.</p>	<p>One student improved from 40% to 62% MVPA level after taking a peer tutor. This shows that peer tutors are a positive influence. Other student also improved 45% to 74% and another one improved 42% to 80%</p>	<p>The results showed that the peer tutors will be very helpful for deaf students to understand what they can do in physical activity through sign language. Interpreter was cover it all. Researchers will observe them how much they improved.</p>	<p>This evidence was very good results. This study could have more deaf students to show more evidence. 8 deaf students were pretty small numbers. Not only that, studies should observe deaf students of different age groups.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Mustafa, K., Metin, P., Cecilia, G., & Hacer., G. (2011) The comparison of social anxiety levels between adolescent(s) hearing-impaired athletes and normal healthy athletes. <i>Ovidius University Annals, 11(2), 273-278.</i></p>	<p>The purpose of this study was to compare social anxiety between deaf and hearing athletes in sport and determine whether deaf athletes are more socially anxious than hearing athletes. Researchers wanted to see if deaf athletes tend to have social phobias.</p>	<p>First one was collection of subjects of Deaf and hearing athletes between age 12 and 16. There are 50 each of deaf and hearing athletes and measure their heights and weights through by electronic weighting machines. Second one was collection of data of Social Anxiety Measure</p>	<p>Table 1 – age, weight, and height, table 2 The fear of negative evaluation of hearing-impaired athletes and normal healthy athletes, table 3 the social avoidance and distress in general of deaf and hearing athletes. Table 4 – Social avoidance specific to and distress situation of deaf and hearing athletes.</p>	<p>Deaf students had difficult in the learning of social and ethical rules because of the deficiency of their hearing. (B.luetke-Stahlman & Luckner, 2000). Deaf athletes have more social anxiety because they were bullying, by others since they don't know social and ethical rules adequately. The reason was these behaviors through verbal communication that increase deaf athletes' social anxiety. This research showed the evidence that sport activities will eliminate of anxiety who do exercises. The conclusion showed that social anxiety for deaf is more anxiety than hearing athletes. This is showing that special training program in sport should improve the level of the knowledge of deaf students about ethical and social rules.</p>	<p>The statistical analysis showed fear of negative evaluation in both deaf and hearing athletes and social avoidance and distress in general in both deaf and hearing athletes.</p>	<p>Compare to other deaf students who attend schools to analysis deaf students' fear of negative evaluation.</p>

APA Citation	Purpose	Methods & Procedures	Analysis	Results	Discussion & Conclusions	Recommendations
<p>Schultz, J., Lieberman, L., Ellis, K., & Hilgenbrinck, L., (2011). Ensuring the Success of Deaf Students in Inclusive Physical Education. <i>Academic Journal</i> 84(5), 51-56</p>	<p>This article is purpose to explain how to ensuring the success of Deaf students in PE. The research showed that deaf students have lower physical fitness and activity levels than their hearing peers. Deaf students' balance are also different than hearing students. Not mean that, they couldn't have the same curriculum since they have a right to learn the same curriculum as their hearing peers. Physical educators should make sure they are included the class and able to have full access as hearing students.</p>	<p>Strategies for teaching deaf students are using by interpreters, cochlear implants and hearing aids, visual aide, peer tutoring, and communication strategies. Physical educators need to learn to use gesture or use an interpreter to communicate with other deaf students in PE class. Once deaf students have these kind of access where they will understand what they need to do in PE class. They will be able to learn new things as well.</p>	<p>In the article, A teacher, Ms. Cooper, who learned how to teach PE class with one deaf student. The most important part is teaching him through by ensure that he sits or stands closer to the teacher, face the smartboard, make direct eye contact with hearing peers and teachers, and clearly connect illustrations and text to reiterate and learn sport terminology. Also, assure that videos have closed captions or English subtitles.</p>	<p>It helps general physical educators to ensure success for their deaf students through by smartboards, interpreters, demonstrations, video with closed captions, handouts, youtube demonstrations, facial expressions, gestures, ipad, and ipad touch vidoes.</p>	<p>This article is very good information but this article was coming from JORERD. But for what they did for a deaf student was an excellent job! It would be nice to observe him how does it works from beginning to end such as no interpreter for a week then having an interpreter for a week. It will shows how much difference between without an interpreter and with an interpreter.</p>	<p>N/A</p>