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## Exploring Future Research in Adapted Physical Education

Martin E. Block <sup>a</sup>, Justin Haegele <sup>b</sup>, Luke Kelly<sup>a</sup>, and Iva Obrusnikova <sup>c</sup>

<sup>a</sup>University of Virginia; <sup>b</sup>Old Dominion University; <sup>c</sup>University of Delaware

### ABSTRACT

Quality physical education can play a critical role in helping students become more active, physically literate, and develop the skills and interests to remain physically active throughout their lives. The healthy, physically active student is more likely to be academically motivated, alert, and successful in school. Unfortunately, findings from multiple studies interviewing students with disabilities suggest that students with disabilities are often less active and feel more socially separated from the class compared to their classmates without disabilities in general physical education. Clearly, more research is needed to identify best practices or strategies for creating a positive learning environment in physical education for all students. This paper examines future research considerations based on what we currently know about the physical education experiences and concerns of students with disabilities as well as concerns voiced by general physical educators. Considerations include:

- (1) What evidence do we have and what evidence do we need to show students with 3 disabilities are receiving appropriate physical education whether included or in a separate setting?
- (2) What evidence do we have and what evidence do we need to show that physical educators are properly trained and qualified to provide physical education to students with disabilities?
- (3) What evidence do we have and what evidence do we need to show that particular curricular and teaching models are effective when including students with disabilities in general physical education and when working in small groups or one-on-one?
- (4) What evidence do we have and what evidence do we need to show that students with disabilities are socially part of the class and not simply physically present.

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Adapted physical education;  
disability; inclusion; research

### Introduction

In March 2015, SHAPE America launched its 50 Million Strong campaign calling for all students (preK-12) to lead an active and healthy lifestyle by 2029. Included in this campaign are specific requirements for physical education (PE) including, “Every student is required to take daily PE in grades K-12, with instruction periods totaling 150 minutes/week in elementary and 225 minutes/week in middle and high school” (Society of Health and Physical Educators America [SHAPE America], 2015). The use of the terms “all” and “every” suggests an all-encompassing policy that includes students with disabilities. Unfortunately, there is no information in the 50 Million Strong campaign that provides suggestions or best practices for including and accommodating students with disabilities in general PE (GPE). Furthermore, there is a growing body of evidence suggesting that (a) experiences of students with disabilities in GPE are not always

positive, and (b) many general physical educators do not feel prepared or confident in their ability to successfully and meaningfully include students with disabilities in their classes (see Tant & Watelain, 2016; Wilhelmsen & Sorensen, 2017; for recent reviews).

The benefits of regular physical activity including participation in PE are well known (U.S. Department of Health and Human Services, 2018), and these benefits are just as important for students with disabilities as they are for students without disabilities (Johnson, 2009; Rimmer & Marques, 2012). Yet children with disabilities are less active than their peers without disabilities (McCoy et al., 2016; Robertson et al., 2018), and as noted earlier, students with disabilities report they are less active in GPE compared to their peers. Clearly, more research is needed to understand how to identify best practices for creating a positive learning environment for all students including those with disabilities. This paper will examine future

**CONTACT** Martin E. Block  [meb7u@virginia.edu](mailto:meb7u@virginia.edu) 

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research considerations based on what we currently know about the PE experiences and concerns of students with disabilities, students without disabilities, and general physical educators.

As a guiding framework we pose the following scenario. PE has been a part of the definition of special education in the Individuals with Disabilities Education Act (IDEA) since its inception in 1975. IDEA is overdue for reauthorization. What would happen if the Secretary of Education questioned the relevance of having PE in IDEA? What evidence can be presented to convince the Secretary of the importance, effectiveness and necessity of PE for students with disabilities? This overarching question is then divided into the following key research areas that can guide future research and the creation of evidenced-based teaching practices (Table 1 includes a summary of all proposed questions):

- (1) What evidence do we have and what evidence do we need to show that students with disabilities are receiving appropriate PE? What evidence do we have and what evidence do we need to show that students with disabilities are learning and achieving their physical and motor goals? Interview data suggest that some students with disabilities still do not feel accommodated, perceive themselves to be less competent compared to their peers, or feel excluded from activities both physically and socially. To our knowledge, no evidence exists to determine whether students with disabilities have appropriate PE goals on their IEP and if they do, how those students are progressing toward attaining them. What new research is needed to guide physical educators in making the experiences of all students involved in GPE classes more successful in attaining their PE goals?
- (2) What evidence do we have and what evidence do we need to show that physical educators are properly trained and qualified to provide PE to students with disabilities? Interviews and surveys suggest many physical educators do not feel they have the training and experiences and as a result do not feel confident in their ability to teach students with disabilities in GPE. What new research is needed at the pre-service and in-service level to help physical educators and adapted physical educators better serve students with disabilities?
- (3) What evidence do we have and what evidence do we need to show that particular curricular

and teaching models are effective in helping students with disabilities attain their IEP goals in GPE and when working in small groups or one-on-one? Other than peer tutoring there has been virtually no data-driven, evidenced-based practices on techniques and teaching methods. What new studies should be developed to guide future research in the development of evidenced-based practices?

- (4) What evidence do we have and what evidence do we need to show that students with disabilities are socially part of the class and not simply physically present? Many “inclusionists” have specifically promoted social benefits as a rationale for including students with disabilities in GPE. Yet, there is a notable absence of papers that actually measure social inclusion and the related development of social skills when including students with disabilities in GPE. What new research is needed to begin to determine if social benefits are actually happening when students with disabilities are included in GPE?

### Examining the perspectives of students with disabilities

Examining if students with disabilities are receiving appropriate PE experiences, and whether or not these services are viewed as beneficial, is an enterprise critical to advancing adapted PE (APE) research. Of important note is a shift over the past 30 years from students with disabilities receiving APE in a segregated setting to placement within GPE with their peers without disabilities (Obrusnikova & Block, 2020). This shift supports a research focus on GPE settings and exploring benefits and problematizing concerns regarding the appropriateness and meaningfulness of the education of students with disabilities in these contexts.

Traditionally, research focusing on the appropriateness of experiences in PE has tended to focus on the opinions of stakeholders, such as parents (e.g. Columna et al., 2014), peers (e.g. McKay et al., 2015) and teachers (e.g. Hersman & Hodge, 2010). These lines of inquiry provide largely favorable views toward teaching students with disabilities in GPE settings (Qi & Ha, 2012; Tant & Watelain, 2016; Wilhelmsen & Sorensen, 2017). However, a different picture is beginning to emerge when considering the perspectives of those with disabilities about their PE experiences themselves (Coates & Vickerman, 2008; Haegele & Sutherland, 2015). According to Goodwin and Watkinson (2000), research

**Table 1.** Summary of research questions in adapted physical education.

Experience of Students with Disabilities
<b>Experiences of Students with Disabilities</b>
<ol style="list-style-type: none"> <li>(1) <i>What can be done to further understand what makes physical education meaningful, beneficial, and appropriate for students with disabilities?</i></li> <li>(2) <i>How can students with disabilities be educated in integrated physical education classes in a way that contributes to the SHAPE America 50 Million Strong by 2029 initiative?</i></li> <li>(3) <i>What changes can be made to integrated physical education to ensure that positive educational experiences are enhanced, and negative experiences are reduced?</i></li> </ol>
<b>Understanding Placement Decisions</b>
<ol style="list-style-type: none"> <li>(1) <i>How are placement decisions being made in schools?</i></li> <li>(2) <i>What factors are being considered when the Least Restrictive Environment (LRE) mandate of IDEA (2004) is being implemented in schools?</i></li> <li>(3) <i>How are administrators and educators determining if placements are LREs?</i></li> <li>(4) <i>What salient features emerge in settings where individuals with disabilities view as providing meaningful and appropriate experiences in integrated physical education settings? How can these salient features be leveraged to inform future practice in the field?</i></li> <li>(5) <i>How do the viewpoints of students with disabilities and physical education teachers converge or diverge when considering salient features of the physical education context?</i></li> </ol>
Physical Education/Adapted Physical Education Training
<b>Factors Associated with General Physical Education</b>
<ol style="list-style-type: none"> <li>(1) <i>What are the challenges faced by general and adapted physical educators in creating and implementing appropriate individualized education program for students with disabilities?</i></li> <li>(2) <i>What factors related to the focus of the GPE program (skill focus, game focus, physical activity focus, etc.) are associated with the success of students with disabilities in general physical education?</i></li> <li>(3) <i>Does having a clear curricular scope and sequence in GPE facilitate successful experiences of students with disabilities in GPE?</i></li> <li>(4) <i>Is the number of students in a GPE class (single class of 20 students v. double or triple class with 40–60 students) associated with the success of students with disabilities in general physical education?</i></li> <li>(5) <i>Are instructional models such as differentiated instruction and universal design associated with the success of students with disabilities in general physical education?</i></li> <li>(6) <i>Are curricular, environmental and personnel factors different at the elementary v. secondary school levels and if so, how are they different?</i></li> </ol>
<b>Training General Physical Educators</b>
<ol style="list-style-type: none"> <li>(1) <i>What is missing from pre-professional training programs?</i></li> <li>(2) <i>What is the most critical content that should be included in the one APE class to better prepare physical educators for inclusion?</i></li> <li>(3) <i>How does the content in the typical introductory APE course align with the first three levels of the APENS 15 standards?</i></li> <li>(4) <i>How should the content be presented (lecture, case studies, etc.)?</i></li> <li>(5) <i>What practical experiences should be included in the one practical experience to better prepare physical educators for inclusion?</i></li> <li>(6) <i>Would the implementation of additional coursework in APE improve the attitudes, beliefs, and competence of GPE teachers in educating students with disabilities in GPE classes?</i></li> <li>(7) <i>What would be included in a second course or second practical experience to strengthen an undergraduate preparation program?</i></li> </ol>
<b>Training Adapted Physical Educators</b>
<ol style="list-style-type: none"> <li>(1) <i>How and to what degree are the APENS standards being addressed in APE Master's programs?</i></li> <li>(2) <i>How best can the content and competences required to prepare APE teachers be organized into a series of courses and practicum experiences?</i></li> <li>(3) <i>What practicum experiences, what level of supervision is provided, and what related experiences (writing IEPs, assessing students with disabilities, planning and implementing lessons, etc.) should be required in all programs?</i></li> </ol>
Curricular Models
<b>Sport Education Model/Cooperative Learning</b>
<ol style="list-style-type: none"> <li>(1) <i>What SE roles do physical educators assign to students with disabilities?</i></li> <li>(2) <i>How do the students perceive their responsibilities when assigned the different roles?</i></li> <li>(3) <i>How does having a student with functional limitations on a team affect the team's dynamics and learning of motor skills and higher-order content learning of game play (Wallhead &amp; O'sullivan, 2005, Wallhead &amp; O'Sullivan, 2007)?</i></li> <li>(4) <i>How do students without disabilities perceive their peers with disabilities being assigned certain roles?</i></li> <li>(5) <i>Do students with disabilities feel a greater sense of participation and belonging in SE programs compared to traditional PE programs?</i></li> <li>(6) <i>What do physical educators know about SE or cooperative learning, and why are they or why are they not doing SE or cooperative learning in their program?</i></li> <li>(7) <i>How do students with and without disabilities perceive SE and cooperative learning as compared to traditional competitive models in physical education with specific emphasis on enjoyment in physical education and feelings of acceptance?</i></li> </ol>
<b>Universal Design for Learning</b>
<ol style="list-style-type: none"> <li>(1) <i>What do physical educators know about universal design for learning, and why are they or why are they not using UDL in their programs?</i></li> <li>(2) <i>How do students with and without disabilities view UDL in physical education in terms of creating an environment that meet the needs of all?</i></li> </ol>
<b>General Questions Regarding Curricular Models</b>
<ol style="list-style-type: none"> <li>(1) <i>Do unique curricular models such as Sports Education and Cooperative Learning facilitate social and academic learning of students with disabilities in general physical education?</i></li> <li>(2) <i>Do unique curricular models such as Sports Education and Cooperative Learning accommodate the unique functional abilities of students with disabilities allowing for great engagement, attainment of PE goals, and maintaining a high level of physical activity in general physical education?</i></li> <li>(3) <i>Are there unique aspects within each of these models that are particularly important for facilitating social and academic learning?</i></li> <li>(4) <i>Are there other factors such as the use of peer tutoring that make these models work?</i></li> <li>(5) <i>How do physical educators perceive these models in terms of ease of implementation and effectiveness?</i></li> </ol>

(Continued)

**Table 1.** (Continued).

Social Inclusion
<b>Social Benefits of Inclusion</b>
(1) <i>Are students with and without disabilities interacting during general physical education classes?</i> (2) <i>What types of social interactions are occurring between students with and without disabilities during general physical education classes?</i> (3) <i>How are social interactions influencing positive behavioral changes for students with disabilities during physical education?</i> (4) <i>What programs can be implemented to increase positive social interactions between students with and without disabilities in general physical education?</i>
<b>Peer Education/Disability Awareness Programs</b>
(1) <i>Are there specific components that are particularly effective such as the interactions between Paralympians and participants?</i> (2) <i>What types of interactions are most effective (e.g. general discussion with Paralympian, learning about the Paralympians story and experiences competing, playing the sport with the Paralympians, having the Paralympian teach the sport)?</i> (3) <i>Are there specific activities/discussions that promote better understanding and acceptance of those with disabilities?</i> (4) <i>Are there specific activities/discussions that change attitudes and confidence toward including students with disabilities into general physical education classes?</i> (5) <i>How do Paralympians involved with the PSD program feel about their role in the program?</i>
<b>Peer Tutoring</b>
(1) <i>How do different curricular models affect learning outcomes and feelings of belonging of students with different functional limitations when being assisted by peer tutors?</i>

in PE *with* students with disabilities, rather than about them, can help deepen our understanding of experiences among persons with disabilities, as well as identify needs for supports. Further, the meaning ascribed to experiences, as well as salient features that contribute to those feelings, can be uncovered (Coates, 2011; Spencer-Cavaliere & Watkinson, 2010). Therefore, it is logical to suggest research examining experiences from the perspectives of individuals with disabilities themselves has inherent value in understanding whether those with disabilities are receiving appropriate PE services, and whether or not these services are viewed as beneficial.

Coates and Vickerman (2008), and, more recently, Haegele and Sutherland (2015) reviewed published research examining the views of students with disabilities toward PE. Positive experiences were attributed to choice-making, meaningful interactions with peers, and the use of rule and equipment/modifications (Coates & Vickerman, 2008; Obrusnikova & Block, 2020). However, while positive experiences were noted, negative experiences were more commonly described (Coates & Vickerman, 2008; Haegele, 2019; Haegele & Sutherland, 2015). Negative experiences appear to be informed by perceptions of those with disabilities as having nonconforming, undesirable, or flawed bodies, those that do not achieve the kind of makeup typically desired in PE contexts (Fitzgerald, 2005), which can influence instances of bullying, social isolation, and other forms of discrimination (Coates & Vickerman, 2008; Healy et al., 2013; Haegele & Kirk, 2018). Importantly, students with disabilities who experience these types of negative experiences may be less like to engage in PE classes as well as lifelong physical activity (Haegele & Sutherland, 2015). Thus, overarching research questions of interest are as follows:

- (1) *What research do we need to further understand what can make GPE more consistently meaningful, beneficial, and appropriate for students with disabilities?*

The following two subsections provide selected examples of research foci that may help answer questions related to further understanding students' experiences, as well as improving upon those experiences.

### **Understanding placement decisions and examining exemplars**

Over the past 30 years, scholars have vacillated between promoting of the benefits of teaching students with disabilities in GPE (e.g. Block, 1994; Block & Krebs, 1992) to questioning the appropriateness of such GPE placements (e.g. Haegele, 2019; Lavay & DaPaepe, 1987; Wilson et al., 2019). For example, Block (1994) and Block, Klavina, McKay et al. (2016) highlighted the social benefits of educating students with disabilities in the same GPE environment as peers without disabilities (more about "social inclusion" is discussed later in this paper). Others focused on problems with implementation with some going as far as referring to GPE as a "dumping ground" where those with disabilities endure GPE classes with their peers in which content and lesson instruction remains unchanged with little or no accommodations or support (Haegele, 2019; Lavay & DaPaepe, 1987). One thing that is rarely discussed in APE is how placement decisions are made, and how these decisions influence the subjective experiences of students with disabilities? According to Wilson et al. (2019), "concerns about the status of placement decisions in PE for students with



disabilities warrant conversation among scholars” (p. 2). Important research questions are:

- (2) *How are placement decisions being made in schools?*
- (3) *What factors are being considered when the Least Restrictive Environment (LRE) mandate of IDEA (2004) is being implemented in schools?*
- (4) *How are administrators and educators determining if placements are LREs?*

While negative experiences are a concern that needs to be examined in greater detail, it is unreasonable to “throw the baby out with the bathwater” by dismissing GPE contexts as a potentially meaningful educational forum (Haegele, 2019). To support the placement and education of youth with disabilities in integrated contexts, future research must seek to examine exemplar programs, and analyze salient features of these programs that can be empirically tested and disseminated to practitioners. While an array of research methodologies may be utilized to determine what makes a program exemplar (e.g. PE teacher surveys, observations), it is important that researchers keep central the perspectives of students with disabilities themselves, that is, conducting research *with* students with disabilities rather than about them (Spencer-Cavaliere & Watkinson, 2010), when declaring programs as meaningful and effective. This way, salient features that elicit positive experiences toward PE that are associated with these exemplar programs can be uncovered and disseminated while training future educators. Thus, important research questions are:

- (1) *What evidence shows that individuals with disabilities are making meaningful progress on physical and motor objectives need to develop and maintain a healthy lifestyle?*
- (2) *How can these salient features be leveraged to inform future practice in the field?*

### **Converging or diverging viewpoints**

There has been a clear line of research examining attitudes of PE teachers toward teaching students with disabilities, and there is another line of research examining the experiences of students with disabilities in GPE. However, Haegele and Sutherland (2015) argued that research has not taken into consideration the perspectives of PE teachers and students with disabilities in the *same context*. Exploring how those with disabilities and their teachers understand the same environment

can provide important insight into (a) whether positive attitudes or dispositions toward teaching students with disabilities inform practices viewed as appropriate and meaningful to students, (b) whether there is alignment between what both parties view as high quality, appropriate, and beneficial PE, and (c) how both teachers and students with disabilities view salient features of PE classes, including instructional strategies and social interactions among peers. As such, an important research question is: *How do the viewpoints of students with disabilities and PE teachers converge or diverge when considering salient features of the PE context?*

### **Physical educators/adapted physical educators**

We currently have no systematic way of knowing what students with disabilities are being taught, who is teaching them, how much instruction they are receiving, or any other details about how PE instruction is being delivered. When the Education for All Handicapped Children Act (1975) was passed in 1975, it stipulated that students with disabilities were required to receive appropriate PE, delivered by qualified teachers, and that their PE instruction should be implemented in the least restrictive environment (LRE). The law assumed these parameters were already in place or professional organizations, State Departments of Education, and public schools would define these parameters. With the exception of APE teacher qualifications, these issues have not been addressed by the profession at a national level. Additionally, some preliminary research shows that APE specialists face some barriers when it comes to participation in the IEP process (Samalot & Lieberman, 2017). Therefore, one of the primary research areas that has been long overdue to be addressed by the profession is as follows: *What are the challenges faced by general and adapted physical educators in creating and implementing appropriate individualized education program for students with disabilities?*

### **Relationship between adapted and GPE programs**

An additional challenge when determining if students with disabilities are receiving appropriate PE is the interdependency of APE on the GPE curriculum when addressing the PE needs of students with disabilities (Horvat et al., 2018; Kelly et al., 2010; Kelly, 2011; Lirgg et al., 2017). According to the United States Department of Education (2018), most students with disabilities spend their days in general education classes, and it is likely that many of these students also attend GPE. As a result, APE and GPE researchers and professionals should address issues associated with the GPE curriculum collaboratively.

The success for students with disabilities in GPE is likely a function of multiple factors, such as the scope and sequence of the GPE curriculum, the amount of time allocated for GPE instruction, class sizes, the range of student abilities in GPE classes, the GPE teacher's focus on instruction versus playing games, and the GPE teacher's ability to and interest in employing differentiated instruction. But the importance of these GPE curricular, environmental and personnel factors as they relate to the success of students with disabilities in GPE are only conjecture. Lieberman et al. (2017) have created an inclusion scale for PE that could be used to examine some of these factors. Nevertheless, there is no empirical data carefully examining these factors as they relate to the positive and successful experiences of students with disabilities. This is difficult research that requires a careful research design replicated across multiple schools and across multiple states. Some of these factors may prove not to be important or perhaps important at the secondary level but not the elementary level. Some of these factors may prove to be important only when they occur with another factor. Thus, creating this research protocol can be complicated. Regardless, this is important information that needs to be studied if we want to guide GPE teachers in how to best organize the curriculum, environment and teaching style that facilitates success of students in GPE. Currently, the extant research in APE has little to offer GPE teachers. Therefore, the following series of research questions should be studied to better prepare GPE teachers to work with students with disabilities.

- (1) *What factors related to the focus of the GPE program (skill focus, game focus, physical activity focus, etc.) are associated with the success of students with disabilities in GPE?*
- (2) *Does having a clear curricular scope and sequence in GPE facilitate successful experiences of students with disabilities in GPE?*
- (3) *Is the number of students in a GPE class (single class of 20 students v. double or triple class with 40–60 students) associated with the success of students with disabilities in GPE?*
- (4) *Are curricular, environmental and personnel factors different at the elementary v. secondary school levels and if so, how are they different?*

### **Training general physical educators**

Another shared area between APE and GPE researchers and professionals is the amount and quality of APE preparation and training GPE teachers receive to teach students with disabilities in their classes. In a recent meta-

analysis, Pocock and Miyahara (2018) suggested that GPE teachers generally felt that inclusion was ethically the right thing to do, and they further noted that GPE teachers believed that knowing how to effectively include students with disabilities in PE is critical for social and physical/motor achievement. However, Pocock and Miyahara also pointed out that lack of knowledge and experiences during teacher training present barriers to PE teachers. Research shows that a critical factor in GPE teachers' perceived competence and confidence when including students with disabilities is having strong academic preparation (Obrusnikova, 2008; Ozer et al., 2013). Quality professional training, positive clinical experiences, and adequate support and teaching conditions are critical in facilitating a teacher's sense of competence and teaching efficacy (Hersman & Hodge, 2010; Sato & Hodge, 2009). Unfortunately, studies suggest GPE teachers do not feel their professional preparation and clinical experiences are adequate to prepare them for teaching PE to students with disabilities in inclusive settings (Hersman & Hodge, 2010; Sato et al., 2007). As such, an important overarching question that must be answered in the APE literature is, *what is missing from pre-professional training programs?*

In the US, most PE teacher education (PETE) programs require one introductory APE class. This was confirmed by Piletic and Davis (2010), and Kwon (2018) who surveyed professors from across the U.S. to find out what content and experiences were included in this one introductory APE course. Both studies found, not surprisingly, that information about disabilities was viewed as the most important topic followed by instructional strategies. Modifications to GPE activities, behavior management, assessment, and IEP development were ranked lower. Is learning about etiology and characteristics of disabilities the best way to prepare general physical educators for teaching students with disabilities?

Based on this preliminary work and perceptions of lack of preparation by practicing physical educators, the following questions need to be answered:

- (1) *What is the most critical content that should be included in the one APE class to better prepare physical educators for inclusion?*
- (2) *How should the content be presented (e.g. lecture, case studies)?*
- (3) *What practical experiences should be included in the one practical experience to better prepare physical educators for teaching students with disabilities?*
- (4) *What would be included in a second course or second practical experience to strengthen an undergraduate preparation program?*

### Preparation of APE specialists

The issues described therein need to be viewed as shared, profession-wide issues, rather than distinctly APE or GPE issues. An additional research challenge for the profession is examining the training needed to prepare APE specialists to serve students with disabilities. The Adapted Physical Education National Standards (APENS) (Kelly, 2019, 1995) presents competencies needed by APE specialists. Unfortunately, little research has been conducted on the utility of these standards, including understanding whether meeting these standards better prepares educators. Another area for research is creating and examining a national training curriculum based on these standards, such as those found in other professions (e.g. physical/occupational therapy, athletic training). Unfortunately, the standards have not been used to create a national APE training curriculum and practicum requirements as seen in other professional training areas such as physical/occupational therapy and athletic training (Nichols & Block, *under review*).

A further issue may be our limited understanding of how training occurs in the U.S. A recent study by Nichols et al. (2019) surveyed and analyzed all 40 Masters Programs in APE in the US. Results showed that required APE coursework varied widely ranging from 2 to 9 courses. The only required course offered across all programs was the Introduction to APE course. An assessment course was required in three fourths of the programs, while a disability sport course was offered in slightly more than half of the programs. No other course was consistent offered across the majority of programs. Practicum experiences in these programs also varied considerably from 2–10 hours a week. In addition, the nature of the practicum setting ranged from a once-a-week, campus-based swim and gym program to actually teaching a regular schedule of APE classes in local schools. These findings highlight the critical need for establishing accrediting criteria for APE Master's training programs in APE to ensure that they are all adequately addressing the APENS standards and producing competent APE teachers. This process should include addressing the following questions:

- (1) *How and to what degree are the APENS standards being addressed in APE Master's programs?*
- (2) *How best can the content and competences required to prepare APE teachers be organized into a series of courses and practicum experiences?*
- (3) *What practicum experiences, what level of supervision is provided, and what related*

*experiences (writing IEPs, assessing students with disabilities, planning and implementing lessons, etc.) should be required in all programs?*

- (4) *The education and credentials required of the faculty that teach the required APE courses in the program.*

### Evidence for particular curricular and teaching models

The PE curriculum is an overall plan for the total PE program, which is intended to guide teachers in conducting educational activities for a specific group of students (Jewett et al., 1995). Several curricular models for PE (e.g. cooperative learning, sport education) have been developed, tested, and refined in a variety of school settings. However, research on these curricular models has largely been conducted with students without disabilities in mind. Thus, an overarching research question is as follows; *Are generally accepted curricular models for PE appropriate and effective for students with disabilities?*

While there are many models available, we have decided to focus on the Sport Education Model and Cooperative Learning as they relate to students with disabilities. Universal Design for Learning also will be examined as promising and much promoted practice that needs to be researched. Following are summaries of these models, the limited research that supports these models for those with disabilities, and proposed questions.

#### Sport education model

Sport Education (SE) has received some attention in the APE literature (Grenier et al., 2014; Hastie et al., 2011; Pressé et al., 2011; Wallhead & O'sullivan, 2005). According to Siedentop (1994). The goal of the SE model is 'to educate students to be players in the fullest sense and to help them develop as competent, literate and enthusiastic sportspersons' (p. 40). A key feature of SE's subject matter and a non-negotiable feature is that students experience a number of roles in addition to player, such as umpire, coach, journalist, timekeeper, equipment officer, and so on (Kirk, 2013). Much of the evidence from research on SE over the past two decades points to the success of the curriculum in PE for those without disabilities (Wallhead & O'sullivan, 2005). In addition to learning sport skills and tactical knowledge, the model was found to foster personal and social skills, including student responsibility, cooperation and peer support (Hastie et al., 2011). For example, Pill (2008)



reported that if well planned and taught, the SE model has the potential to promote a more inclusive and supportive climate where helping less skilled and less confident students helps the whole team achieve. The teachers in Pill (2008) reported that students who were viewed as more socially isolated in PE were more engaged and their contributions more valued during the SE unit as a consequence of the team affiliation and role responsibilities required during the SE season. Further, students in the study of Kinchin et al. (2001) also reported high levels of team engagement, with over half citing the team as a factor in helping to improve performance. The SE use of multiple roles, as well as emphasis on team membership and team bonding, seems to be a perfect model when thinking of students with disabilities (Pressé et al., 2011). Unfortunately, with the exception of Tindall et al. (2016), SE has not been studied with relation to success of students with disabilities within the program. Therefore, important research questions are as follows:

- (1) *What SE roles do physical educators assign to students with disabilities?*
- (2) *How do the students perceive their responsibilities when assigned the different roles?*
- (3) *How do students without disabilities perceive their peers with disabilities being assigned certain roles?*
- (4) *Do students with disabilities feel a greater sense of participation and belonging in SE programs compared to traditional PE programs?*

### **Cooperative learning**

Another model that has been promoted for inclusive PE (Block, Klavina, Davis et al., 2016) is Cooperative Learning (CL) (Johnson & Johnson, 1991, 1989). CL is an instructional model in which students work together in small, structured, heterogeneous groups to complete group tasks, and in which group members help each other learn while achieving group goals (Dyson, 2002). Within the model, social learning is not just about the ability to cooperate with one another, work together as a team to learn, or develop good social relations; it is also about showing care, concern, empathy, respect for each other, and supporting and encouraging one another to learn (Casey & Goodyear, 2015). To date, a limited number of studies have examined CL when students with disabilities were part of the group. For example, André et al. (2011), compared CL to traditional individual work with middle school students in France during

a gymnastics unit. Results showed that acceptance was significantly higher in the CL compared to individual classes. The researchers noted positive interdependence as results of each gymnastic lesson shared by all group members (i.e. the team scores were based on the addition of each team member's score) was a strong contributor to behaviors of students without disabilities such as helping and coaching teammates and acceptance of everyone's ability.

In another study, Grenier (2006) examined CL within a third grade PE class containing a child with severe cerebral palsy and a visual impairment from a social constructionist perspective. The PE teacher emphasized the importance of meaningful and reciprocal relationships among all students and that it takes time to develop those relationships and see social and affective outcomes. The teacher's implementation of CL pushed her students to be accountable for their behavior. Through their interactions with each other, all students, with or without disabilities, negotiated their lives in ways that afforded learning experiences with their peers (Grenier, 2006). It is important to note that teachers in Grenier found it difficult to implement principles of CL during activities that were less amenable to adaptations (e.g. jump roping). This was consistent with themes elicited from students without a disability in a survey by Obrusnikova et al. (2010). These students believed that a student's lack of physical ability to perform the skills necessary to participate in GPE activities would make it difficult to cooperatively play with her/him in PE classes. While cooperative learning seems to be an appropriate model when students with disabilities are part of GPE, more research is needed including:

- (1) *What do physical educators know about cooperative learning, and why are they or why are they not utilizing cooperative learning in their program?*
- (2) *How do students with and without disabilities perceive cooperative learning as compared to traditional competitive learning environments with specific emphasis on enjoyment in PE and feelings of acceptance?*

### **Universal design for learning**

While not necessarily a curricular model, Universal Design for Learning (UDL) has recently gained attention in adapted PE circles (Brian et al., 2017; Lieberman, 2017; Van Munster et al., 2019). As a response to standards-based reform in education, public schools were charged to make the general

curriculum fully accessible to all students including those with disabilities and to utilize evidence-based practices that help those students attain their educational goals (Nolet & McLaughlin, 2005). In the same way universally designed buildings and technologies benefit “mainstream” users, the UDL helps educators create curricula that meet the needs of all learners from the start, rather than retrofitting course content after learning challenges have been identified (Center for Applied Special Technology, 2011). Applied to PE, UDL implies an approach to using and arranging instructional materials and activities that are not adapted to address the unique needs of the students with a disability, which would be a common practice in differentiated instruction (Willis & Mann, 2000), but rather generally for a wide range of learners regardless of their level of ability to allow them to attain their learning goals (Brian et al., 2017; Kennedy & Yun, 2019). In a recent case study, Van Munster et al. (2019) showed that aspects of UDL were present in an elementary PE classes that included students with disabilities, but the study did not highlight how these UDL’s were planned or challenges faced by physical educators in implementing UDL. Thus, while UDL does make sense in terms of making the setting and program accessible and appropriate for all students without necessarily singling out the student with a disability, research is needed to answer the following questions:

- (1) *What do physical educators know about universal design for learning, and what are the reasons for using or not using UDL in their programs?*
- (2) *What is being taught in professional preparation undergraduate and graduate courses related to infusing UDL into the curriculum?*
- (3) *How do students with and without disabilities view UDL in PE in terms of creating an environment that meets the needs of all?*

## Evidence regarding social benefits of inclusion

### Social benefits of inclusion

One of the strongest arguments for placing students with disabilities into GPE is the opportunity for social acceptance and interactions between students with and without disabilities (Block, 1994; Sherrill, 2003). Falvey and Rosenberg (1995), Klavina and Block (2008), and Stainback et al. (1989), just to name a few, suggested that educating students with disabilities within the general education setting (including GPE) can promote such social factors as learning how to interact with

peers, playing cooperatively, taking turns, dealing with anger, following directions and attending to and listening to peers. They further argued that educating students with disabilities within the general education setting allows peers without disabilities to learn to be sensitive to, respectful of, and comfortable with differences and similarities with peers with disabilities. Finally, through appropriate interactions and contact, they believed there would be an opportunity for true acceptance, appreciation, and friendships between peers with and without disabilities. Some have even suggested that social competence and other social goals should be a part some children’s IEPs for PE (Sherrill, 2003).

Unfortunately, to our knowledge, there is no evidence that validates these social benefits of including students with disabilities in GPE. Perhaps the closest study that examined the positive effects of inclusion was conducted by Seymour et al. (2009), in which researchers interviewed eight children with and without physical disabilities about their friendships in PE. Again, while not direct observation, the authors did ask specific questions about one of the hallmark benefits of inclusion—true friendships (Falvey & Rosenberg, 1995; Stainback et al., 1989). Results did find that both students with and without disabilities talked about friendships and even “best friends” in PE, making the case for the positive effects of inclusion in a PE setting. Still, what is needed is more direct observations of interactions between students with and without disabilities similar to studies by Place and Hodge (2001) and Klavina and Block (2008). However, even these studies did not explore specific types of interactions or the contextual factors; rather, they only examined the increase in overall interactions of students with disabilities toward peers without disabilities (Klavina & Block, 2008; Place & Hodge, 2001). Of additional note, these behavioral analyses are over a decade old, and may not reflect current practices or experiences in PE classes.

Observational analyses that examine positive changes in behaviors of the student with a disability, such as turn taking, self-control and controlling one’s behaviors, staying with the group and listening to directions, learning to play cooperatively, learning to give eye contact and having a conversation with a peer, would be a critical addition to the literature. While all of these positive social changes have been linked to simply placing a student with a disability into a general education class including GPE, to our knowledge, there have been no studies that specifically examined changes in social behaviors of students with disabilities due to inclusion in PE. Clearly this is an important, yet neglected, area of research that needs to be addressed systematically in the future with direct

observation and behavior recording rather than interviews and surveys. Thus, important research questions may be:

- (1) *Are students with and without disabilities interacting during GPE classes?*
- (2) *What types of social interactions are occurring between students with and without disabilities during GPE classes?*
- (3) *How are social interactions influencing positive behavioral changes for students with disabilities during GPE?*
- (4) *What programs can be implemented to increase positive social interactions between students with and without disabilities in GPE?*

### **Peer education/disability awareness programs**

Many have suggested the most important variable in successful social inclusion in PE is the attitudes of classmates without disabilities (McKay et al., 2015; Tripp et al., 1995). Fortunately, there has been a fair amount of research showing that, generally speaking, children without disabilities have favorable attitudes toward having a peer with a disability in their PE classes, especially when children without disabilities had regular contact with peers with disabilities in GPE (e.g. Obrusnikova et al., 2010; Obrusnikova & Dillon, 2012; Verderber et al., 2003). We also know that peer education and disability awareness programs can have a positive influence on attitudes toward and acceptance of students with disabilities (e.g. Hutzler et al., 2007; McKay et al., 2015, 2019; Reina et al., 2011). In fact, Hutzler et al. (2002) found that peers without disabilities were the most significant support system for students with disabilities, and they recommended peer education to promote appropriate peer support.

Specific information and experiences should be included in peer education programs. For example, Blinde and McCallister (1998) noted the importance of sensitivity and empathy training. Block, Klavina, McKay et al. (2016) recommended specific training for students without disabilities in order for them to interact with peers with disabilities in a positive and age-appropriate manner. Finally, Wilhite et al. (1997) said that emphasizing the *ability* of individuals with disabilities could result in positive and practical outcomes for students taking part in awareness education training activities. Many of these training ideas are included in the *Paralympics School Day* (PSD) disability awareness program created by the International Paralympic Committee (2006). A number of studies have found a positive impact of PSD on attitudes of students without disabilities (see McKay et al.,

2015, for a summary of these studies). For example, Grenier et al. (2014) successfully implemented a disability sport awareness program within an elementary PE curriculum. A five-week, disability sport unit in conjunction with the winter Paralympic Games of 2010 positively shaped student's and teacher's perceptions of disability and encouraged a broader understanding of inclusion and sport (Grenier et al., 2014). Because having a disability is often associated with a deficit perspective (Fitzgerald, 2005), PSD programs that highlight successful Paralympians are particularly important in portraying people with disabilities in a positive light.

We know that PSD works, but it is important to delve deeper into what specifics about PSD works. To date research on PSD has examined the affect of the entire program and not specific pieces of the program. What is missing is more systematic research examining these specific PSD components and whether specific disability awareness suggestions directly improve attitudes toward and interactions with students with disabilities. Some important research questions in this area of inquiry include:

- (1) *Are there specific components that are particularly effective such as the interactions between Paralympians and participants?*
- (2) *What types of interactions are most effective (e.g. general discussion with Paralympian, learning about the Paralympians story and experiences competing, playing the sport with the Paralympians, having the Paralympian teach the sport)?*
- (3) *Are there specific activities/discussions that promote better understanding and acceptance of those with disabilities?*
- (4) *Are there specific activities/discussions that change attitudes and confidence toward including students with disabilities into GPE classes?*
- (5) *How do Paralympians involved with the PSD program feel about their role in the program?*

### **Peer tutoring**

While disability awareness training is important, peer tutoring ensures regular interactions between students with and without disabilities. Peer tutoring utilizes peer-assisted learning, which can be further divided into using tutors as a component of direct instruction (e.g. teaching by tutoring, modeling, and assessing) or as approaches that involve structured and often sequenced collaboration in order to achieve common goals inherited in different curricular models (Casey et al., 2015; Wallhead & O'Sullivan, 2007). In the former, the instructional task

for most students stays the same. In the latter, the task differs, often requiring each student to contribute a piece of the total task or to take on different roles. Peer-assisted learning or peer tutoring has been proposed as a best practice (Kalef et al., 2013) and an effective approach in promoting peer interaction and inclusion in PE (Klavina & Block, 2008; Temple & Lynnes, 2008), skill acquisition or motor performance (Vashdi et al., 2008), and exercise or physical activity engagement (Lieberman et al., 2000; Stanish & Temple, 2012) by students with disabilities. However, there are questions that still need to be addressed including:

- (1) *How do different curricular models affect learning outcomes and feelings of belonging of students with different functional limitations when being assisted by peer tutors?*
- (2) *How long should the training of peer tutors last, and what components of the training are the most important (Wiskochil et al., 2007)?*
- (3) *Identify and analyze exemplar peer tutoring programs to determine why these programs are successful for students with disabilities.*

## Conclusion

In the past 30 years, there has been a steady growth of research in the area of PE for students with disabilities. Unfortunately, much of this research has been “one-shot” studies with no long-term plan for systematically answering a series of questions that would lead to broader understanding of best PE practices. When multiple studies have been collected, they tend to be single subject or qualitative in nature with small sample sizes that make it difficult to generalize findings (Pocock & Miyahara, 2018). The purpose of this paper was to outline broad categories of needed research within the area of adapted PE with a goal of framing a logical series of studies across multiple sites that could be used to guide researchers and ultimately inform best practices. Four areas were identified focusing on (a) experiences of students with disabilities, (b) training of general and adapted physical educators, (c) promising curricular models, and (d) social experiences of students with disabilities. The ultimate goal of this research agenda is to make the experiences of students with disabilities positive as noted by their ability to develop motor and fitness skills, feel welcome and accepted by peer and teachers by peers and teachers, and develop a lifelong joy of being physically active. While it is difficult to prioritize any one of the four areas at the expense of another, it is important that (a) there is collaboration between general and PE

researchers to answer questions about training and curriculum development; (b) all stakeholders—students with disabilities, peers and physical educators—be part of the research design team and be questioned to find out their thoughts on these broad issues; and (c) researchers identify and analyze exemplar programs to determine why these programs are effective for students with disabilities and how these programs can be replicated and implemented in other PE programs around the U.S.

## ORCID

Martin E. Block  <http://orcid.org/0000-0001-7934-8947>  
 Justin Haegle  <http://orcid.org/0000-0002-8580-4782>  
 Iva Obrusnikova  <http://orcid.org/0000-0001-6098-453X>

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