

Overcoming Barriers on Including of Students with Autism Spectrum Disorders in Physical
Education

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Overcoming Barriers on Including of Students with Autism Spectrum Disorders in Physical Education

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Abstract

Autism Spectrum Disorder (ASD) is a disability that affects one in 68 children. The Individuals with Disabilities Act (IDEA) states that students with disabilities should have equal opportunities in an educational environment including physical education. Undergraduate students in physical education preparation programs and in-service teachers lack the knowledge and experiences needed to teach inclusive physical education. Students with ASD face issues related to individual challenges, peer interactions and exclusion. In order for students with ASD to be successful in inclusive physical education it is essential that physical education teachers are highly qualified, and understand the barriers that students with ASD face and how to overcome them. The purpose of this synthesis project is to review the literature on overcoming barriers on including of students with Autism Spectrum Disorders in physical education.

Chapter 1- Introduction

Under federal law brought about by the Individuals with Disabilities Education Improvement Act (IDEA), individuals with disabilities are guaranteed access to free and appropriate public education in the least restrictive environment. In regard to physical education, IDEA regulations state that schools must provide opportunities for students to participate in general physical education classes or in specially designed physical education if it has been determined by the Individual Education Program (IEP) team (Beamer & Yun, 2014). In general students with and without disabilities are provided comparable opportunities to participate in physical education (Beamer & Yun, 2014). There are 13 categories of disabilities covered under IDEA, one of these categories being Autism Spectrum Disorder (ASD). Autism Spectrum Disorder is a developmental disability that affects 1 of every 68 children in the United States (Blagrove, 2017). The main characteristics of ASD are impairments in communication, social interaction and behavioral rigidity as well as secondary symptoms of motor delays (Healy et al., 2013).

Physical education environments can be highly physical, social, dynamic, competitive and sensory stimulating. It is clear that the symptoms of autism may conflict with the demands of a physical education class (Healy et al., 2016). General physical education teachers have concerns when including these students into their physical education programs. These concerns include inattentive and hyperactive behaviors, social isolation, emotional difficulties, problems understanding and performing tasks, a narrow focus and inflexible adherence to routines (Healy et al., 2016). Motor deficits are also prevalent in children with autism. These include motor coordination deficits, including movement planning, upper extremity motor functioning and gait and balance as primary features of autism. Due to these unique characteristics it is important for

physical educators to understand how these students learn and be able to adapt to these learning styles.

Physical Education Teacher Education (PETE) preparation programs are challenged to meet the demands of how best to prepare highly qualified professionals which includes the ability to teach students with disabilities in physical education (Piletic & Davis, 2010). Practitioners who have completed their undergraduate degrees in physical education have previously noted that one of the most important instructional areas needed was programming for students with disabilities (Piletic & Davis, 2010). General physical education teachers are often delivering services to students with disabilities with only one course in their professional preparation programs that is devoted to adapted physical education (Piletic & Davis, 2010). They also have little practical experience working with students with disabilities resulting in them having negative attitudes towards including students with disabilities in their programs (Hardin, 2005). This lack of preparation has been reported to negatively affect competence, confidence and attitudes of teachers when working with children with disabilities (Taliaferro et al., 2015). Teachers have often reported they face challenges in integrated classrooms due to their inadequate knowledge about ASD and lacking access to consultation support and advice (Lindsay et al., 2013). Evidence consistently shows that many teachers feel unprepared to support students with ASD socially, academically and behaviorally (Lindsay et al., 2013).

Statement of the Problem

Due to the high incidence of students with Autism Spectrum Disorder in general education classes and their unique characteristics and learning styles, it is essential that there are adaptations included in their physical education programs and that their needs are met. In order for this to happen, there is a need for highly qualified physical education professionals.

Undergraduate students in education preparation programs, and in-service teachers seem to be lacking the knowledge and experiences needed to develop confidence and competence teaching inclusive physical education. Preparation programs, training specific to working with students with ASD, and support from staff are essential to a physical educator's success in teaching inclusive physical education. Having this knowledge and various experiences can help to overcome a variety of barriers that students with ASD face throughout their physical education programs. Overall, it is essential to understand the barriers that students with ASD and their physical education teachers face throughout their physical education programs in order to develop ways in which to overcome them.

Purpose of the Study

The purpose of this synthesis project is to review the literature on overcoming barriers on including of students with Autism Spectrum Disorders in physical education.

Operational Definitions

Barriers- a limit or boundary of any kind (Dictionary.com, 2021).

Inclusion- a philosophy that supports the placement of students with a disability in age-appropriate regular education settings and viewing special education and adapted physical education (APE) as a service facilitating their participation (Taliaferro, 2015).

Autism Spectrum Disorder- a developmental disability that affects 1 of every 68 children in the United States (Centers for Disease Control and Prevention [CDC], 2015). Children with ASD have deficits in their communication and social interactions and tend to demonstrate repetitive and restrictive behaviors (American Psychiatric Association, 2013) (Blagrove, 2017).

Research Questions

The following research questions will be the focus explored for this literature review:

1. What are physical education teachers' perceptions of teaching students with ASD in physical education?
2. How do students with ASD perceive their physical education program?
3. What strategies can be used to effectively teach with ASD in physical education?

Delimitations

1. The articles used in the literature review of the synthesis were peer reviewed and full text.
2. The articles used in the literature review of the synthesis were published between 2011 and 2021.
3. Peer reviewed scholarly articles focused on students with disabilities, physical education, and physical education teacher education programs.

Chapter 2- Methods

The purpose of this synthesis project is to review the literature on overcoming barriers on including of students with Autism Spectrum Disorders in physical education. A comprehensive search of literature was done to obtain the information necessary to complete the synthesis. This chapter details the methods used in obtaining the appropriate information needed for the synthesis.

The studies collected for this synthesis were located using the EBSCO database from The SUNY Brockport's Drake Library. First, databases by subject was selected on the library website. The subject selected was Kinesiology, Sports Studies, and Physical Education. Within the EBSCO database the following databases were searched: SPORTDiscus and Academic Search Complete. A combined search of the two databases resulted in thousands of articles.

Keywords were used in the search in order to narrow down the number of articles. These keywords included *inclusion, barriers, Autism Spectrum Disorder, physical education, challenges, mainstream, undergraduate, teachers, programs, experiences, preparation* and *adapted*. These keywords were chosen based on their connection to the purpose statement and research questions. *Inclusion, physical education* and *autism* were the most important keywords used in order to start the article search process. This resulted in numerous articles which helped to identify key words to use to again, narrow down the search.

The first combined search within the SPORTDiscus and Academic Search Complete database used the keywords *autism* and *inclusion*. This search resulted in 1,502 articles. Next, the search was done to limit to only results with full text, and scholarly (peer reviewed) journals. The publication date was then set to only show results from 2005-2021. These limiters reduced the

results to 658. The second search conducted within the database consisted of the same limiters of scholarly (peer reviewed) journals, full text and a publication date of 2005-2021. The keywords used were *inclusion, autism, and physical education*. The search concluded with 81 results.

The third search done within the database consisted of the same limiters of scholarly (peer reviewed) journals, full text and a publication date of 2005-2021. The keywords used were *inclusion, barrier, autism, and physical education*. The search concluded with eight results.

After finding articles using these keywords, the search keywords were refined to discover articles that would aid in answering the specific research questions. The search conducted within the database consisted of the same limiters of scholarly (peer reviewed) journals, full text, and a publication date of 2005-2021. The keywords used were *experiences, autism, and physical education*. The search concluded with 135 results.

The fifth search done within the database consisted of the same limiters of scholarly (peer reviewed) journals, full text, and a publication date of 2005-2021. The keywords used were *physical education, teach, and autism*. The search concluded with 62 results.

The sixth search done within the database was also done with refined keywords to aid in answering specific research questions. The search conducted within the database consisted of the same limiters of scholarly (peer reviewed) journals, full text, and a publication date of 2005-2021. The keywords used were *adapted, physical education, undergraduate, teacher and programs*.

The last search done within the database consisted of the limiters of scholarly (peer reviewed) journals, full text, and a publication date of 2005-2021. The keywords used were *challenge, teaching, and autism spectrum disorder*. The search concluded with 166 results.

Ten total articles were selected through the search process. In order for the article to be included in the research process it was important that the article met certain criteria. The articles had to relate to students with disabilities, autism spectrum disorder, physical education and physical education teacher education programs.

Articles were produced from journals such as, *The European Journal of Adapted Physical Activity*, *British Journal of Learning Disabilities*, *Adapted Physical Activity Quarterly*, *International Journal of Disability, Development and Education*, *The Physical Educator*, *Palaestra*, and *The Journal of Research*.

The critical mass for this synthesis included 367 individuals. These individuals were children with autism spectrum disorder (ASD), general physical education teachers, beginning physical education teachers, teachers with experience teaching students with ASD, adapted physical education teachers, professors of adapted physical education, professors specializing in ASD and college/university physical education teacher education (PETE) instructors. Data was acquired from all across the United States as well as around Ireland. The data was obtained in the Northeast, Midwest, South, West, and Southwest Ireland.

The articles chosen were a mix of qualitative and quantitative approaches. The studies collected information using methods such as interviews, questionnaires, observations, drawings, surveys, self-efficacy scales, and rating forms. These various forms of data collection were analyzed using transcripts, coding, organization of codes, qualitative analysis, selective coding, analytic induction, multiple regressions, descriptive statistics, intervals and correlations.

Chapter 3: Review of Literature

The purpose of this chapter is to present a review of literature on overcoming barriers on including of students with Autism Spectrum Disorders in physical education. In particular the following topics will be reviewed: experiences of children with autism spectrum disorder in physical education, physical educators' beliefs and behaviors toward inclusion, challenges of teaching students with autism spectrum disorder, physical education training experiences and preparation for inclusion and effective inclusive physical education. An analysis of literature found these five themes to be of utmost importance to discussing the including of students with ASD in physical education.

The first component of overcoming barriers on including of students with ASD in physical education is understanding the students' experiences and perceptions of their physical education program.

Experiences of Children with Autism Spectrum Disorder

Healy et al. (2013) pointed out the importance of research that recognizes physical education as an individualized experience. Some studies have looked at the experiences of students with physical disabilities in physical education but the perspectives of students with ASD is largely unheard. Research in other settings has shown a variety of challenges for these students such as negative self-evaluation, social difficulties and anxiety related to the lack of routine and many loud noises (Healy et al., 2013). It's clear that the characteristics of autism can conflict with the demands present in many situations and settings. The lack of research on their experiences in physical education means that the intervention strategies put in place for them are devised from research focused on only the teachers' perspective (Healy et al., 2013).

Through a qualitative methodology of using semi-structured interviews, an insight of the experiences of students with autism in physical education was revealed (Healy et al., 2013). At a week long summer camp in southwest Ireland for children with ASD, 11 boys and one girl aged nine to 13, who participated in mainstream physical education in elementary school were self-selected to participate in interviews to discuss their experiences. Unfinished statements, incorporating questions in powerpoint slides, piloting the interview guide and carrying out the interview in an informal setting were all strategies used to gather data. Other strategies used were a slideshow on a laptop, a quiz board poster, sheets and markers for drawing and a semi-structured interview schedule (Healy et al., 2013).

Three themes identified from the issues raised by the participants included: individual challenges, peer interactions and exclusion. Individual challenges included subthemes of physical ability, physical fitness, sensory issues and fear of injury (Healy et al., 2013). Relating to physical ability and physical fitness, one student discussed the challenges of other students going too fast for him. Another student with ASD stated that game play involved the other students moving too quickly compared to him. These students also spoke of instances when their motor deficits were accepted as a reason not to play. When it came to sensory issues, they seemed to hinder the quality of participation for some students (Healy et al., 2013). Individuals with ASD process sensory information differently which can lead to challenges when participating in physical education. These sensory issues came into effect with auditory, heat and tactile sensitivity (Healy et al., 2013). One student explained their excitement to exercise in a fun way but not enjoying the feelings of getting hot and sweaty, making their hair itch uncontrollably. The noise in the gymnasium and hallways hurt another students' ears during his experiences in physical education. A fear of injury was expressed by four students who had

concerns in physical education due to their ideas of the danger involved (Healy et al., 2013). These children named activities such as basketball and any game using racquets and bats as a fear for them because there is the possibility of hitting themselves.

Relationships and experiences with peers was a key theme from all interviews. This included both positive and negative subthemes such as camaraderie, initiation of friendship, social comparison and bullying. Camaraderie and a positive rapport among classmates, were noted as positive peer interactions (Healy et al., 2013). One student with ASD stated his friends are always with him and that makes him happy. These responses suggested that peer support encouraged the successful inclusion of the student with ASD in team games. Initiation of friendship showed the potential of physical education as being a time to form friendships (Healy et al., 2013). One student stated he could do cool moves, everyone could be his friend, and that you can make loads of friends throughout class time. This showed that physical education can socially benefit children with autism (Healy et al., 2013). Negative peer interactions were also reported with bullying being the most extreme consequence. This was shown through one student's responses that they experienced taunting, punching and teasing. Negative social comparisons were also an issue in physical education (Healy et al., 2013). One student discussed issues of being picked last, and another reported that they were more tired than their energetic peers.

Exclusion was revealed by some students as they discussed various incidents when they were excluded from activities. This included their teacher sending them from activities because they "weren't ready for the game" as one student shared (Healy et al., 2013). Another student also reported being excluded due to lack of ability such as catching the football during a game.

This was seen at times when he tried participating but failed. Two students also requested and were allowed to be excluded. This occurred mostly during ball games.

Similarly, Blagrave (2017) searched to understand the experiences of middle school children with ASD receiving adapted physical education (APE). Teachers, parents and instructional aides are often asked about their experiences teaching students with ASD but the individuals themselves are hardly asked. This leaves out the experience of the individuals themselves and how they view their school experiences whether it is inclusion or a specialized service such as adapted physical education. Researchers have an idea of what barriers may or may not exist for middle school aged children with ASD in APE services, but asking the participants to report their experiences has been an underutilized method in various studies (Blagrave, 2017). Until it is done the perceptions and experiences of these children cannot be fully understood.

The feelings and perceptions of middle school children with ASD regarding their APE experiences were found using a phenomenological approach. To gain an understanding of their experiences drawings, observations and semi-structured interviews were used on seven middle school students who received direct services and three students who received consultation in Northern California. The students ranged from ages 10-14, nine being males, and one being a female (Blagrave, 2017). Students were asked to draw a picture of what their APE class with their teacher is like. The students then were asked to explain the drawings. Interviews were recorded and transcribed when trying to gain an understanding of how the participants perceived the services they received. They were then asked if the experiences affected them in activity on the playground or at home (Blagrave, 2017). During observation, field notes were taken on direct

observations of what was going on in the gymnasium as well as notes of behavior and the environment.

Enjoyment in participation, the influence of peers and family members and the sensory experience of APE were three themes noted as shared experiences between the children (Blagrove, 2017). Some participants shared positive experiences in both their APE class and physical activity and all participants reported a positive aspect of their time spent in APE. Participant one expressed that they felt good getting exercise in. The participants showed smiles and gave their APE teachers high fives when they arrived while also making positive comments throughout the class. Participant seven described class as “a good thing” and talked about loving certain activities and how fun they were. Participant eight talked about feeling as if they lose weight during class and wanting to go to class because they wanted to lose weight. All of the students talked positively about their teachers and their paraprofessionals who helped facilitate interactions throughout class time (Blagrove, 2017). All participants smiled when asked about their APE teachers during the interviews. The APE teachers all knew the participants well, commenting on information about them. The teachers joked and shared thoughts with the students and the children reciprocated this. Throughout the drawings, no students drew pictures that had sad faces, or any symbol of a negative experience as well as had no negative things to say about their drawings. Seven of the participants drew pictures with the figures in them smiling. Most of the participants drew pictures where the individuals in them were smiling while participating in some form of physical activity (Blagrove, 2017).

The influence of peers and family members were seen as both a positive and negative influence (Blagrove, 2017). Recess was an area expressed by most students as having both a positive and negative impact on the use of their motor skills in other settings. Participant two

said he played basketball with a friend at recess, whereas participant three said he had no friends and was always alone so he doesn't use any of his learned skills at recess. Participant seven expressed he played basketball and four square at recess "a little bit". He stated that he played with other kids but wished that they weren't taunting during the game.

Family members were seen as an influence in many different ways. Participant four said she loved to swim in her pool at home with her family, and that her dad stated that physical activity is important because it helps an individual live longer. Participant six practiced dribbling skills at home with their family and stated that it was really fun. Participant seven said they had a basketball hoop at home but hadn't touched it in years. Participant ten said he has a basketball hoop and tetherball at his house and shared that he played both with his family, as well as playing sports outside of school (Blagrove, 2017).

When it came to the sensory experience of APE students shared that they feel too hot, sweat too much and want to be cooler (Blagrove, 2017). Participant two shared that they get so sweaty they need to get a drink of water and also end up feeling hungry. Participant four complained about the heat but said they ran laps in the sprinklers to fix this problem. Participant seven and nine complained about the heat and needing frequent water breaks. Some students also shared positive parts of APE. Participant six reported physical education makes him feel heavy and described this as a positive feeling. Participant one said physical education gave them a break on their eyes from the fluorescent lights in the classroom, and the chance to get some exercise (Blagrove, 2017).

Observations showed many distractions in APE due to the open nature of the class. Six of the ten students had APE class outside on blacktop where there were a variety of distractions observed. These were the hot air temperature, the animals around, uneven ground surfaces, noise

from the passing cars and other teachers, students and peers walking around the space (Blagrave, 2017). Due to students with ASD becoming easily distracted, these small distractions became big problems for the students and they had to be frequently redirected verbally by the teacher.

The voices of students with Autism Spectrum Disorder are important to be heard in order to understand the experiences they have in physical education and how this shapes their perceptions of the class.

Challenges of Teaching Students with Autism Spectrum Disorder

Educators face a variety of challenges when teaching students with ASD. Lindsay et al. (2013) stated that with the increase in students with ASD in mainstream classrooms, educators are expected to create an inclusive educational environment often with few or no guidelines on how to do so. It has also been shown that many schools struggle to meet the needs of students with ASD. Teachers and parents state that more needs to be done to create inclusive social environments within mainstream classrooms. However, very little is still known about educators' challenges when teaching students with ASD (Lindsay et al., 2013). With the social and behavioral impairments of children with ASD, teachers face challenges when trying to manage their needs. Teachers have little to no knowledge about ASD and lack the access to consultation support and advice. The gaps in training can make teachers feel discouraged and students with ASD can miss the opportunities to reach their fullest potential (Lindsay et al., 2013). When working to create a more inclusive environment in which all students are an equally valued member of the class, it is important to understand the challenges that educators face when working to create inclusive environments particularly for those with ASD (Lindsay et al., 2013).

Participants were educators who had at least two years of teaching experience in an integrated class, currently an educator within an elementary school in a local district, and/or they

have experience teaching a student with ASD in a mainstream class (Lindsay et al., 2013). Thirteen educators that included 10 females and three males who taught a wide range of classes were the participants chosen for the study. Years teaching in a mainstream class ranged from three to 22 years. Five of the teachers taught in a rural area and eight taught in an urban setting. Twelve of the 13 participants earned additional qualifications in special education. Semi-structured interviews were used to discover the challenges teachers faced when including children with ASD in mainstream classes. Demographic information was collected as well.

The teachers' interviewed reported the following challenges in including children with ASD; understanding and managing behavior, socio-structural barriers (i.e., school policy, lack of training and resources), and creating an inclusive environment (i.e., lack of understanding from other teachers, students and parents). Regarding understanding and managing behaviors, teachers felt they lacked enough information about ASD especially with specific ways in which to work with a child in the classroom and managing a child when a behavioral issue occurred (Lindsay et al., 2013). Another behavioral management concern was not knowing how to handle unstructured time like recess and field trips where the child's routines are broken and the child might end up in distress. The teachers stated not knowing what to do with the other children in the class when there's a behavioral problem and how to explain to them the issue at hand. Other teachers found it difficult to engage students with ASD in lessons. They stated the children have specific interests and wants and can be frustrated when having to do something else (Lindsay et al., 2013). Establishing a rapport with a student was stated by a variety of teachers as being an important strategy in helping a child to calm down. This was a difficult task for many teachers as they explained the student may shut down and then they don't know how to get through to them

when the child refuses to do what the teacher wants them to (Lindsay et al., 2013). The teachers often felt unprepared to manage behaviors of children with ASD.

Socio-structural barriers such as lack of training, availability of resources and school policies were also reported as challenges that educators faced when teaching students with ASD. Ten teachers felt they lacked the training and continuing education opportunities relating to working with students with ASD (Lindsay et al., 2013). Other teachers explained that more support is needed to be able to fully support students with ASD. They requested that additional qualification courses in special education have an autism component as well as having more teachers trained in autism. Learning specific teaching methods and strategies to work with students with ASD is what they reported needing more of rather than just understanding the behavior of these students. One teacher suggested that approaches to working with children with ASD should be more proactive rather than reactive. Instead of focusing so much on correcting behaviors there should be some focus on making things that are going well, even better (Lindsay et al., 2013).

Eight teachers mentioned the barrier of lacking appropriate resources such as financial resources, access to training opportunities, funding for an education assistant and equipment such as computer software, assistive technology, fidget toys and more for students with ASD (Lindsay et al., 2013). Teachers also mentioned the lack of funding for education assistants. Teacher seven said unless the child is a threat to themselves or others in a physical way they did not provide the student with an education assistant. Seven teachers reported the need of having an education assistant in the classroom to integrate the students with ASD. Five teachers mentioned large class sizes as being a challenge when working to successfully include a child with ASD. Increased class sizes can add to the teachers' workload and can make it hard to give the proper

consideration and thought to supporting these students (Lindsay et al., 2013). Teacher eight discussed the issues of larger class sizes meaning more noise which can be a lot of stimulus for a child with autism. The socio-structural challenges of including students with ASD in the mainstream classes were present in many teachers' responses.

Creating an inclusive environment for children with ASD at their school was another challenge teachers reported. Six teachers mentioned a lack of awareness and understanding of ASD among other staff, students and parents. Some staff and teachers are nervous and have misconceptions about children with ASD, leading to teachers having to educate them on the disability which was reported as very challenging (Lindsay et al., 2013).

Eleven teachers discussed the barrier of involving parents and maintaining open communication. Some parents choose not to identify their child's condition. Without formal identification of ASD children are unable to receive services and resources that could help them to be more successful in the school setting (Lindsay et al., 2013). Teachers also reported having to deal with concerns from other parents. They had to help parents understand the behaviors of children with ASD and the importance of their needs, as well as the parent's child's needs.

Ten teachers mentioned some challenges in creating an environment of understanding, respect and peer acceptance to include the child with ASD (Lindsay et al., 2013). Children may notice the differences between them and a child with ASD but are unaware of the different behaviors that they may demonstrate which makes it difficult for teachers to create understanding and empathy in their classes. Eight teachers talked about the challenges they faced when making peer groups for the child with ASD. A lack of peer understanding and acceptance can create many challenges for the teachers of students with ASD.

Similarly, Obrusnikova and Dillon (2011) completed a study on challenging situations when teaching students with ASD specifically in general physical education. Children with ASD can sometimes be known to avoid social contact, enjoy social isolation and lack the ability to maintain age-appropriate relationships. This can contribute to their emotional vulnerability and frustration. They have strong preference toward certain sensory stimuli, over selectivity, and large interests and deficits in fine and gross motor development (Obrusnikova & Dillon, 2011). These behaviors that students with ASD often demonstrate can create teaching challenges in the gymnasium. A widely used approach in discovering individual, behavioral and environmental challenges is the behavior-analytic model by Goldfried and D’Zurilla (1969). When used in GPE details and circumstances can be noted and the challenges can be addressed through an individualized approach. The purpose of the study was to then use Goldfried and D’Zurilla’s behavioral analytic model and the environment of the gymnasium framework to bring forth teaching challenges that occur when students with ASD are in general physical education classes (Obrusnikova & Dillon, 2011).

Of 224 invitation emails 132 replied. Of the 132 replies 58 did not meet the required criteria and 32 gave unusable responses, or didn’t answer a variety of questions (Obrusnikova & Dillon, 2011). Participants in the study ended up including 43 teachers representing 19 states in the U.S., 29 of which were women and 14 being men. These individuals taught in four regions of the United States (12% in the Northeast, 37% in the Midwest, 42% in the South and 9% in the West). The average age of these teachers was 43.4. All participants had a current license to teach GPE or APE in at least one state. They were also current full-time GPE or APE teachers in a public school. They all had at least two years of full time experience teaching physical education and to a student similar to the student explained in the questionnaire in GPE. Two online

questionnaires were provided to the teachers. These questionnaires were a background questionnaire which gathered information on the teachers' demographics as well as an elicitation questionnaire. This gathered information about the teachers' perceptions of challenges they faced in their GPE classes when teaching with students with ASD in the class.

Throughout evaluation of the survey 225 teaching challenges were reported. Of those, 103 were related to cooperative, 69 to competitive and 53 to individualistic learning situations (Obrusnikova & Dillon, 2011). Six themes were created for categorizing these challenges. The most frequent theme (39%) was teaching challenges created by the child's inattentive and hyperactive behaviors. These included inattention, hyperactivity and impulsivity. Another theme included social impairment (36%) and social isolation such as difficulty responding to others, lack of eye contact, not sharing equipment and personal space and lack of motivation to work in groups. A third theme was difficulties regulating emotions (22%) which related to anxiety, aggression and oppositional-defiant behaviors. The fourth theme was difficulty understanding and performing tasks (21%). The fifth was narrow focus (18%) and the sixth was unwillingness to adapt to routine and structure change (16%). Narrow interest created instructional and managerial challenges specifically in competitive situations. The unwillingness to adapt to routine and structure change created managerial teaching challenges specifically during cooperative and individualistic learning situations (Obrusnikova & Dillon, 2011). Three other themes emerged as teaching challenges related to other parts of GPE. These included being ignored or isolated by classmates (20%), negative effects on classmates learning (19%) and need for support and lack of training (18%). Teachers suggested the need of a trained teaching assistant in the class (paraeducators, peer tutors, or APE teachers) and/or smaller class sizes to help to overcome these three themes (Obrusnikova & Dillon, 2011).

Mainstream classroom teachers often struggle with a variety of challenges when including children with disabilities specifically ASD in the classroom or gymnasium. Learning about these challenges and overcoming them can help to create more successful inclusive environments.

Physical Educators Beliefs and Behaviors toward Inclusion

Physical educators' beliefs and behaviors towards including students with ASD in mainstream classes is also very important to understand. Over the years there has been an increase in the amount of students who are placed in general education classrooms for most of their day. With that being said there has also been a rise in the incidence of autism spectrum disorder. According to Beamer and Yun (2014) it can be assumed that because of this students with ASD in general physical education (GPE) classes have also become very common. The 2005 Youth Risk Behavioral Survey reported that most students with disabilities who were enrolled in physical education were taking classes alongside their same-age peers without disabilities (Beamer & Yun, 2014). Knowing that many students with disabilities are in the GPE classrooms it is important to understand the beliefs and behaviors of physical educators regarding inclusion. General physical education teachers have expressed varied and somewhat negative feelings towards inclusion. Perceptions of inadequate training and lack of support have been some of the complaints among GPE teachers. There is evidence lacking in regard to teacher's inclusion behaviors and how they are connected to teacher training, attitudes and intention (Beamer & Yun, 2014). Therefore, the purpose of the study was to provide a description of current GPE teachers' beliefs and self-reported behaviors toward including students with ASD and examine the potential factors affecting their self-reported inclusive behaviors.

An online survey was sent to 3,000 public schools in the United States with 223 GPE teachers participating (Beamer & Yun, 2014). Thirty of the participants either quit the survey, or did not meet the criteria of currently teaching physical education and having at least one student with ASD in their classes. Surveys with more than 20% unanswered questions were excluded due to the thought that participants either quit the survey or skipped a lot of questions. Of the 223 GPE teachers 142 were chosen to participate. Researchers sampled two states from each of the six regions designated by SHAPE America. These states included Georgia, Hawaii, Indiana, Kansas, Michigan, Mississippi, Montana, New Hampshire, Nevada, Oregon, South Dakota and Vermont. The participants ranged from ages 25-63, 63% being women. All but 1% of participants were certified to teach physical education in their home state. The average years of teaching experience was 18, 69% at the elementary level, 29% at the middle or junior high level and 18% at the high school level (Beamer & Yun, 2014). An online survey was used to gain information on the teachers' beliefs and behaviors regarding inclusion of students with ASD. The teachers' self-efficacy in their ability to teach students with ASD was measured using the Physical Educators' Self-Efficacy toward Including Students with Disabilities-Autism scale created by Taliaferro, Block, Harris, and Krause (2011). This asks the participants to answer a variety of questions related to a description of a student who has a moderate level of autism. When measuring the teachers' attitudes, intentions and self-reported behavior toward including students with ASD, a survey with questions from a modified version of Jeong and Block's (2011) instrument Teachers' Beliefs and Intentions toward Teaching Students with Disabilities was provided (Beamer & Yun, 2014).

Through data collection it was reported that 58% of participants had taught 1-5 students with ASD and 21% of them had taught 6-10 students in 2010. In 2009 55% reported teaching 0-5

students and 21% reported teaching 6-10. When asked about years before 2009, most participants reported teaching at least one student with ASD in their classes. When asked about their APE undergraduate and graduate coursework preparation and how well these classes prepared them for inclusion of students with ASD, 27% reported taking at least one undergraduate APE class and 39% stated the classes prepared them “fairly well” (Beamer & Yun, 2014). Over half of the participants attended at least one in-service training that had information on ASD. An APE specialist did not exist at 65% of the participants' school districts. Of those that did have an APE specialist, 76% felt they received support from them. A majority of participants felt supported by other professionals such as teaching assistants, special education teachers and physical therapists. Relating to self-efficacy the participants showed to hold generally positive self-efficacy beliefs towards their own ability to perform tasks related to the inclusion of students with ASD. The participants had a mean score of 6.65 on a scale of 1-7 in regards to their attitudes (Beamer & Yun, 2014). When measuring behavior of including students with ASD, and how often these behaviors are performed, an average score of 5.42 was the result on a 1 (not at all)-7 (always) scale. A small relationship was found between participants' self-efficacy and their self-reported behaviors relating to inclusion, as well as their reported inclusion behaviors and their perceptions on the strength of their undergraduate preparation for inclusion (Beamer & Yun, 2014).

Understanding the beliefs and behaviors that physical educators have towards including students with ASD and the factors that affect these beliefs and behaviors are extremely important. This information can help to discover how to better improve physical education for the student as well as the training and preparation of the educator.

Physical Education Training Experiences and Preparation for Inclusion

In addition, many studies have looked into physical educators training experiences and their preparedness to create an inclusive environment for all students. Hardin (2005) states that education programs often include courses and field experience that provides teachers the opportunity to develop skills to work in culturally and ethnically diverse classrooms. The question is though, has this same progress been made for teacher education programs relating to opportunities to include students with disabilities? These children could face issues of equality in access to education if teachers are not appropriately trained (Hardin, 2005). General physical educators take few adapted courses and have little practical experience working with students with disabilities which can lead to negative attitudes toward including students with disabilities in their programs. The purpose of the study was to identify practicing physical education teacher's perspectives regarding the adapted physical education curriculum of their Physical Education Teacher Education (PETE) programs and to explore how their programs have affected their feelings of competence and confidence when teaching students with disabilities in inclusive environments (Hardin, 2005).

Five beginner physical education teachers were interviewed for 90 minutes. Questions were based on their education, current teaching experience and studying the influences on their comfort levels in teaching in inclusive environments. They were then observed while teaching three inclusive physical education classes. A second interview was conducted after observations and field notes were done. Teachers were then asked to sort and rank (Q-sort) eleven cards showing a different knowledge source for teachers and asked to explain why they ranked them this way (Hardin, 2005).

Three themes emerged from the data. These included the importance of teaching experience, the example of other teachers and the influence of one adapted course during their college careers. Teaching experience was seen as the most valuable knowledge source for learning how to include students with disabilities. All participants felt other teachers were a valuable source of knowledge when learning how to teach students with disabilities in inclusive environments (Hardin, 2005). Course work was ranked third on the Q-sort and all participants ranked course work as fifth or higher on their forms. This was highly based only on the value of their one adapted physical education course. Three of the five teachers never got the opportunity to teach students with disabilities throughout their college career. One adapted course and any field experience associated with the adapted class was most teachers' only undergraduate preparedness for teaching students with disabilities in inclusive environments (Hardin, 2005).

Similarly, Taliaferro et al. (2015) studied preservice physical educators' self-efficacy beliefs towards inclusive environments based on coursework and practicum opportunities. Diversity in the classroom has grown increasingly throughout the years but equal learning opportunities for children of all abilities in physical education has been lacking. Findings continue to show that physical educators feel they are lacking adequate preparation, knowledge and training to create meaningful instruction for students with disabilities in their classes (Taliaferro et al., 2015). Due to the lack of preparation, these individuals have noticed the negative effects it has on their competence, confidence and attitudes that they have developed when working with students with disabilities. The purpose of the study was to investigate the effect of completion of an adapted physical education course with an on-campus practicum on pre-service physical educators' self-efficacy beliefs toward the inclusion of individuals with

specific disabilities such as autism, intellectual disabilities, physical disabilities, and visual impairments (Taliaferro et al., 2015).

The participants consisted of 98 volunteer undergraduate PETE majors (age 18-36) at a large Midwestern university. Of these participants 75 were males, and 23 were females. All participants were in a 15-week APE course with a practicum required in the PETE program of study. The individuals disability specific beliefs were measured using the Physical Educators' Self-Efficacy Toward Including Students with Disabilities-Autism (PESEISD-A) and the Situation Specific Self-Efficacy Instrument for Physical Education Teacher Education Majors Scale (SSSI-PETE). Participants were then surveyed during week one of the course, week eight and week 15 (Taliaferro et al., 2015).

Participants ranged from one to six years in college. Only 32 participants said they had previous experiences teaching students with disabilities outside of the practicum. Of the 98 participants 32 indicated they had a family member with a disability, 37 reported they had a friend with one and five responded that they themselves had a disability. At the end of the practicum findings indicated that the participants experienced a feeling of mastery working with children with disabilities between the two programs (Taliaferro et al., 2015). They also indicated they felt comfortable around week three. All but five of 66 participants said that feedback from peers, teachers, paraprofessionals and graduate assistants helped to create an increase in their confidence. Many participants also expressed that their initial nervousness and anxiety related to working with a student/students with a disability faded over time. Results of the study showed that together APE coursework and practicum experience has a large influence on preservice physical educators' beliefs toward inclusion (Taliaferro et al., 2015).

Coincidentally, Healy et al. (2016) conducted a study on preparing adapted physical educators to teach students with autism discussing the current practices and directions for the future. Certified adapted physical education specialists (CAPEs) are a group of teachers who have specific training in physical education for students with varying disabilities. The skills and knowledge that CAPE's learn are essential when teaching students with unique and complex needs such as students with ASD. Physical education for students with autism is usually the responsibility of CAPE's (Healy et al., 2016). It is assumed that CAPE's have specialized training experiences needed in order to successfully help a child with autism to participate in physical education. Therefore, the purpose of the study was to survey practicing CAPE's to understand their training experiences in their APE teacher education program specific to teaching students with autism and to define the content and information needed in APE teacher preparation programs to prepare future APE teachers to successfully teach students with autism (Healy et al., 2016).

In order to perform the research 400 CAPE's were emailed to participate in the study. Sixty six emails were incorrect, therefore 344 CAPE's received the email with 106 CAPE's responding from 22 states. The age range of the participants was 22-67, with an average being 42. Of the participants 72% were female. In order to achieve the second purpose experts in APE and autism were involved. These participants included professors of APE, professors specializing in autism and other experts with experience in teaching students with autism and in preparing CAPEs (Healy et al., 2016). A survey was used for both research purposes. For the first purpose participants had to provide information based on the number of years they had experience teaching students with autism and the nature and satisfaction with the training received focused on teaching these students (Healy et al., 2016). For the second purpose experts

created a list of 17 competencies they believed were important for CAPE's to know/learn. Next an online survey was used to assess the CAPE's opinions on these competencies. The participants responded to the necessity of each using a Likert scale of one to five. One meaning "definitely yes", and five meaning "definitely no".

The study found that 72 participants held a master's degree, 18 had a bachelor's degree and 16 had a doctorate degree. Out of the participants 70 had a bachelor's degree in health and PE, nine in kinesiology, two in special education, four in exercise science and one in movement. It was shown that 83% of participants did not take a specific course in teaching students with autism in physical education, and 61% did not take a specific course in special education related to autism. Of the respondents, 48% stated they were satisfied with the preparedness their graduate program in APE gave them to work with students with autism where 14% felt dissatisfied, 5% very dissatisfied and 33% neutral (Healy et al., 2016). The participants noted eleven areas where they felt additional training should be required related to teaching students with autism. These included behavior management (25%), communication (6%) and curriculum development (6%) (Healy et al., 2016). Participants noted practical experience (42%), observation of students with autism (9%) and training in behavioral support strategies (13%) as being the most important areas for training of preservice CAPE's who plan to teach students with autism.

Similarly, Piletic and Davis (2010) stated PETE preparation programs are challenged to meet the demands of how best to prepare qualified professionals which includes the ability to teach students with disabilities in physical education. In regard to the needs of individuals who have completed their undergraduate degrees in physical education, one of the biggest instructional areas noted was programming for students with disabilities. General physical

education teachers are teaching students with disabilities with likely only one course taken that was devoted to adapted physical education. Most college PETE programs are prepared using professional standards and related competencies (Piletic & Davis, 2010). The NASPE Beginning Physical Education Teacher standards were meant to form a foundation for PETE programs by stating what teachers should know and apply in the field. The purpose of this study was to describe the profile, content, delivery mechanism and application of teaching standards, NASPE and Adapted Physical Education National Standards (APENS), within the Introduction to APE course for college PETE programs (Piletic & Davis, 2010).

The participants in the study were 136 faculty members who taught the Introduction to APE course. With these participants 41 states and 129 colleges were represented. The participants completed an online survey set up through Survey Monkey consisting of 40 questions (Piletic & Davis, 2010). Section one had demographic questions. Section two had educational background questions. Section three had questions on the APE course offered. Section four asked questions on the information specific to the delivery of the APE course regarding how it was offered (online, in person, etc.). Section five was specific to the practicum experiences offered. Lastly, section six asked participants to provide their perceptions of the students' competence and application of standards at the end of the course (Piletic & Davis, 2010). A validity rating form was also used using a five point Likert scale, 1 meaning "strongly agree" and 5 meaning "strongly disagree".

Relating to the profile of the Introduction to APE course 91 participants indicated only one course in APE was offered at their college. Thirty-one percent offered additional APE courses at their college but only six individuals said the courses were required for PETE majors (Piletic & Davis, 2010). Ninety-five percent of students who had to take the Introduction to APE

course were PETE majors. Less than half (48%) of faculty who taught the course had their Ph.D. with a specialization in APE. The majority of lecture times were spent on disabilities, instruction and motivation strategies, physical fitness, motor skills and motor development and modifications. Format of the course for 93% of the programs was in a face to face setting. Practicum was offered to 84% of participants. Lastly, faculty felt they addressed nine of the 15 APENS standards throughout their course (Piletic & Davis, 2010).

Overall, the training experience of physical educators and their preparation for inclusion are important aspects to consider when looking at the barriers that GPE teachers face when teaching students with ASD in inclusive environments.

Effective Inclusive Physical Education

According to Park et al. (2014) students with disabilities have reported having experiences that were sometimes positive and sometimes negative. These experiences included good days which is where the students feel like they belong, have shared benefits and successful participation and bad days which included limited participation, questioned competence and social isolation. However, there is a positive outcome in some general physical education programs for children with disabilities (Park et al., 2014). What is still unknown is what key factors are needed to create a program that provides this positive experience to students with disabilities. A more systematic method is needed to discover the key aspects that are viewed as most important when planning to create appropriate inclusion practices in physical education for students with disabilities (Park et al., 2014). The purpose of the study was to use an analytic hierarchy process (AHP) to systematically survey professionals such as college professors, adapted physical educators and general physical educators to identify and prioritize factors believed to contribute to an effective physical education program (Park et al., 2014).

The panel used in the Delphi technique to find the key factors of successful inclusive physical education included 24 participants, 11 being males and 13 being females. These participants included one professor, nine general physical educators and 14 adapted physical educators from the mid-Atlantic region of the U.S. All participants earned their master's degree in an APE program at the University of Virginia. The average teaching experience of the participants was 14 years with 7.67 years of inclusive physical education being taught. Of the participants 14 are teaching inclusive physical education now (Park et al., 2014). The Delphi Technique is a method for gathering together opinions concerning real-world knowledge obtained by experts about a certain topic. This technique was used in the study to decide the factors for inclusive physical education. The first form of data collection was an open ended questionnaire survey asking participants to write five factors they felt helped to create a successful inclusive class (Park et al., 2014). They then created subfactors based on each of the five factors on a second survey. Then the AHP method was used to place hierarchy on all of the factors.

The order of priority in each of the factors that were revealed were based on the weighted grade of the participants' responses. The five factors that emerged from the data were additional in-service training (27.70%), positive attitude (25.90%), support (19.90%), modification (16.00%) and peer tutoring (10.40%) (Park et al., 2014). The subfactors of additional in-service training were a manual for inclusive physical education (IPE), dialog and feedback with APE professionals, training for practical skills about IPE, IPE as major coursework and providing an opportunity for the related certification program. The subfactors of positive attitudes were prerequisite training, frequent interaction with students with disabilities, not a heavy workload, events to remove prejudice against students with disabilities and early participation in inclusive

physical education. Relating to support the subfactors included adapted equipment, meetings for collaborative teaching, specialists and teaching assistants support, a workshop for IEP and reduction of class size. The subfactors of modification included providing selective activities, assessments before class, providing physical cues, programming for different levels and stages of disabilities and working with a paraeducator. Lastly, relating to peer tutoring the subfactors that emerged were volunteer rotation systems, training of students (mentors, mentees), non-competition-style game to provide fun and help, awards and compliments to peer tutors (Park et al., 2014).

Learning about the factors that contribute to successful inclusion practices in physical education can be extremely helpful for general physical education teachers to know in order to be aware and implement these factors into their own classes.

Summary

Research has shown a variety of barriers that students with autism face in mainstream classes. These include individual challenges such as their physical ability, fitness levels, sensory issues and a fear of injury. Peer interactions have also been noted as both a positive and a negative experience for the students as they sometimes involve forming friendships and enjoyment for the student with ASD and at other times face social comparison and bullying. These students also face exclusion barriers where they either exclude themselves from activities or are excluded by their physical education teacher due to their performance levels. These can make it very difficult for the child to be truly successful in physical education.

Physical education teachers may also face a variety of barriers when teaching students with ASD. These are often related to understanding and managing behaviors, lack of training and resources, creating an inclusive environment, the child's inattentive or hyperactive behaviors,

social impairment or isolation and the child's difficulties regulating emotions and understanding and performing tasks. These barriers can leave a physical educator feeling defeated and overwhelmed not knowing how they can best help the child.

A physical educator's beliefs and behaviors on including students with autism has a big influence on whether or not the child will be successful in an inclusive setting. These include the level of confidence and competence the educator has on inclusive practices as well as the attitudes they hold toward teaching these students. Having a high confidence and competence level and a positive attitude as a teacher can lead to an inclusive environment that can be extremely beneficial for a child with ASD physically, mentally, socially and emotionally.

A physical educator's confidence, competence and attitudes often come from their preparation and training on inclusion. It was shown throughout the studies that teaching/practicum experience, multiple courses on adapted physical education, the coursework in these classes and the support of other teachers had the biggest influence on the physical education teacher's ability to create a successful inclusive environment. It was also reported by many participants throughout the studies that these experiences, courses and support were lacking causing them to feel unprepared. Behavior management, communication and curriculum development were noted as areas in which participants felt extra training would be beneficial.

Research shows that successful inclusive physical education could be achieved through in-service training, positive attitudes, support, modifications, and peer tutoring. As a physical educator it is important to learn about these elements and in what ways they could be used throughout your program.

Overcoming the variety of barriers that these individuals face could help a physical educator to become a more successful teacher, and a student with ASD to become a physically

literate individual who gains a variety of health benefits, friendships, and positive social aspects from physical education.

Chapter 4

Results, Discussion and Recommendations for Future Research

The purpose of this chapter is to present the results of the review of literature on overcoming barriers on including of students with Autism Spectrum Disorders in physical education and how these results align with the purported research questions which guided this synthesis project. In addition, recommendations for future research as it relates to overcoming barriers for students with Autism Spectrum Disorder and physical education teachers are presented.

The results of this review of literature revealed that many physical education teachers feel unprepared to include students with ASD in physical education. This stems from limited coursework on autism spectrum disorder as well as practicum experience in adapted physical education, lack of understanding of the disorder among other teachers, students, and parents and lack of training on teaching and including students with ASD in physical education. The review also consisted of how students with ASD viewed their experiences in physical education. These experiences included enjoyment in participation, individual challenges, the influence of peers and family members, sensory experiences/issues, fear of injury, bullying and exclusion. Lastly, the review of literature mentioned a variety of strategies that can be used to overcome barriers that both students with ASD and physical education teachers face. These include positive attitudes, disability awareness, role of paraeducators, peer tutors and modifications.

Discussion

Interpretations

As part of this literature review several research questions were posed. The first research question synthesized was what are physical education teachers' perceptions of teaching students

with ASD in physical education? There are many factors that affect a physical educators perceptions on teaching students with ASD in physical education. The results of the literature showed that a combination of APE coursework and practicum experience is most effective in influencing preservice physical educators' beliefs toward inclusion (Taliaferro, 2015). Practicum experiences can lead to a change in attitude toward teaching students with disabilities and develop an increased perceived level of competence in a teacher's ability to teach students with disabilities (Piletic & Davis, 2010). An infusion program is a program that infuses knowledge about individuals with disabilities throughout the curriculum. One separate course in adapted physical education may reinforce that segregation still exists. This course should still exist but the emphasis should change by focusing the class on specialized adapted knowledge (Hardin, 2005).

Relating to training specific to teaching students with ASD, more professional development opportunities should be offered on behavior management, communication strategies and curriculum development (Healy et al., 2016). Practicum experiences for undergraduate students should involve the pre-service teacher receiving the opportunity to teach students with disabilities in regular practicum experiences and student teaching (Hardin, 2005). Training future physical educators to work collaboratively with other professionals such as special education teachers may help strengthen inclusive practices in GPE. Similarly, Lindsay et al. (2013) states that collaborating in a multi-disciplinary team to ensure children receive services specific to their needs is essential for a successful inclusive class. Consistent evidence shows support from others (educators, students, parents) is crucial in order to benefit students with ASD and enhance the processes related to inclusive education.

The second research question that was examined was how do students with ASD perceive their physical education program? The results shown through the studies displayed a variety of factors that affect a child with ASD's experience in physical education. Students often reported sensory issues in physical education. Blagrave (2017) suggests creating a space dedicated to APE in a school setting as one way to rid of distractions and potentially allow for a more controlled environment. Choosing an area with dimmer lighting or lighting specific to the needs of the children with ASD could also help to improve environmental factors for these students. Similarly Healy et al. (2013) discusses overcoming sensory issues through the use of adapting instructional techniques to reduce noise and adapting equipment to overcome tactile input challenges, as well as the use of previewing so the child with ASD is prepared for events that may arise in class. Fear of injury in children with ASD can be lessened through the use of an appropriately challenging and safe environment with safety equipment and adequate space to participate in physical activity (Healy et al., 2013)

To avoid programming issues that may arise for students with ASD, allowing students to share their experiences can allow educators to improve their curriculum to create a more inclusive environment (Blagrave, 2017). Healy et al. (2013) discusses the importance of having typically developing peer participation in adapted PE for students with ASD. This would allow same aged peers to be able to participate in physical activity in the gymnasium that is developmentally appropriate for them while also participating side by side with their classmates with ASD. In order to meet the needs of students with ASD in an inclusive environment physical educators can use strategies such as adapting the equipment or rules or offering alternative activities, using peer tutors and adapting structure for events, time and space (Healy et al., 2013). An adapted physical education program could also help to prevent exposure of characteristics of

lack of social skills and poor motor skills in students with ASD which could reduce the likelihood of bullying and negative feelings towards physical activity.

The final research question explored was what strategies can be used to effectively teach students with ASD in physical education? The results of the literature review showed a variety of strategies that can be used to teach students with ASD. The first strategy is to infuse disability awareness and inclusion into physical education as early as possible. Park et al. (2014) reports that if people with disabilities have opportunity from early childhood to live and participate in physical activity with people without disabilities they will be more likely to develop positive attitudes towards these classmates. Higher frequency of the student's interactions between each other builds more positive attitudes. Preparing peers to work alongside with students with disabilities is a critical component for successful inclusion in physical education. Disability awareness programs have shown a positive effect on attitudes of children without disabilities (Park et al., 2014).

A teacher's workload and class size can sometimes be extremely heavy. It is important that the teacher set aside this work in order to allow for an environment where they can focus on a successful inclusive physical education class. Paraeducators and peer tutors are necessary in order to make large class sizes manageable for the physical educator to be able to individualize instruction and provide appropriate accommodations for the students with ASD (Park et al., 2014). When using peer tutors, it is important that they are trained ahead of time on types and stages of disability, teaching strategies and how to facilitate social interactions so that they can be of utmost benefit to their peers with ASD (Park et al., 2014). Rotating these peer tutors out can also benefit students with ASD to have multiple peer interactions throughout their physical education experience. Lastly, the use of modifications are an important strategy physical

educators can use to effectively teach students with ASD in physical education. Instructional modifications such as providing physical cues (visual, auditory, touch), and instructional cues such as picture schedules, and other visual supports can be especially beneficial for students with autism.

Implications

Based on the results of the literature review, there are a variety of implications that can be used to help overcome barriers of including of students with autism spectrum disorder in physical education. Relating to the physical education teachers perceptions of teaching students with ASD, there are many things that can help to increase their ability to successfully include these students. Teacher education programs have a huge influence on pre-service physical education teacher's feelings of confidence and competence when teaching students with disabilities. It is important for physical education teacher education programs to infuse more coursework and practicum experiences pertaining to teaching students with disabilities. Healy et al. (2016) reported a high level of dissatisfaction with teacher preparation in adapted physical education. Recommendations for improvement in these programs include, increased practical experiences, training in behavior management strategies and a course specific to teaching students with autism in PE (Healy et al., 2016). Similarly, Taliaferro et al. (2015), showed that a variety of knowledge and experiences need to be woven throughout the program content to preserve the competencies of preservice teachers towards working with students with disabilities. Beamer and Yun (2014), results showed that practical experience and coursework appeared as a substantial resource for teachers.

Another way to increase physical education teachers' perceptions of teaching students with ASD is to start infusing adapted physical education and disabilities into coursework

throughout all teacher preparation classes. Hardin (2005) states that one special education class or adapted physical education class is not sufficient. Teaching students with disabilities should be a thread of information woven throughout the teacher preparation curriculum. Piletic and Davis's (2010) study showed that offering only one course in adapted physical education did not provide a high level of mastery in content knowledge for future physical educators who will be teaching students with disabilities in their classes. By implementing an infusion model or creating more APE courses in the PETE curriculum, future physical educators have a better chance of having more in depth knowledge and mastery in teaching students with disabilities (Piletic & Davis, 2010).

In order for physical education teachers in the field to be successful teaching students with ASD, it is important that they receive support and understanding from other staff, parents and students with ASD's peers. Lindsay et al. (2013) stated that more resources, supports and training are needed for teachers so that they can provide a successful inclusive environment for students with ASD. This can be done through the use of formal and informal workshops and disability awareness resources. Teamwork was emphasized in order to address the needs of children with ASD to create effective solutions to enhance inclusion practices (Park et al., 2014). Using peer tutors and paraeducators can help physical education teachers to feel supported and be able to handle their large class sizes while making sure all students can be successful in an inclusive environment. Students with disabilities that received peer tutoring have shown improvement in school achievement, sociality, communication, ability to think and self-regard (Park et al., 2014). Trained paraeducators were seen as an important support for the success of students with more severe disabilities in GPE (Park et al., 2014).

In order to address the needs of students with ASD in physical education it is important that their voices are heard and taken into consideration when program planning and expressing their needs. Allowing children with ASD to share their experiences in physical education/ adapted physical education will increase awareness of programming issues that could arise for these students. This could allow educators to understand their perspectives and be able to better improve the curriculum to create a more inclusive environment (Blagrove, 2017). Best practices to support the successful inclusion of students with autism spectrum disorder can be made easier by listening to the voices of students (Healy et al., 2013).

Physical education teachers, and peer interactions have a big impact on students with ASD and their experiences in physical education. Having a positive attitude and developing rapport with these students is essential in creating a successful inclusive environment. Physical education and adapted physical education teachers can have a huge influence on the experiences of students in these settings (Blagrove, 2017). Children without disabilities who are exposed to children with disabilities are more likely to develop positive attitudes towards these classmates. More interactions between students without disabilities with students with disabilities builds more positive attitudes towards inclusive physical education (Park et al., 2014). In order to better address the needs of these students, physical educators should plan for modifications in activities and the environment. It is important to provide unique instructional methods tailored to a student's specific needs (Park et al., 2014). These can include modifications to rules, equipment, assessments and instructions.

Limitations & Recommendations for Future Research

In reviewing the database on overcoming barriers on including of students with autism spectrum disorder in physical education the following limitations were noted regarding the

studies under review. The studies were limited to a certain number of response rates which were often much lower than expected due to participants quitting surveys, not answering all questions, or not responding. The use of surveys in multiple studies limited the study to just that number of respondents. This small sample size of participants cannot be generalized to all teachers, students with ASD or undergraduate students. Another limitation of the studies was the amount of time spent at the sites. If more time was spent observing or interviewing and on different days results may have been different. Some studies aimed to focus on various teacher education programs which led to little information on each teacher education program, where it may have been more beneficial to focus on a couple programs to gather more data all together. Perceived efficacy of participants may have been influenced by the ways in which interviews were conducted. When conducted in group settings, participants may have been influenced by the answers of other participants in the study. The students with ASD who commented on their experiences in physical education ranged in age from nine to 14. Results may have varied if the students interviewed were younger or older.

Based on these limitations and other insights related to the literature the following recommendations for future research should be considered:

1. Future research should collect data over a period of time, such as a month, term, or school year to see if there are any changes in perceptions of students with ASD and their physical education teachers.
2. Future research should include larger studies with mixed method designs and focus groups at multiple sites to gather perspectives of more individuals of differing age groups with students with ASD.

3. Future research should target one or two specific teacher education programs for extensive study in order to gather more data and compare results.
4. Future research should include following a participant or group of participants from their first days in their PETE programs all the way through their first years teaching.

Summary

The purpose of this literature review was to determine how to overcome barriers of including of students with Autism Spectrum Disorder in physical education. Delimiting variables were used to do an exhaustive data-based search which yielded 10 articles that were selected for this synthesis. These articles were then systematically used to determine ways in which to overcome barriers of including of students with Autism Spectrum Disorder in physical education.

Research revealed that in order for pre-service physical education teachers to be prepared to include students with ASD in their future classes it is essential that they have a variety of courses that incorporate adapted physical education and practicum experiences that involve working with these students. Physical education teachers in the field need to have support and understanding from parents, other staff and the students peers. They also need professional development opportunities that allow them to learn about teaching and behavior management strategies for students with ASD.

In order for students with ASD to be successful in inclusive physical education it is important to have trained peer tutors and paraeducators. Modifications should be in place related to equipment, instructional strategies, assessment and the environment. Disability awareness should be discussed in all physical education classes in order to encourage positive attitudes from peers and teachers. Physical education teachers should strive to develop a rapport with their

students with ASD in order to understand behavioral and instructional issues that may arise and have a better chance of controlling the situation. In order to improve the overall program, it is important that students with ASD are able to voice their opinions, concerns, and ideas on how the program could be changed to better fit their specific needs. Overall, there are a variety of strategies that can be used to effectively teach students with ASD and to be able to overcome the barriers that these students and their physical education teachers face related to inclusion.

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Appendices

Author	Title	Source	Purpose	Methods & Procedures	Analysis	Findings	Discussion/ Recommendations Research Notes – Commonalities/Differences
Josephine Blagrove 2017	Experiences of Children with Autism Spectrum Disorders in Adapted Physical Education	European Journal of Adapted Physical Activity	To understand the experience of middle school children with ASD (Ages 10-14) receiving APE	<p>a rural town in northern California in both the participant's APE school setting (observation) and in the participant's home (drawing and semi-structured interview).</p> <p>Participants who received direct service (n = 7) worked in a setting with only an APE teacher and a paraprofessional to receive PE instruction. Participants who received consult (n = 3) participated in a general education setting with an APE teacher consulting for support as needed</p> <p>10 participants Ages 10-14 9 males, 1 female 7 direct services</p>	<p>The participants' drawings were analyzed. First, a coding taxonomy was created by noting all the items within the picture, Then the narrative of the picture was examined that was given by the child next to the picture and the taxonomy of the items in the picture. Items were then interpreted in the drawings, categorizing the picture's items as one of three categories: negative, positive, or neutral.</p> <p>Interviews were transcribed verbatim for each participant. each transcript was read multiple times to become familiar with the whole interview. Data analysis was coded in a first-cycle coding method, looking for elemental,</p>	<p>Three themes identified as a shared experience:</p> <p>a. enjoyment in participation,</p> <p>b. the influence of peers and family members in participation,</p> <p>and</p> <p>a. the sensory experience of APE</p>	<p>Environment- hot and bright- needed breaks to drink water, sit, and cool down- having too many distractions or sensory concerns causes breaks in engagement in physical activity</p> <p>Having fewer distractors and higher levels of engagement in physical activity is as important for individuals with disabilities as it is for their typically developed peers. Creating a space that is dedicated to APE in a school setting may be one way to mitigate these distractions</p> <p>Providing dedicated space could also improve sensory needs that were commented on by the participants and improve sensory concerns that were observed by the researcher. The temperature was a complaint by several of the participants. If a dedicated space for APE could be made, this would allow for a potentially more controlled environment. Being away from florescent lights is helpful. Working in a space that has dimmer lighting or lighting that</p>

			<p>3 consult services</p> <p>Prompted drawing- to provide a talking point throughout the rest of the study with the participant, to see if the participant described feelings regarding APE matched their drawing, and finally to complement the interview and observation data.</p> <p>“draw me a picture of what your APE class with teacher _ is like for you”. Participants were provided with a blank piece of paper and a variety of writing and drawing implements to choose from: pens, colored pencils, markers, crayons and a pen and pencil</p> <p>Following the drawing prompt, participants were asked to explain their drawing. The PI</p>	<p>affective, and exploratory subcategories</p> <p>Second-level coding was then conducted to explore themes within each participant’s experience, and for a shared experience between the participants. From these themes, there was then overall interpretation of the participants’ experiences.</p> <p>Observations were coded for type of activity as well as the participants’ behavior during their time in APE. Codes for type of activity were first described as specific movements and then generalized into broader movement categories: object control skills, gross motor skills, physical fitness, and game play. Behavior activities were coded for on or off task and for observable comments about their demeanor while in APE. The data were</p>	<p>was specific to the needs of kids with ASD could also help improve the environment for these children.</p> <p>Allowing children with ASD to share their experiences in APE will increase awareness of programing issues that may arise for this population and allow educators to consider this perspective when improving curriculum to create a more inclusive environment for all students.</p> <p>PE and APE teachers can have a huge influence on the experiences of their students in these settings. The experience and education of these teachers provide them with the tools necessary to make APE services safe and appropriate for the children they are serving</p>
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			<p>prompted the participant to discuss components of their picture such as what an object was, what was happening or who was in it, if a component of the drawing was omitted. The interviews were audio recorded and then transcribed</p> <p><u>Observation-</u> the observation sheet was divided into 1-minute increments and had categories for both direct observations of what was physically occurring as well as a second (“other”) category to make notes of behavior, environment or other subjective remarks.</p> <p>Descriptive observation was broken into one minute increments for the duration of the time the child is in APE and had two categories for each minute – one that</p>	<p>reviewed to determine whether the participants’ reports of their actions in class were accurate and whether their feelings about their experience seemed represented in the observation</p>		
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			<p>describes the activity that the child was participating in and a second category that is subjective and documents behaviors or other occurrences that the PI thought should be noted.</p> <p><u>Semi Structured Interview</u></p> <p>Questions were developed based on current gaps of knowledge in ASD and APE research targeted in this study. The interview questions consisted of four initial rapport building questions that were straightforward and that the participants could answer confidently, followed by 14 open-ended questions that were specific to their experiences within the APE setting.</p> <p>aim of these questions was to gain a rich</p>			
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				understanding of how the participants perceived the services they were receiving and if these services supported/translated into activity on the playground at recess, or at home with family and peers.			
Sean Healy, Rachel Msetfi, Stephen Gallagher 2013	'Happy and a bit nervous': The experiences of children with Autism in Physical Education	British Journal of Learning Disabilities	To gain an insight into the experiences of students with autism in PE using a qualitative methodology consisting of semi-structured interviews	<p>Methods 12 (11 boys, 1 girl) students with ASD were recruited through a week-long summer camp held in the southwest of Ireland for children w/ ASD</p> <p>Ages 9-13, participated in mainstream PE in primary school w/o support from a special needs assistant</p> <p>All had a formal diagnosis of ASD</p> <p>Procedures A range of strategies were identified: using unfinished statements, incorporating questions into PowerPoint</p>	Interviews: transcription was completed verbatim, 3 researchers performed spot checks on transcripts to ensure accuracy. The researchers also recorded assumptions and ideas in a journal to allow for consideration of their impact on the research, and interpretation. Codes were then organized into groups. Twenty one codes were extracted and collated into 4 potential themes. These are collapsed into 3 themes to provide more accurate and data driven overall story.	<p>Individual Challenges subthemes of <i>physical ability</i>- they go to fast for me, hurling skills hard to master, fast paced games hard to keep up, motor deficit was accepted as a reason to not be involved <i>physical fitness sensory issues</i>- auditory, heat, and tactile sensitivity- hot and sweaty= itch uncontrollably, dislike noise in the gym- people in hall scream at each other hurts my ears <i>fear of injury</i>- perception of danger involved in physical activity, specific pieces of equipment are dangerous in their minds- racquets, bats- you might hit yourself or something</p> <p>Peer Interactions- Relationships and</p>	<p>The need for adapted PE- implementation of APE program- same objective as general PE, but adjustments are made in the regular offerings to meet the needs and abilities of exceptional children- may benefit all students because adapted PE is good PE.</p> <p><i>Overcome-</i> Adapting the equipment or rules or offering alternative activities, using peer tutors and adapting structure for events, time and space.</p> <p>Sensory Issues- teachers should consider issues of high volumes in PE, sensitivity to heat, bad weather when planning and implementing PE classes so they don't become a factor that impedes participation for students.</p> <p><i>Overcome-</i> adapting instructional techniques to reduce noise and adapting equipment to</p>

			<p>slides, piloting the interview guide and carrying out the interview in an informal setting</p> <p>Other strategies were also at hand including visuals (as a slideshow on a laptop), a quiz board poster (that guided participants through the interview using visuals and text) and sheets and markers for drawing, a ‘my ideal PE class’ sheet and a semi-structured interview schedule to guide the interviewer with questions such as ‘How do team sports make you feel?’ and ‘If you could plan a PE class, what would it be like?’</p>		<p>experiences with peers</p> <p>Positive and negative subthemes</p> <p><i>Camaraderie</i>-signifying goodwill and a positive rapport among classmates, was a positive peer interaction. Peer support encouraged the successful integration of the student in team games.</p> <p><i>Initiation of friendship</i>-demonstrating the potential of PE to be a catalyst for friendship. PE can socially benefit children with autism.</p> <p><i>Social comparison</i>-negative social comparisons contributed to difficult PE experiences “I always come last” “I’m tired they’re energetic”</p> <p><i>Bullying</i>- “can’t catch a ball”, punching, kids teasing</p> <p>Exclusion-</p> <p>a. times when the teacher sent them from activities because</p>	<p>overcome tactile input challenges, preventive and preparation strategies such as previewing may be used which can aid the child by preparing them for events that will arise during class</p> <p>Fear of Injury- students with ASD have more situation phobias and medical fears than other populations.</p> <p><i>Overcome-</i> PE teachers must be conscious of this issue, if left unresolved it can cause a barrier to future participation for the students. An appropriately challenging and safe environment, with necessary safety equipment and adequate space in which to practice may be one solution. Systematic desensitization, may be one cognitive strategy for managing anxiety and fear in the PE environment for students with ASD.</p> <p>Bullying-Students with ASD are reported to be victimized by peers more than students without ASD. An adapted PE program may help prevent the exposure of characteristics such as lack of social skills and poor motor skills and so reduce the likelihood of victimization.</p> <p>Exclusion-</p>
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						<p>they weren't ready for the game</p> <p>b. students excluded due to lack of ability- tried to participate but failed</p> <p>c. students requested and were allowed to be excluded</p>	<p>Additional research is required with females with ASD to examine how the differences influence participation in PE. Examining the experiences of students with ASD in other areas in other circumstances could be instructive. An ethnographic study involving the input of students, support staff and teachers may help to fully understand the complexity of inclusive PE and allow for a more in-depth exploration of the experiences of those involved.</p>
<p>Sean Healy, Joann P. Judge, Martin E. Block, Eun Hye Kwon</p> <p>2016</p>	<p>Preparing Adapted Physical Educators to teach students with Autism: Current Practices and Future Direction</p>	<p>The Physical Educator</p>	<p>To survey practicing CAPE's to understand their training experiences in their APE teacher education program specific to teaching students with Autism and -define the specific content and information needed in APE preparation programs to prepare future APE specialists effectively to teach students with Autism</p>	<p>Participants- 400 randomly selected CAPES emailed an invitation to participate in the study. 66 emails were incorrect, 344 received the email invite. 106 CAPES representing 22 states completed survey (31% response rate). Age Range- 22-67. 72% female. The second purpose- group consisted of professors of APE, professors specializing in autism, and other experts with practical experience in</p>	<p>Quantitative and qualitative methods were used. Basic descriptive statistics were completed for quantitative items. Open-ended questions- the researchers independently coded the answers and grouped them into themes. 2nd question- quantitative and qualitative descriptive statistics were computed, thematic analysis</p>	<p>Education- 68% of respondents held master's degree, 17% bachelors, 15% doctorate, 70 people degree in health and PE, 9 in kinesiology, special ed. 2, exercise sports science 4, movement 1. In regard to preparation to teach students with autism, 83% of participants did not take specific course in teaching students with autism in PE, 61% did not take specific course in special education related to autism, 48% stated they were satisfied with how their grad program in APE prepared them to work with students with autism, leaving</p>	<p>The competencies identified in the study should be incorporated as objectives on the APE course syllabi- this would aid in the development of comprehensive teacher training programs and ensure that future CAPES have the knowledge and insight necessary to teach PE to students with autism.</p> <p>For preservice CAPES a specific course on autism is warranted.</p> <p>Limited knowledge about autism of faculty in many universities- one solution is to provide distance education supplements via e-learning on issues related to autism to university faculty who are responsible for teaching APE coursework- these</p>

			<p>teaching students with autism and in preparing CAPEs- responsible for creating the provisional list of competencies deemed necessary on a course focused on APE and autism.</p> <p>Procedures-Survey methodology used to fulfill both research purposes- to understand teaching and training experiences of CAPEs, participants were asked to provide information pertaining to the number of years of experience they had in teaching students with autism and the nature of and their satisfaction with training received focused on teaching students with ASD</p> <p>Generated a list of competencies deemed necessary for CAPEs to</p>		<p>14% dissatisfied, 5% very dissatisfied, and 33% neutral. The participants had 12.9 years of experience on average teaching students with ASD</p> <p>Training needs- behavior management 25%, communication 6%, curriculum development 6%</p> <p>Suggestions for future teacher preparation- important for training of preservice CAPEs to teach students with autism: practical experience 42%, observation of students with autism 9%, and training in behavioral support strategies 13%</p>	<p>could be posted on the web and then used by faculty with limited expertise. E-learning also allows course instructors to present videos for the student to see the use of specialized techniques like visual supports, video modeling, and peer tutoring</p> <p>In service CAPEs need for training to teach students with autism better- professional development focused on behavior management, communication strategies, and curriculum development- should be offered through traditional workshops or online courses</p> <p>Practical Experiences- the practicum experience for CAPEs could provide benefits- allowing for the knowledge and skills learned in class to be applied and a positive attitude and disposition to teaching students with autism to be fostered. The preservice teacher should be fully supported through the teaching practicum and feedback provided on their teaching from experts. Opportunities should be provided for the teacher to work with diverse student populations. Should consider both off campus and on campus options as viable.</p>
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				<p>instruct students with autism effectively. Experts generated a final list of 17 competencies that they believed were important for CAPEs to know with regard to teaching PE to students with ASD. An online survey was used to assess CAPEs opinions on the 17 competencies defined by the experts.</p>			<p>Increased training in Behavioral Support Strategies- provide evidence based practices to students, such as use of a visual schedule and visual cues, use of alternative forms of communication (pictures, sign language), positive reinforcement, and establishing routines. Preservice CAPEs should be given opportunities to implement these strategies in practical settings, professional development workshops to acquire these strategies</p>
<p>Jennifer A. Beamer, JoonKoo Yun 2014</p>	<p>Physical Educators Beliefs and Self-Reported Behaviors Toward Including of Students with Autism Spectrum Disorder</p>	<p>Adapted Physical Activity Quarterly Official Journal of IFAPA</p>	<p>To twofold. First, we aimed to provide a description of current GPE teachers' beliefs and self-reported behaviors toward including students with ASD, and second, we examined the potential factors affecting their self-reported inclusive behaviors</p>	<p>Participants- 223 GPE teachers from a stratified national random sample of 3,000 public schools in the US-participated in an online survey, 30 participants quit survey or didn't meet criteria, 20% of questions unanswered were excluded-Final number 142 GPE teachers. Mean age of sample was 46 years old with 63% being women. Participants teaching experience-mean was 18</p>	<p>Participants were characterized using descriptive statistics (means, standard deviations, and percentages). In addition, confidence intervals and correlations were calculated for all variables. In effort to identify potential factors affecting physical education teachers' inclusion behaviors, a multiple regression was employed. Variables were chosen based on previous research. Teachers'</p>	<p>58% of the participants had taught 1-5 students with ASD, and 21% of them had taught 6-10 students in 2010. For the year 2009, the distribution was similar, with 55% reporting to have taught 0-5 students and 21% reporting 6-10 students. It is important to be cautious about the generalizability of the findings due to the low response rate (7.9%). The majority of the participants had taken at least one undergraduate APE class, and just over half indicated that the classes prepared them "very well" or</p>	<p>The purpose of this study was to examine the beliefs and self-reported behaviors of current GPE teachers' inclusion of students with ASD in their classes. Results indicated that GPE teachers generally felt supported by the special education teacher yet had wavering beliefs about their own training to include students with ASD. While relationships between belief variables such as attitudes, intentions, self-efficacy, and perceptions of support exist, the only variables that significantly predicted self-reported behavior to include students with ASD in this sample were experience, graduate coursework in APE, and</p>

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			<p>years, 69% at the elementary, 29% at the middle or junior high, 18% at the high school level</p> <p>Instruments- online survey used to elicit info on GPE teachers' beliefs and behaviors regarding inclusion of students with ASD, Participants self-efficacy in ability to teach students with ASD was measured using the Physical Educators' Self Efficacy toward including students with disabilities-autism scale. This asks people to answer questions in relation to a description of a student with a moderate level of autism.</p> <p>Measuring teachers attitudes, intentions, and self-reported behavior-survey included questions from a modified version of instrument</p>	<p>behavior was the dependent variable, and the independent variables were teachers' years of experience teaching, self-efficacy beliefs for including students with ASD, number of undergraduate APE courses, number of graduate APE courses, perception of the strength of their undergraduate training for inclusion, perception of the strength of their graduate training for inclusion, and number of in-service trainings with information on ASD</p>	<p>“fairly well”. Approximately 27% of the participants had taken at least one graduate course in APE, and only 39% indicated that the classes prepared them “fairly well.” In regard to in-service training, over half of the participants had attended at least one in-service that had information on ASD.</p> <p>When asked if their school district had an APE specialist, 65% reported “no”. However, of those that did have an APE specialist, 76% felt that they received support from the specialist. In regard to other professionals, a clear majority felt supported by the teaching assistants, special education teachers, and physical therapists.</p> <p>Descriptive data from the measure of self-efficacy indicated that teachers held generally positive self-efficacy beliefs toward their ability to perform tasks associated with the inclusion of students with ASD.</p> <p>In regard to attitudes, descriptive</p>	<p>perceptions of strength of undergraduate preparation for inclusion.</p> <p>The majority of the teachers in the current study revealed that they felt supported by the special education teacher in their schools. Their perception of support from the special education teacher was related to their self-efficacy and attitude toward inclusion.</p> <p>Not only is training future physical educators to work collaboratively with other professionals such as special education teachers important, it may also help strengthen inclusive practices in GPE settings. Clearly, the need for training in inclusive practices is warranted.</p> <p>These results support the needs of quality teacher education programs that provide training in inclusion practices. If we consider that the quality of undergraduate and graduate APE coursework is key, our findings may indicate that faculty who specialize in APE should be teaching the classes. Therefore, it is of perhaps greater importance to note the need for doctoral training in APE in an effort to generate more faculty trained to enhance</p>
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			<p>Teachers' Beliefs and Intentions toward Teaching Students with Disabilities</p> <p>Procedures- Random sample of GPE teachers in the US, randomly sampled 2 states from each of the 6 regions as designated by SHAPE. The states included Georgia, Hawaii, Indiana, Kansas, Michigan, Mississippi, Montana, New Hampshire, Nevada, Oregon, South Dakota, and Vermont, Participants completed and submitted surveys anonymously online through Survey Monkey</p>	<p>data revealed a mean score of 6.65 on a scale of 1 to 7. Items included behaviors that are associated with inclusion, and respondents were asked how often they performed the behaviors. Responses were given on a scale of 1 (not at all) to 7 (always). Results indicated a mean of 5.42</p> <p>A small but significant relationship was found between participants' self-efficacy and self-reported inclusion behaviors ($r = .19$), as well as their self-reported inclusion behaviors and their perception of the strength of their undergraduate preparation for inclusion ($r = .18$)</p> <p>A regression analysis was employed to determine what factors influenced teachers' self-reported inclusion behaviors. Independent variables included teachers' experience, self-efficacy beliefs, training, and perceptions of strength of training, with the dependent</p>	<p>teacher education in APE.</p> <p>Perhaps of more immediate interest is the training necessary for creating teachers with positive beliefs and behaviors toward inclusion. While it can be understood that training for inclusion will lead to feelings of preparedness and perhaps better practice, it remains unclear what specifically is needed in terms of training. Recently, Jin, Yun, and Wegis (2013) proposed a theory-based undergraduate curriculum to promote inclusion.</p> <p>Our results indicate that practical experience and coursework appear as substantial resources for teachers</p>
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						variable as self-reported behavior.	
Iva Obrusnikova. Suzana R. Dillon 2011	Challenging Situations when Teaching Children with Autism Spectrum Disorders in General Physical Education	Adapted Physical Activity Quarterly	To use Goldfried and D’Zurilla’s behavioral-analytic model and the ecology of the gym framework to elicit teaching challenges that occur when students with ASD are educated in GPE classes	Participants- A convenience sample of 43 teachers (29 women and 14 men) teaching in four regions of the United States (12% from the Northeast, 37% from the Midwest, 42% from the South, and 9% from the West) participated in the study. The mean age of the sample was 43.4 years. Participants in the study met the following eligibility criteria: (a) current license to teach GPE or adapted physical education (APE) in at least one state of the United States, (b) current full-time teaching position in GPE or APE in a public school in any grade. (c) a	Data analyzed using directed approach to qualitative content analysis. Qualitative analyses were performed to obtain a more in-depth, complex view and understanding of the experiences physical educators’ encounter when teaching students with ASD in their GPE classes. The researchers sorted response concepts, along with the transcribed responses within each data set, into clusters based on similarities in theme. Using selective coding, the researchers generated a label for themed responses by reviewing concepts and individual	225 teaching challenges in the survey- 46% related to cooperative, 31% to competitive, 24% to individualistic learning situations. The most frequent theme was related to teaching challenges created by Chris's inattentive and hyperactive behaviors (39% of total responses), followed by teaching challenges related to social impairment/isolation (36%), emotional regulation difficulties (22%), difficulties understanding and performing tasks (21%), narrow focus (18%), and inflexible adherence to routines and structure (16%) Three additional themes for teaching challenges were related to other elements of GPE and included (a) Chris being ignored or	Desired training should focus on inclusive teaching strategies, peer tutoring programs, effective collaboration with teaching assistants and paraeducators, and the IEP process that includes students similar to Chris in GPE. Need for support from a trained teaching assistant (paraeducator, peer tutor or APE teacher) and/or smaller class sizes Also, paraeducators can present challenges as well. Training as a solution to address teaching challenges (pre service training and collaboration with a trained assistant is critical to the success or participation in the PE setting) PE teachers teaching students with ASD should plan for and address inattentive and hyperactive behaviors, social behavior difficulties, and emotional regulation difficulties.

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			<p>minimum of at least two years of full-time experience teaching physical education to students in any grade, and (d) experience teaching physical education to a student similar to Chris in GPE</p> <p>Instruments- two online questionnaires were administered to participants; a. background questionnaire and b. elicitation questionnaire.</p> <p>The background questionnaire gathered information on participants' demographics (i.e., age, sex, and state in which they were teaching); current position; experience teaching APE, GPE, and students with ASD; and the program levels the participants taught.</p> <p>The elicitation questionnaire gathered</p>	<p>teacher responses placed in data clusters.</p>	<p>isolated by classmates (20%), (b) negative effects on classmates' learning (19%), and (c) need for support and lack of training (18%)</p> <p>The three most frequently reported teaching challenges were, in order, those related to Chris's social impairment (46%), inattention and hyperactivity behaviors (42%), and Chris being ignored or isolated by classmates (30%), For competitive situations, the teachers reported more managerial (37%) and social task (37%) teaching challenges than instructional teaching challenges (24%;). The three most frequently reported teaching challenges in competitive situations were those associated with inattentive and hyperactive behaviors (38%), emotional regulation difficulties (36%), and social impairment (33%), For individualistic situations, the teachers reported more instructional (42%) and social interaction (35%)</p>	<p>They should prepare for and make accommodations for student difficulties associated with understanding and performing GPE tasks, having a narrow attention focus, and inflexible adherence to routines and structure.</p> <p>May have to be proactive in preventing the behaviors of the student with ASD from negatively affecting classmates' learning or causing them to ignore or isolate the student with ASD.</p> <p>Should carefully balance the need for educational support when educating a student with ASD in GPE settings against possible unintentional consequences of that support in the learning environment.</p> <p>must acknowledge potential teaching challenges that may arise due to instructional decisions, management strategies, and social interactions. That is, they must understand the ecology of their gymnasium, including understanding each student and how his/ her unique learning needs create shifts within that ecology.</p>
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			<p>information about participants' perceptions of challenges that occurred when teaching students with ASD in their GPE classes. It consisted of a written vignette, elicitation questions, and elicitation definitions.</p> <p>The written vignette described a hypothetical student named Chris who was included in a GPE class.</p> <p>The elicitation questions gathered information on the challenges physical educators' encounter when teaching children similar to Chris in GPE classes.</p> <p>Two sets of elicitation definitions were presented to the participants in the questionnaire. The first set of definitions included three types of learning</p>		<p>teaching challenges than managerial teaching challenges (22%) The three most frequently reported teaching challenges were those related to inattentive and hyperactive behaviors (34%), difficulty understanding and performing tasks (30%), and social impairment (26%)</p> <p>Study themes presented in 6 sections. A. inattentive and hyperactive behaviors. B. social impairment and isolation. C. difficulties meeting performance standards. D. emotional regulation difficulties. E. difficulties related to narrow focus and inflexible adherence to routines and structure, and F. support and training</p>	
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				<p>situations— cooperative, competitive, and individualistic</p> <p>Procedures- Of the 224 teachers contacted, 132 answered the questionnaire, making a response rate of 59%. 58 did not meet the eligibility criteria and 32 had unusable responses to or failed to answer open-ended questions. Therefore current results are based upon responses of 43 teachers representing 19 states in the USA.</p>			
<p>Sally Lindsay, Meghann Proulx, Nicole Thomson, Helen Scott 2013</p>	<p>Educators' Challenges of Including Children with Autism Spectrum Disorder in Mainstream Classrooms</p>	<p>International Journal of Disability, Development and Education</p>	<p>To understand the challenges educators may encounter when creating inclusive classroom environments, particularly for children with ASD.</p>	<p>Qualitative design exploring educator's challenges in and strategies for including children with ASD in mainstream classes while applying Lipsky and Gartner's model of essential elements of inclusion.</p> <p>Participants- following criteria: at least 2 years of</p>	<p>Interviews recorded and professionally transcribed verbatim. Reading through each interview several times and noting key emerging themes. Used model on essential elements of inclusion (visionary leadership, collaboration, refocused use of assessment, support for staff and students, funding, effective</p>	<p>Challenges in including students with ASD were: understanding and managing behavior, socio-structural barriers (school policy, lack of training and resources), and creating an inclusive environment (lack of understanding from other teachers, students and parents)</p> <p>Understanding & Managing Behaviors- teachers felt they lacked adequate information about</p>	<p>Improving social inclusion of children with ASD is important not only for their social and academic development but also to provide typically developing children with an opportunity to develop a tolerance and appreciation for others who are "different"</p> <p>Teachers found it difficult to apply best practices of inclusion when there was a child with ASD within their mainstream classroom. Teachers reported difficulty in understanding and</p>

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			<p>teaching experience in an integrated class, currently an educator within an elementary school within a local school board, and/or they have experience teaching a student with ASD within a mainstream class</p> <p>13 educators (10 females, 3 males) teaching a wide range of classes, 3-22 years of teaching in mainstream classroom. 5/12 teachers were based at school in rural area, 8 at urban school setting. 12 teachers had earned additional qualifications in special ed.</p>	<p>parental involvement, curricular adaptation and effective instructional practices) to inform our analysis. Quotes reflective of each theme were extracted.</p>	<p>ASD, particularly with respect to specific ways to work with a child in the classroom and how to appropriately manage a child when a behavioral outburst occurs.</p> <p>Some teachers found it difficult to engage students with ASD in lessons, noting that they often have specific interests and become frustrated when asked to do something else.</p> <p>Some teachers found it difficult to engage students with ASD in lessons, noting that they often have specific interests and become frustrated when asked to do something else. Establishing a rapport with a student was noted by teachers as being an important element for helping a child in distress to calm down.</p> <p>Socio-structural Barriers- lack of training, availability of resources and school policies. If we don't really understand the core problems with the kids, you can't really teach them" Other teachers described how more support is needed to be able to</p>	<p>managing the behavior of children with ASD and enhancing social and communication skills to help them to develop peer relationships.- Indeed, curricular adaptation and effective instructional practices are deemed as best practice for inclusive classrooms</p> <p>Socio Structural barriers- teachers need specific training and support, understanding and collaboration from their colleagues and the school board to facilitate the full inclusion of children with ASD. Continuing efforts for staff development are needed (such as workshops or professional development) for the successful inclusion of students. Evidence shows that students must receive the necessary funding to ensure they are properly supported.</p> <p>A third challenge that teachers encountered was creating an inclusive environment within the class and school. Our findings showed that there was a lack of understanding of or familiarity with the disorder among other teachers, students and parents, which inhibited the full inclusion of children with ASD. Collaborating in a multi-disciplinary team to ensure children receive</p>
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					<p>fully include children with ASD</p> <p>Some teachers advocated for a more consistent process in training and supporting teachers. “We need more teachers especially trained in autism”</p> <p>Understanding basics of ASD behavior is not helpful for learning specific teaching methods to work with students.</p> <p>Another structural barrier mentioned by eight teachers involved lacking appropriate resources (i.e., financial resources, access to training opportunities, funding for an education assistant) and equipment (i.e., computer software, assistive technology, “fidget toys”) for students with ASD. Lack of funding for education assistants. Seven teachers felt quite strongly about having an education assistant in the classroom to integrate the students with ASD.</p> <p>Five of the teachers mentioned that class sizes were a challenge for being able to successfully include a child with</p>	<p>services tailored to their needs is an essential element of a successful inclusive classroom. Support from others is critical because it can benefit students with ASD and enhance the processes associated with inclusive education.</p> <p>Challenges with parental involvement in the child’s schooling, which inhibited their access to the supports that could have helped their progress. Past studies show that parental involvement is a key element of successful inclusion of a child with a disability in a mainstream classroom.</p> <p>One best practice of inclusion according to the model that we did not encounter in our findings was visionary leadership, which involves guiding the inclusion movement towards its goal.</p> <p>The importance of disability awareness programs to improve inclusion and attitudes towards children with disabilities (Lindsay & Edwards, 2013). Perhaps more of a whole-school approach is needed to help support and guide teachers on how to best include children with ASD within their classes.</p> <p>Having the proper mechanisms in place in a child’s social</p>
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					<p>ASD. The increased class sizes contribute to the teachers' workload, which "can make it difficult to give proper consideration to the way we can support students with special needs"</p> <p>Challenges in Creating an Inclusive Environment- lack of awareness and understanding of the disorder amongst other staff, students, and parents. Some staff may be nervous and have misperceptions about children with ASD. Having to educate and bring awareness of ASD to teacher's peers- role they feel to be challenging.</p> <p>Parental engagement- parents chose not to identify their child's condition- lack of a formal identification of ASD led to children not being eligible to receive resources and supports that could help enhance their education experience. Teachers also had to manage concerns from other parents- have to explain child isn't bad, just has other needs-interactions</p>	<p>environment is essential for them to thrive and to be treated as a valued member of the class. Past research shows that a lack of social inclusion among children is often the result of typically developing children not being taught to value diversity, acceptance and peer belonging within inclusive classrooms</p> <p>the additional qualification courses are generally quite short and tend to address generic issues of disability. Thus, there is perhaps a need for longer or more focused training on specific conditions.</p> <p>when workshops or training are provided around children with ASD it is often focused on tracking their behavior, while more time should be focused on how to teach children with ASD and offering solutions on how to successfully include them with their peers within the class.</p> <p>some teachers suggested that more resources should be directed to hiring education assistants to help students with ASD within the class. However, this is somewhat of a contentious issue because some evidence shows that having an education assistant in</p>
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					<p>with parents of children with ASD and parents of students peers presented to be challenging amongst teachers.</p> <p>Peer Understanding and Acceptance- to include child with ASD. Children know there's something different about student but unaware of the diagnosis/behaviors because of it- makes it difficult for teachers to create an understanding and empathetic climate within their class.</p> <p>Reported struggling with how to promote peer interaction for children with social, communication and behavioral impairments.</p> <p>Difficulties with getting other children in class to understand why a peer behaves differently and to accept them for who they are.</p> <p>Lack of peer understanding and acceptance makes it difficult for teachers to successfully include the child with ASD in the class.</p>	<p>the class can isolate students from their peers and increase their risk of bullying</p> <p>School boards should consider the diversity of students when setting standards for testing and also class sizes.</p>
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<p>Cindy K. Piletic, Ron Davis 2010</p>	<p>A profile of the introduction to Adapted Physical Education course within Undergraduate Physical Education Teacher Education Programs</p>	<p>Journal of Research</p>	<p>To describe the profile, content, delivery mechanism, and application of teaching standards (NASPE) and (APENS), within the Intro to APE course for college/university PETE preparation programs</p>	<p>Participants were recruited from three sources using convenience sampling; (a) professional contact at a national PETE convention; (b) published PETE national directory; and (c) a list of PETE programs provided by the (NCATE). There was no one single comprehensive list of PETE programs in the United States available to the authors. The main criterion for selection was that the programs had a PETE program at the undergraduate level. In total, 349 college/university PETE programs of the reported 700 PETE programs were contacted and invited to participate in this study. Convenience sampling was</p>	<p>Data analysis was completed using SPSS 16.0. Descriptive statistics were used to report the results (i.e. means, frequencies, and percentages)</p>	<p>Profile of the Introduction to APE Course- Ninety-one participants (69%) indicated only one course in APE was offered at their college/university. Thirty-one percent of the university PETE programs offered additional courses in APE, but only six indicated that the additional courses were required for PETE majors. Many PETE programs offered the Introduction to APE course both fall and spring semesters (49%). The average credit load was 3 hours, and student enrollment ranged from 10 to 31 students per course offering What is the overall profile of the Introduction to APE course? The Introduction to APE course was primarily required for PETE majors (95%). Exercise Science majors were the second most frequent group required to take the Introduction to APE course (24%). Other majors required to take the course included: (a) Athletic training; (b) Coaching; (c)</p>	<p>Results of this study supported the need for practica experiences either on and/or off campus to be a part of the Introduction to APE course. Practicum experiences can lead to a change in attitude toward teaching students with disabilities and develop an increased perceived level of competence in one's ability to teach students with disabilities There is some disparity in the purpose of the practicum experience as some students were asked to complete the role of teaching while interacting in a one-on-one, small or large group setting. Closer analysis of practicum experiences, and their relationship to lectures, is suggested for future studies concerned with training teachers to be physical educators and adapted physical educators. Detail of practicum experiences should be considered in future studies. How tasks within the practicum setting are linked to course objectives should also be focused on in future studies to address the practicum quality in regards to teacher preparation. Additionally, our experience, a combined</p>
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			<p>used due to lack of a comprehensive listing of all PETE programs in the United States.</p> <p>a descriptive online survey set up through Survey Monkey. The survey consisted of six different sections in an effort to answer each of the five research questions.</p> <p>Section I consisted of demographic questions about the university, the department and it's majors, the APE program within the department, and the APE programs in the public schools (PK-12) within the state.</p> <p>Section II focused on the faculty member teaching the course and his/her educational background.</p> <p>Section III focused on the APE course(s) offered, including</p>		<p>Therapeutic Recreation; and (d) Special Education. Some participants indicated all majors in the department were required to enroll in the course. Participants indicated that the students enrolled in the Introduction to APE course were primarily juniors (86.59%) and seniors (59.7%).</p> <p>Faculty teaching the Introduction to APE course represented a wide range of professional backgrounds and training. Seventy eight percent of the faculty teaching the course had a terminal degree (i.e. Ph.D. or Ed.D.), 21% had a master's degree, and one faculty member had a Bachelor's degree. There was a disparity in the training/specialization of faculty teaching the Introduction to APE course. Less than half (48%) of all participants who responded and were teaching the Introduction to APE course had their Ph.D. with a specialization in APE</p>	<p>35 years in higher education pedagogy, has indicated students who are without a methods course prior to their Introduction to APE course, often do not have a sufficient foundation of teaching to include instructional strategies that can then be built upon to address teaching students with disabilities. It is our belief that the Introduction to APE course should be offered earlier with less emphasis on teaching and more emphasis on an overview of adapted physical education.</p> <p>faculty with various specializations, though not physical education pedagogists, may have a good understanding of the subject matter, but may lack the ability to apply essential pedagogical concepts to assist PETE majors develop the skills and perceptions of teaching students with disabilities. Therefore, faculty with specialized training in APE may have different perceptions of what are essential content areas that need to be addressed in an effort to prepare PETE majors to teach students with disabilities. This may result in a different content focus within the Introduction to APE course.</p> <p>Future physical educators need to be better</p>
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			<p>questions about credits, hours dedicated to lectures, practica offered, numbers of students taking the course, students required to take the course, and other APE courses offered at the undergraduate level.</p> <p>Section IV sought information specific to delivery of the Introduction to APE course in regards to how it was offered (i.e., online, hybrid, in class), and the lecture hours spent on specific content areas.</p> <p>Section V was specific to practica experiences that were offered/required as part of the Introduction to APE course. Questions were specific to the number of hours expected to be completed, the type of interaction with individuals with disabilities, the</p>	<p>What is the content of the Introduction to APE course?</p> <p>The following content areas received the majority of lecture time, defined as 5+ hours each per semester: (a) disabilities; (b) instruction and motivation strategies; (c) physical fitness, motor skills and motor development; and (d) modifications (Figure 3). Areas receiving the least amount of lecture time were: (a) consulting in APE; (b) curriculum; (c) legislation and history; (d) social and cognitive delays of students with disabilities; (e) assessment; (f) behavior management; and (g) Individual Education Plans (IEPs)</p> <p>What is the mechanism of delivery for the Introduction to APE course?</p> <p>Format for the course within a majority of the PETE programs (93%) was a face-to-face classroom setting. Time spent on lecture during a week was usually 3</p>	<p>prepared to address these demands. The understanding of assessment and placement process is critical to appropriate program placement for a student with a disability; the limited amount of time focused on these content areas during the Introduction to APE course will provide little depth nor mastery in areas that are critical to teaching students with disabilities in physical education.</p> <p>Although the course content is addressing a number of different content areas, it appears to be taught in a manner to introduce content rather than address depth and mastery of content.</p> <p>at a minimum, highly qualified adapted physical education teachers must have the knowledge and skills, as defined by the National Association for Sport and Physical Education (NASPE). Moreover, “highly qualified” adapted physical education teachers must possess comprehensive content knowledge in disability studies; assessment methods for service qualification and instructional design; report writing; special education law; development of individualized education programs (IEP);</p>
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			<p>purpose of the practicum, and the grading of student experiences.</p> <p>Section VI requested participants to provide their perceptions of students' competence and application of standards following course completion</p> <p>A validity rating form- Seven kinesiology/physical education faculty completed the form The responses were measured using a 5 point Likert-type scoring scale (1 = strongly agree, 2 = agree, 3 = undecided, 4 = disagree, and 5 = strongly disagree)</p>	<p>hours (51%), although some (29%) spent 2 hours a week in class lecturing. A practicum experience was offered by 84% of participants to supplement the lecture format. Practica experiences varied from onsite (23%), to offsite (48%), and a combination of the two (30%). The most frequent number of hours required for the practicum ranged from 11 – 20 hours (54%). The range of required hours for practicum went from less than 5 hours (6%) to more than 30 hours (5%) across the semester. The majority of practica experiences were with children with disabilities from grades K12; however, some provided experiences with individuals at the Pre-Kindergarten and adult level. The main purpose for practicum was to provide a hands-on experience with the goal to change attitudes (56%). The expected role of the PETE student during the practicum was to be directly involved with teaching and assisting with</p>	<p>adaptations and modification for physical education; behavior management; individual teaching and learning styles; collaboration and consultation skills; advocacy, inclusion practices; instructional design and planning; community and family resources; professional leadership; and assistive technology for physical education. 69% of the PETE programs participating in the study, offer one only course in APE.</p> <p>by implementing an Infusion Model or creating more APE courses within the PETE curriculum would allow future physical educators to have more depth and mastery in teaching students with disabilities in physical education. Further study and research may provide evidence that some programs are successfully implementing an infusion model to address content knowledge for adapted physical education.</p> <p>Results of the current study supports that offering only one course in adapted physical education does not provide a high level of mastery in content knowledge for future physical educators who will be teaching students</p>
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					<p>activities. In most practica settings students were interacting one-on-one or in small groups with individuals with disabilities (84%)</p> <p>Does the content included in the Introduction to APE course align with the teaching standards?</p> <p>The final research question of the study was meant to report how the NASPE and/or APENS standards were addressed in the course. To be clear, the authors interpreted which reported content area appeared to be aligned with a corresponding NASPE standard(s) as part of the descriptive analysis; participants were not asked to make this association. Based on this interpretation, content reported by participants appeared to address 4 of the 6 NASPE standards (the 2008 version) and 9 of 15 APENS.</p> <p>The information reported in represents only the content areas reported being addressed at least 5</p>	<p>with disabilities in physical education.</p>
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					<p>hours per semester and how they aligned with the NASPE and APENS standards. The content areas of: (a) disabilities; (b) modifications; (c) instruction/ motivation; and (d) physical/motor fitness were addressed by 30 - 63% of participants for this time allotment.</p> <p>The remaining content areas were addressed by less than 30% of the participants for 5 hours per semester. When the authors cross referenced NASPE standards to the reported content areas the following NASPE standards were addressed by 30 - 60 % of participants for approximately 5 hours per the semester: (a) Planning and Implementation; (b) Scientific and Theoretical Knowledge; and (c) Instructional Delivery and Management.</p> <p>When cross referencing the content areas with the APENS standards the following APENS standards were</p>
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					<p>addressed by 30 – 60% of the participants for 5 hours per semester:</p> <p>(a) Unique attributes; (b) Instructional planning and design; (c) Teaching; (d) Motor behavior; (e) Exercise Science; (f) Measurement and evaluation; (g) History and philosophy; (h) Curriculum theory and development; and (i) Assessment</p> <p>Do faculty perceive students to be competent after completing the course to teach students with disabilities? All participants were asked if they perceived their students to meet some level of competency for APENS standards 1-10 as they completed the Introduction to APE course content. APENS standards 1-10 were selected for cross-comparison with the NASPE standards.</p> <p>Participants used the following scale to indicate their perceived level of student competence: 1 =not competent, 2 =below target, 3 = target, 4 = above target or 5 = very competent. Results</p>	
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						<p>revealed that the majority of faculty felt they addressed 9 of the 15 APENS standards throughout their course content. Of those 9 APENS standards, the standards of: (a) unique attributes; (b) motor behaviors; (c) exercise science; and (d) human development were each perceived by at least 60% of the participants to be of target level or higher for student competence. The APENS standards of (a) teaching and instructional design, and (b) planning, were perceived by at least 30% of participants to be above target level for student competence. The APENS standards of (a) teaching, (b) instructional design and planning, and (c) assessment were perceived by 20% of the participants to be at the very competent level for student competence</p>
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<p>Brent Hardin 2005</p>	<p>Physical Education Teachers' Reflections on Preparation for Inclusion</p>	<p>The Physical Educator</p>	<p>To identify practicing physical education teacher's perspectives regarding the adapted physical education curriculum of their respective (PETE) programs, and to explore how their preparation programs have affected their feelings of competence and confidence when teaching students with disabilities in inclusive environments</p>	<p>Qualitative- Semi structured interviews, field observations, stimulated recall interviews and Q-sort interviews. Interviewed for 90 minutes; questions addressed education experience, current teaching experience, assessment of the influences on comfort levels in inclusive teaching environments Then observed over a two week period while teaching 3 inclusive PE lessons- researcher took field notes during each observation, logging dialogue and activity that took place during classes Interviews used to gather teachers perceptions on how well prepared they were in teaching students with disabilities. Focused on</p>	<p>Analytic induction is the process of drawing themes and commonalities from data and is a suitable way to ascertain the experiences and thoughts of participants. All info gathered was compiled to form a composite of practitioners views regarding the APE curriculum of their individual PETE programs First stage- data collection, preliminary analyses conducted, themes that emerged in initial interview and field notes guided stimulated recall interview questions. Q-sort- helped guide the questions concerning how the various knowledge sources affected participants feelings of competence and resulting teaching practices</p>	<p>3 themes emerged from data: Importance of teaching experience, The example of other teachers, The influence of one adapted course during the subject's college careers. Teaching experience is supreme- most valuable knowledge source for learning how to teach students with disabilities- enhanced their competence and confidence when teaching students with disabilities Teachers Teaching Teachers- All participants felt that other teachers were a valuable knowledge source when learning how to teach students with disabilities in integrated environments. Ranked 2nd in the Q-sort. Only one course- course work was ranked 3rd, and all participants ranked this as 5th or higher- based off value of their APE class.</p>	<p>Course work was ranked 3rd most valuable but most participants ranked this based off only one APE course. Need for more than just one class. Physical education teacher training programs should investigate an infusion program (one that systematically infuses knowledge about individuals with disabilities throughout the curriculum. The existence of one separate course in ape may reinforce the notion that segregation is still necessary. These should still exist but should change the emphasis by focusing attention on specialized adapted knowledge. Knowledge about disabilities can be included within other coursework not taught in isolation. Student teaching and early field experiences are only of value to pre-service teachers learning how to teach students with disabilities when the pre-service teachers actually get the opportunity to teach students with disabilities- exposure to these students boosted their confidence and eased their nervousness- findings clearly illustrate teacher education programs must become pro-active in assuring pre-service teachers receive opportunities to</p>
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			<p>teacher preparation curriculum areas of course work, early field experiences, and student teaching. Also asked to provide a detailed description of undergraduate teacher training and current teaching setting. These were audio taped and transcribed.</p> <p>Q-sort: a set of 11 cards depicting a different source of teachers knowledge including a. coursework, b. early field experiences, c. student teaching, d. journals and magazines, e. professional conferences, f. in-service training, g. students, h. other teachers, i. teaching experience, j. films and videos, and i. other- After sorting cards teachers were asked to reconsider rankings to ensure they represented a</p>			<p>teach students with disabilities in regular field experiences and student teaching. Training with hands on experience is likely to increase pre-service teacher's perceptions of students with disabilities and improve their confidence.</p>
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				ranking from most to least important. Then asked to explain their rankings in another semi structured interview. Interest was placed on what participants felt they had learned from each of the knowledge sources and how info had been applied in actual practice. This was audio taped and later transcribed.			
Sang Soo Park, Younhwan Hoh, Martin Block 2014	Contributing Factors for Successful Inclusive Physical Education	Palaestra	To use an analytic hierarchy process (AHP) to systematically survey professionals (college professors, APE's and GPE's) to identify and prioritize factors believed to contribute to an effective inclusive physical education program.	Convenient sample of 24 participants served as the panel in the Delphi technique to find factors and subfactors of successful inclusive PE. 1 professor, 9 GPE teachers, and 14 APE teachers from states in the mid-Atlantic region of the U.S. Participants were former graduate students in an APE program at the University of Virginia. 11 males, 13 females.	Delphi technique- used to decide the factors for inclusive PE, and the AHP was employed to select priority among the decided factors. Delphi- used to determine critical factors necessary for successful inclusive PE and to selecting priority among the identified factors- widely used and accepted method for achieving convergence of opinion concerning real-world knowledge solicited from experts within	Higher level factors for successful inclusive physical education- a. additional in-service training, b. positive attitude, c. support, d. modification, e. peer tutoring- 5 subfactors of these factors- Training for practical skills about the inclusive PE process had the highest weighted grade (8.3%), Award had the lowest grade (0.7%)	Additional In-Service Training- In-service training is a popular model for providing state-of-the-art information to practicing teachers including physical educators. Slight increase in attitude shift of PE teachers toward including students with disabilities after a 2-day workshop Physical educators preferred informal learning communities (support from colleagues, self-selected networks, etc.) compared to the traditional 1 day workshop. 1 day workshop seen as an event to "get through." Physical educators valued opportunity to interact with other physical educators and discuss ideas and/or

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			<p>Average teaching experience was 14 years, 2.34 months. Average period of inclusive PE was 7.67 years, 2.17 months. 14 APE teachers are currently teaching inclusive physical education, and the other participants are not teaching inclusive physical education. 17 participants took courses about inclusive PE in college and grad school, 7 participants did not, 9 took in-service training about APE and inclusive PE, 15 have not taken the training after being hired by schools.</p>	<p>certain topic areas.</p> <p>First investigation conducted an open-ended questionnaire survey via email asking the panel to write 5 factors they felt contributed to successful inclusive PE</p> <p>Second investigation- conducted via survey monkey with an open ended questionnaire asking participants to list subfactors of each of the five higher level factors.</p> <p>AHP questionnaire- 24 participants returned the questionnaire. 8 professors in APE, 8 GPE teachers, and 8 APE teachers- after constructing higher level factors and subfactors that contribute to successful inclusive PE- researchers used pairwise comparison to verify</p>	<p>issues in their classrooms, regardless of structure or feelings of the professional development. For in-service training to be effective, it must include opportunities to interact with and discuss issues and solutions with colleagues</p> <p>Positive Attitudes- Early participation in inclusive physical education was viewed as the most important subfactor under positive attitudes followed closely by frequent interactions with disabilities.</p> <p>This means that if people without disabilities (potential future physical educators) have opportunity from childhood to live and participate in physical activity with people with disabilities, their prejudice against people with disabilities will disappear and can foster positive attitudes toward people with disabilities. noting that children without disabilities who are exposed to children with disabilities are more likely to develop positive attitudes toward these classmates.</p> <p>Higher frequency of interaction builds more positive attitudes toward people with disabilities and inclusive physical education Research shows that having</p>
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					importance and consistency	<p>positive interactions with as few as one person with a disability can positively influence attitudes.</p> <p>The third most important subfactor under positive attitude was prerequisite training. For successful inclusive physical education, the prerequisite training should target teachers, students with and without disabilities, and parents. Research shows general physical educators often do not feel prepared to teach children with disabilities who are included in their classes and this limited preparation negatively impacts attitudes toward inclusion. With regard to preparing children without disabilities, many have argued that preparing peers is a critical component for successful inclusion in physical education. Research supports disability awareness programs' positive effect on attitudes of children without disabilities.</p> <p>The fourth most important subfactor is related to heavy workloads of physical educators. Many APE specialists agree that the practical task of running a successful inclusive physical education program should consider not only physical education teachers' positive attitudes about</p>
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						<p>inclusive physical education but also improvement of prejudice and discriminatory stance However, even if teachers' general attitudes toward students with disabilities improve, it will be difficult to expect an effective inclusive physical education class if the teachers are burdened with heavy workloads. Workload should be set aside to allow for an atmosphere where instructors can focus their attention on conducting an effective inclusive physical education class.</p> <p>Support- The most important subfactor under support was reduction in class size. a large class size is an element that can disturb a meaningful interaction between students with disabilities and students without disabilities. Overcrowded class size also makes it difficult, if not impossible, for physical educators to individualize instruction and provide necessary accommodations for students with disabilities. Unfortunately, many physical educators do not have control over class size as principals must combine two and even three classes together into one physical education class of 50 to</p>
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						<p>100 students, which is not conducive to inclusion.</p> <p>Teacher assistants and peer tutors are necessary to make inclusion in large classes manageable.</p> <p>The second subfactor was collaborative teaching. It is not possible to run inclusive physical education without effective collaboration among instructors. To successfully accomplish inclusive physical education, schools must become communities that can organize problem-solving teams and design solutions to common problems. Furthermore, the members of the school community should share responsibility for all students and cooperate to support learning and development. Coteaching or shared teaching between an adapted and general physical educator seems to be an effective model for supporting general physical educators, but adapted physical educators may not be available in many school districts in the United States.</p> <p>The third important subfactor was the use of specialists and teaching assistants. Specialists include physical, occupational, and speech therapists and adapted</p>
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						<p>physical educators, and these and other specialists can provide direct and consultative support to physical educators, direct support of an APE specialist facilitated inclusion of three students with severe disabilities in general physical education, and as noted above, coteaching with an APE specialist can be effective. With regard to teaching assistants (paraprofessionals), many scholars have argued for trained paraprofessionals as an important support for the success of students with more severe disabilities in general physical education. In the only study on paraeducators in physical education, found a combination of a trained paraeducator and trained peer tutors improved participation of three students with multiple disabilities.</p> <p>Modification- The most important factor under modification for successful inclusive physical education was tailored programs for different levels and stages. This shows the importance of providing special consideration for students with disabilities. Related to this is providing instructional modifications in the form of providing physical cues (visual, auditory, touch), which was the</p>
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						<p>third most important factor under modifications.</p> <p>Importance of providing unique instructional methods tailored to students' individual needs. Providing unique instructional cues such as picture schedules and other visual supports is particularly important for children with autism.</p> <p>Regarding accommodating different ability levels, many texts discuss practical ways to differentiate the curriculum to accommodate children with disabilities in general physical education (e.g., Block, 2007; Kasser & Lytle, 2005; Lieberman & Houston-Wilson, 2009). Many general physical educators do not have the time or reasonable class size to develop and then implement these modifications. Even when implementing modifications, physical educators have to be careful not to "ruin" the experience for students without disabilities.</p> <p>Older students without disabilities (aged 10 to 12) did not like modifications made to a game of Newcomb volleyball (e.g., lower net, smaller court, using a balloon) used to accommodate students with physical disabilities.</p> <p>The second priority in modification was</p>
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						<p>assessments before class. Most physical education teachers find it difficult to create a program that can satisfy students with and without disabilities. These educators can minimize such problems if they first assess the students' types and degree of disability and then use the information to devise a program.</p> <p>Peer Tutoring- Students with disabilities that received peer tutoring have shown improvement in school achievement, sociality, communication, ability to think, and self-regard. Argued that peer tutoring is the best method among the instructional methods to facilitate inclusion.</p> <p>The most important subfactor under peer tutoring was training of tutors. Peer tutor training is integral when using peer tutors. This training should help students without disabilities comprehend types and stages of disability, specific teaching strategies, and how to facilitate social interactions. Research clearly shows the positive effects of using trained peer tutors in general physical education.</p> <p>In addition to training, those who completed the survey noted the importance of reinforcing</p>
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							<p>peer tutors (third most important subfactor under peer tutoring). It is important to praise peer tutors, value their assistance with students with disabilities, and generally make peer tutors feel good about serving as a peer tutor.</p> <p>Finally, rotating peer tutors was the fourth subfactor in peer tutoring. Rotating peer tutors prevents tutors from becoming burnt out, prevents tutors from missing out on their own physical education experience, and provides students with disabilities with more peers with whom they can interact during physical education.</p>
<p>Andrea R. Taliaferro, Lindsay Hammond, Kristi Wyant 2015</p>	<p>Preservice Physical Educators' Self-Efficacy Beliefs Toward Inclusion: The Impact of Coursework and Practicum</p>	<p>Adapted Physical Activity Quarterly</p>	<p>To investigate the effect of completion of an adapted physical education (APE) course with an associated on-campus practicum on pre-service physical educators' self-efficacy beliefs toward the inclusion of individuals with specific disabilities (autism, intellectual disabilities, physical</p>	<p>98 participants (75 males, 23 females) volunteer undergraduate PETE majors at a large Midwestern university. All participants enrolled in 1 of 2 15 week APE courses with during-class practicum. Data collected over the course of 3 successive academic semesters.</p> <p>Procedure: Participants surveyed 3</p>	<p>Descriptive statistics (means, standard deviations, frequency counts) were used to characterize participants. 4 separate two-factor fixed-effect split plot analyses of variance (ANOVAs) were conducted to determine effects of an APE course with practicum on participant's self-efficacy beliefs toward inclusion across three time</p>	<p>Participants in the study ranged from 18-36 years old. 1-6 years spent in college. 50 participants had not completed any credits in APE or special ed. courses at the beginning of the study. 32 participants indicated they had previous experiences teaching individuals with disabilities outside of a practicum setting. 32 participants had a family member with a disability, 37 had a friend with a disability, 5 said</p>	<p>A combination of APE coursework and practicum experience is an effective means to influence preservice physical educators' beliefs toward inclusion. Self-efficacy beliefs of preservice teachers in the study significantly increased across the semester in regard to all disability types. It can be concluded that coursework combined with a practicum targeting the sources of self-efficacy can have a significant impact on beliefs toward inclusion. Results indicated no significant difference in self-efficacy scores between students who</p>

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			<p>disabilities, and visual impairments)</p>	<p>times, during week 1 of course (before start of practicum), week 8 of course (halfway through practicum), week 15 of course (conclusion of practicum and course)</p>	<p>periods for each of the disability categories. Data provided from open-ended-question responses were reviewed and categorized by the researchers based on the source of self-efficacy described and incorporated to support and help interpret the statistical results.</p>	<p>they have one themselves</p> <p>No statistically significant differences in self-efficacy beliefs toward the inclusion of students with autism between course 1 & 2. Was a significant difference in self-efficacy beliefs across time indicating a large effect size. Interaction between course and time was found to be statistically significant, indicating a small effect size. Follow up tests of simple effects revealed significant differences at week 1 between course 1 and course 2.</p>	<p>had prior APE coursework and experience and those who did not, with the exception of a significant difference between the two groups toward autism in time 1.</p> <p>Necessary for PETE programs to deliver additional opportunities and experiences for preservice teachers in the area of APE in order to form resilient beliefs. The dissemination of knowledge and experiences need to be woven throughout the programmatic content to preserve the competencies of preservice teachers toward working individuals with disabilities. APE content should be conveyed through relevant crossover topics to retain acquired knowledge and signify the reality and importance of inclusion.</p>
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