The Current Experiences of Physical Education Teachers at Schools for Blind Students in the United States

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Structured abstract: *Introduction:* It has been well established that children with visual impairments tend to be less physically active and more delayed in motor skills than their sighted peers. As a result, there has been some research focusing on inclusive physical education for these children. However, there is a clear lack of research on the current status of physical education for children in residential schools. *Purpose:* The purpose of this study was to gain insight into the current experiences of physical education teachers at schools for blind students in the United States. *Methods:* A questionnaire was sent to 51 physical education teachers from 35 schools for blind students across the country. Data from closed-ended and short-response open-ended questions were analyzed descriptively, using frequencies and percentages, across four main areas: teacher characteristics, teaching practices, student populations, and facilities. *Results*: Most physical education teachers reported that their schools employ certified physical educators, use curricula that are tied to state or national standards, possess a variety of facilities for their students to use in physical education, offer a variety of sports (with the most common being wrestling), and teach a varied population of students. *Discussion:* A number of findings emerged from this study. Positive findings include: schools are hiring teachers who are certified in physical education or adapted physical education; they are utilizing curricula that are tied to their state and national standards; and they are offering a variety of sports after school. The few factors of concern are: the lack of validated assessments in the field of adapted physical education and, therefore, the limited use of validated assessments; and the need for additional training for teachers related to children who are deafblind and students with both visual impairments and autism spectrum disorder.

Participating in physical activities is an important element to promote and maintain health, fitness, and well-being for youths. Regular physical activity at a young age can decrease the chances of developing health-related issues such as obesity, anxiety, and depression throughout the lifespan (Centers for Disease Control and Prevention [CDC], 2011). Unfortunately, youths with visual impairments (that is, those who are blind or have low vision) tend to be less physically active

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than their sighted peers (Haegele & Porretta, 2015). Furthermore, as youths with visual impairments progress through school, they tend to be even less active (Oh, Ozturk, & Kozub, 2004). A number of barriers have been identified that restrict physical activity participation, such as a lack of opportunity (within and outside of school), a lack of trained physical educators, and parents' fear of injury (Perkins, Columna, Lieberman, & Bailey, 2013; Stuart, Lieberman, & Hand, 2006). Because of low physical activity participation, youths with visual impairments can be at risk for developing health-related issues. Lieberman, Byrne, Mattern, Watt, and Fernandez-Vivo (2010) found youths with visual impairments to be less likely to reach acceptable health-related fitness scores on a number of related items, including upper body strength, cardiovascular endurance, and body composition (obesity, for example).

Fortunately, research suggests that physical activity levels can be increased for children with visual impairments (see Cervantes & Porretta, 2013). According to Pan, Frey, Bar-Or, and Longmuir (2005), the most likely context for youths with disabilities to learn about and participate in physical activity is in physical education class. In recent years, inclusive physical education classes for youths with disabilities have gained attention (Haegele & Sutherland, 2015; Lieberman & Houston-Wilson, 2009). The concept of *inclusion* is generally defined as the instruction of students with and without disabilities in the same classes, including physical education classes (Haegele & Sutherland, 2015). Currently, in the United States, approximately 89% of youths with visual impairments spend at least part of their day in inclusive classes in community or public schools, which can include physical education classes (U.S. Department of Education [USDE], 2014). Because of this fact, scholars and researchers interested in physical education for those with visual impairments have focused on developing strategies for inclusive education settings (Lieberman, Ponchillia, & Ponchillia, 2013).

Although many students with visual impairments are currently being educated in inclusive settings, other environments, such as residential schools for blind students, still provide full-time education to approximately 11% of youths with visual impairments (USDE, 2014). This number does not include another 24% who receive instruction in inclusive settings less than 79% of the day, who may receive services at a residential school on a part-time basis (USDE, 2014). Schools for blind students have a rich history in the United States. The first, the New England Asylum for the Blind (now known as Perkins School for the Blind), was founded in 1829. Shortly thereafter, the concept of the residential school for blind students grew rapidly, as many others were founded in the 1830s, including The New York Institute for the Blind and the Overbrook School for the Blind in Philadelphia (Omvig, 2014). As of 2013, there were 45 operational members of the Council of Schools and Services for the Blind (COSB; 2016) in the United States, including 36 residential schools for blind students.

Schools for blind students provide well-rounded educational programs that include services that are specifically designed for individuals with visual impairments (such as orientation and mobility),

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as well as curricula typical in those inclusive schools. As per Public Law 105-17 (also known as the Individuals with Disabilities Education Act [IDEA]), one educational area that is mandatory for all students in schools receiving federal funds (including at schools for blind students) is physical education. Under IDEA, *physical education* is defined as a means to develop students' physical and motor fitness; fundamental motor skills and patterns; and skills in aquatics, dance, individual and group games, and sports (IDEA, 2004). IDEA specifies that physical education programs must be designed to help students improve their movement skills and fitness needed to maintain a physically active and healthy lifestyle. For students with visual impairments, physical education can take on further importance when components of the expanded core curriculum are embedded into instruction (Lieberman, Haegele, Columna, & Conroy, 2014).

At this time, little is known about current physical education practices at schools for blind students from a research perspective. For example, although researchers have implemented physical activity programs at schools for blind students (Cervantes & Porretta, 2013), it is unknown whether their target population (students with visual impairments and no other disabilities) represented the majority of students enrolled at these schools. According to Hatlen (2003), the 1950s and 1960s saw a shift in the population of students who attended schools for blind students: students with multiple disabilities began to outnumber students with visual impairments and no other disabilities. Because physical education is the most likely environment for youths with visual impairments to learn about and participate in physical activity (Pan et al., 2005), and schools for blind students continue to provide services to many learners with additional disabilities, it is important to understand and enhance physical education experiences in those settings. Prior to suggesting and testing new practices, it is important to understand the current status of the experiences of physical education teachers at schools for blind students. Therefore, the purpose of this study was to gain insight into the current status of experiences of teachers at those special schools in the United States. Specifically, this study focused on exploring the following characteristics of physical education at schools for blind students: teacher characteristics, teaching practices, student populations, and facilities.

Methods

Instrument

A questionnaire was utilized to collect data for this study. It was developed with four subsections: teacher characteristics (7 questions), teaching practices (15 questions), student populations (8 questions), and facilities (5 questions). Its purpose was to explore physical educators' experiences of each of these subsections at schools for blind students in an effective and efficient manner. A variety of question formats were utilized, including closed-ended (for example, multiple choice or multiple select) and open-ended (such as short answer) responses. The questionnaire was initially developed by the authors, after which it was sent to three current teachers at schools for blind students to ensure that the questions were clear and relevant to the purpose of the study. A

number of questions were reworded based on the feedback from the teachers. In total, the final questionnaire included 35 questions across the four subsections.

Participant recruitment procedures

The target participants for this study were physical education teachers who were currently teaching at a school for blind students in the United States. In order to obtain contact information for each of them, a number of steps were taken. First, the schools were identified using the 2013–2014 membership list of COSB. Names of the schools and web page addresses for its 45 members were available on the COSB website and were initially recorded. Second, the authors visited the web pages for each of the members to determine if the member was a residential school for blind students and if it included physical education programs. Of the 45 members, 9 were eliminated because they were either not schools ($n = 3$), were distance education programs ($n = 1$), were using an itinerant model after the residential school closed ($n = 2$), or did not have a functioning physical education program ($n = 3$). A number of these schools were contacted to confirm the findings discovered on the Internet.

In the next step, the authors and a graduate student visited the web pages of each of the 36 remaining schools and searched for the contact information of their physical education teachers. Although some schools included contact information on their web pages, many did not. Therefore, after finding as many e-mail addresses online as possible, a graduate student called each listed residential school to obtain or confirm e-mail addresses of physical education teachers. In total, 51 e-mail addresses were confirmed, representing 35 of the 36 schools. One of the schools that did not list contact information for its teachers did not return the graduate student's phone call requesting this information.

Data-collection procedures

The final version of the questionnaire was entered into an online survey platform (Google Drive). This platform has been pilot tested for accessibility by experts at a school for blind students and was demonstrated to be accessible for individuals with low vision as well as those who were completely blind. After e-mail addresses were retrieved and confirmed, a link to the online questionnaire was sent via e-mail to all obtained e-mail addresses in September 2015. E-mail reminders with the questionnaire link were sent 5 times over a 10-week span (that is, once every 2 weeks) to maximize response rate. Only those individuals who clicked the link within the e-mail, and agreed to participate in the study, had access to the questionnaire and were included in the research. This questionnaire included no identifiable information for the participants (for instance, for which school they worked), ensuring complete anonymity. Those who received the e-mail and did not want to participate were able to do so by not clicking the survey link. Furthermore, participants were able to discontinue their participation in the questionnaire at any time. These participant recruitment and data-collection procedures were approved by the Institutional Review Board (IRB) at the lead researchers' institution.

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Data analysis

Data from closed-ended and short-response open-ended questions (for example, What assessment tools does your school use for secondary-age students?) were analyzed descriptively, using frequencies and percentages (Haegele, Lee, & Porretta, 2015). One question—How was the curriculum for your school developed?—warranted additional analysis and a content-analysis inductive process was utilized. Specifically, responses were entered into an Excel spreadsheet and organized into themes. A description of each theme, and the frequency of responses in each theme, are displayed.

Results

Of the 51 physical education teachers contacted, 40 (78%) responded to the survey. Because of the anonymous nature of the survey, it is not possible to determine whether every school for blind students that was contacted is represented in the sample. Furthermore, it is possible that some schools may be represented as many as seven times, if all physical educators at that particular school responded to the survey. Results are provided in the four sections that follow the structure of the survey.

Teacher characteristics

All teachers reported that their schools offered physical education classes, and that physical education or adapted physical education was taught by certified physical education teachers. On average, physical education teachers reported that their schools employed 2 (range 1 to 7) physical education teachers. Of those, 9 (across all schools) were reported as being certified adapted physical educators (that is, they passed the Adapted Physical Education National Standards exam). All but 2 teachers reported that paraeducators assisted students in physical education, and 28 (70%) reported that they had paraeducators assigned specifically to their physical education classes (such as full-time physical education paraeducators). When asked who would teach physical education or adapted physical education classes if they were not taught by licensed physical education teachers, 36 teachers (90%) either did not respond or explicitly stated that these courses are taught only by licensed physical education teachers. In addition, 2 teachers stated that other (non–physical education) certified teachers would teach those courses in their absence, 1 teacher noted that a teacher assistant (a paraeducator) would teach the course, and 1 noted that a substitute teacher would provide instruction.

Teaching practices

Participants reported that high school–aged students receive physical education or adapted physical education courses 4.0 (range 1 to 7) days per week for an average of 55.6 (range 40 to 150) minutes per session. Of these, 2 teachers reported utilizing block schedules, which enabled students to receive longer sessions (such as 120 to 150 minutes) over fewer sessions per week (such as 1 session). Elementary students received physical education or adapted physical education classes slightly less often (average 3.9 days per week, range 1 to 7) and for shorter duration of class sessions (44.6 minutes per session, range 30 to 65 minutes).

In regard to curricula, all participants reported that their curriculum followed statewide physical education standards,

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Table 1
Teacher-reported curriculum-development procedures.

Curriculum development	Frequency (*n*)	Percentage (%)
Developed by physical education staff	19	48
Developed by physical education staff guided by state or national standards	14	35
Utilized published curricula	5	13
SPARK	2	5
FitnessGram	1	3
Dynamic PE	1	3
Texas Essential Knowledge & Skills	1	3
Developed by state or uses state curriculum	2	5
Developed using local school district as model	1	3
Does not have a curriculum (or has but does not use curriculum)	2	5

Frequency (40) and percentage (100%) exceed expected maximums because some teachers reported responses that were coded multiple times.

and 38 of 40 (95%) reported that their curriculum followed national standards. Furthermore, 29 teachers (73%) reported that their curriculum followed the same units as schools in the community (public schools). In regard to how school curricula were developed, a number of answers were provided (an open-ended question) and are categorized and displayed in Table 1. Table 2 shows frequencies and percentages of common physical education activities reported by the participants. The most popular of these activities were fitness (100%) and track and field (98%) at the secondary level, and fitness (100%) and fundamental motor skills (98%) at the elementary level.

Participants also reported which assessment tools were utilized for both elementary and secondary students (see Table 3). Most commonly, teacher-made checklists or evaluations were used across both age levels. The Test of Gross Motor Development-2 (TGMD-2; Ulrich, 2000), the Brockport Physical Fitness Test (Winnick & Short, 2014), and FitnessGram were the most common formal assess-

Table 2
Frequency and percentage of teacher-reported common physical education activities across grade levels.

Physical education activities	Elementary frequency (%)	Secondary frequency (%)
Archery	6 (15)	17 (43)
Beep baseball	32 (80)	31 (78)
Basketball	33 (80)	37 (93)
Bocce	14 (35)	20 (50)
Bowling	36 (90)	36 (90)
Cycling (including tandem)	23 (58)	24 (60)
Disc golf	18 (45)	29 (73)
Fishing	6 (15)	7 (18)
Fitness	40 (100)	40 (100)
Football	13 (33)	19 (48)
Fundamental motor skills	39 (98)	35 (88)
Goalball	33 (83)	37 (93)
Golf	25 (60)	29 (73)
Hiking	14 (35)	21 (53)
Hockey (floor, roller, ice)	19 (48)	22 (55)
Jump rope	33 (83)	29 (73)
Showdown	4 (10)	12 (30)
Soccer	26 (65)	26 (65)
Swimming	29 (73)	30 (75)
Track and field	35 (88)	39 (98)
Volleyball	22 (55)	28 (70)
Weight training	16 (40)	37 (93)
Wrestling	10 (25)	15 (38)

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Table 3
Frequency of assessment tools reported across age level.

Assessments	Elementary frequency	Secondary frequency
Teacher-made assessments or checklists	16	13
Test of Gross Motor Development-2 (TGMD-2)	10	2
Brockport Physical Fitness Test	6	14
FitnessGram	6	6
The Oregon Project for Preschool Children Who Are Blind or Visually Impaired	4	–
Curriculum-based assessments	3	2
Adapted Physical Education Assessment Scale II (APEAS II)	3	4
No assessments used	3	6
Presidential Fitness Test	2	2
State assessments	1	2
DEVPRO (DEVelopmental PROgramming) Motor Skills Assessments	1	1
Sherrill Social Play Inventory	1	1
University of Virginia APE (Adapted Physical Education) Assessment	1	1
Project MOBILITEE	1	1
Motor Skills Inventory	1	–
Pediatric Balance Scale	1	–
Buehls Fitness Assessment	1	–
ICAN (Individualized Curriculum and Assessment Notebook)	1	–
Peabody Motor Skills Assessment	1	–
Lousiana Project CREOLE	–	1
Class participation only	–	1

Note: Frequency exceeds total number of participants because teachers were permitted to report multiple assessment tools.

ments used at the elementary level, and the Brockport Physical Fitness Test was the most common assessment utilized for secondary students. Of concern, three and six participants reported that no assessments were used at the elementary and secondary levels, respectively. One additional participant reported that only class participation was used as an assessment tool for secondary students in that school.

Of the 40 participants, 35 (88%) reported that their schools offered after-school sports, two (5%) reported that their school did not offer any after-school sport opportunities, and two (5%) did not provide an answer to this question. Table 4 provides a summary of the common after-school sports reported by the physical education teachers. Twenty-four participants (60%) reported that their school competed against other schools for blind students, 10 teachers (25%) reported that their schools competed against community or public schools, and five teachers reported that their school did not compete extramurally. One physical education teacher reported that his school participated against other schools for blind students as well as community schools.

Student population

Participants were asked to describe the student population of their school. These responses varied greatly from one participant to another. For example, when asked what percentage of students in their

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Table 4
After-school sport opportunities reported by participants.

After-school sports	Frequency (%)
Wrestling	29 (73)
Track and field	28 (70)
Goalball	26 (65)
Cheerleading	24 (60)
Swimming	20 (49)
Bowling	4 (10)
Weight training, powerlifting	4 (10)
Football	4 (10)
Basketball	3 (8)
Cross country	3 (8)
Golf	2 (5)
Self-defense, martial arts	2 (5)
Soccer	2 (5)
Tennis	2 (5)
Yoga	2 (5)
Archery	1 (3)
Beep kickball	1 (3)
Cycling	1 (3)
Dragon boat racing	1 (3)
Hiking	1 (3)
Skiing, snowboarding	1 (3)
Volleyball	1 (3)

Frequency and percentages exceed total number of participants because teachers were permitted to report multiple after-school sport programs.

school had visual impairments and no other diagnosed disabilities, four participants reported 0%, while another four reported 100% ($M = 36\%$). Average reported population percentages for students with visual impairments and autism spectrum disorder, severe and profound disabilities, and deafblindness were 12% (0 to 50%), 15% (0 to 75%), and 5% (0 to 65%), respectively. Participants reported an average of 42% (10% to 99%) of the population of their school being comprised of students with visual impairments and additional disabilities. Table 5 provides a summary of responses regarding school population. Of the 40 participants, 24 (60%) reported that their school also served individuals who were deaf.

Participants were also asked which populations they felt most and least prepared to teach. Many participants ($n = 20$, 50%) felt the most prepared when teaching students with visual impairments and no other disabilities, and 15 (38%) felt the opposite: that they were the most prepared teaching students with visual impairments and other disabilities. Just 4 (10%) and 1 (3%) felt most comfortable teaching students with visual impairments and autism spectrum disorder, and those with deafblindness, respectively. Conversely, most participants felt the least prepared to teach either students who were deafblind ($n = 14$, 35%), had severe or profound disabilities ($n = 13$, 33%), or

Table 5
Frequency of participations reporting student population reported across categories.

Percentage reported	Visual impairment only	Visual impairment and autism spectrum disorder	Severe & profound disabilities	Deafblind	Visual impairment and another disability
0	4	4	5	11	1
1–19	8	24	21	28	5
20–39	8	8	10	–	14
40–59	5	4	2	–	1
60–79	6	–	2	1	6
80–99	5	–	–	–	9
100	4	–	–	–	4

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had visual impairments and autism spectrum disorder ($n = 9$, 23%). Few felt the least prepared to teach students with visual impairments and other disabilities ($n = 3$, 8%) or those with visual impairments and no additional disabilities ($n = 1$, 3%).

Facilities

Of the 40 physical education teachers included in this study, 20 (50%) reported that their school had only one gymnasium. Thirteen participants (33%) reported that their school had two gymnasiums, three reported that they had three gymnasiums, and four reported four gymnasiums. Most participants reported having pools ($n = 30$, 75%) and weight training areas ($n = 38$, 95%) to use for physical education classes. All participants (40 of 40) reported having outdoor spaces to use for their physical education classes, the most common of which were tracks ($n = 24$). All participants indicated having at least 1 additional facility available for physical education classes, and some had as many as 6. Reponses to this question about facilities are summarized in Table 6.

Table 6
Available facilities for physical education classes.

Facilities	Frequency (%)
Outdoor track	24 (60)
Bowling alley	19 (48)
Beep baseball diamond	5 (10)
Wrestling room	4 (10)
Playground	3 (8)
Indoor track	3 (8)
Bike path or walking trails	3 (8)
Miniature golf course	3 (8)
Horse stable	2 (5)
Multipurpose room	2 (5)
Recreation room/building	2 (5)
Rockwall	2 (5)
Tennis courts	2 (5)
Boating facility	1 (3)
Dance studio	1 (3)
Disc golf course	1 (3)
Ice-skating rink	1 (3)
Ropes course	1 (3)
Sensory room	1 (3)

Frequency and percentages exceed total number of participants because teachers were permitted to report multiple facilities.

Discussion

The purpose of this study was to gain insight into the current status of experiences of physical education teachers at schools for blind students in the United States Findings confirm recent assumptions about the population of students attending schools for blind students, and areas of both strength and concern emerged regarding physical education practices from the study findings.

Hatlen (2003) indicated that the population of students who attend schools for blind students has shifted from predominantly those with visual impairments and no other disabilities, to those with multiple disabilities. Results from this study support Hatlen, where few ($n = 4$) teachers reported that all of their students had visual impairments and no other disabilities. More commonly, teachers reported teaching students with a mix of different disabilities in addition to visual impairments. Because of this finding, it is essential that best-practice suggestions for teaching physical education at schools for blind students take into consideration and meet the needs of this diverse population.

A number of strengths of physical education programs emerged from this study. Most importantly, all teachers reported that their schools provide physical education, are hiring certified physical ed-

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ucation teachers, and are utilizing paraeducators. They are also utilizing curricula that are tied to their state and national standards and are offering a variety of after-school sports. Because of the provision of curricula framed by state and national standards, like those provided to same-aged peers in community or public schools with some modifications as needed, students with visual impairments are much more likely to meet ECC components of self-determination, socialization, and independence (Lieberman et al., 2014) and to participate in and garner the benefits from physical activity.

Although strengths emerged, a number of concerns were also made evident by this study. Most important are the limited use of validated assessments and the need for additional training for the teachers related to children who are deafblind, those who have visual impairments and autism spectrum disorder, or students who have severe-to-profound disabilities. The field of physical education has very few assessments in general, and even fewer for children with visual impairments. The only two assessments that have been validated for children with visual impairments are the TGMD-2 and the Brockport Physical Fitness Test. The concern surrounding the use of nonvalidated assessments with students with visual impairments is that the population they were created for would not be the group with which they are being used in this case. Utilizing the validated assessments that are available and working to create more validated assessments should be a focus of the field of adapted physical education. The second concern arising from this study is the need for additional training for physical education teachers regarding students with disabilities in addition to visual impairments (for example, autism spectrum disorder). This topic is not a common one, even in graduate programs in adapted physical education. Because of this lack of training, teachers must seek out resources, workshops, classes, videos, and books with relevant information to ensure self-efficacy in this specific area of instruction.

Results of this study provide insight into future research needs. For example, this research demonstrates that populations of children currently enrolled at schools for blind students may not match those used in previous research in these settings. Because of current enrollment trends, it is essential for future research to consider all potential student populations when conceptualizing future exploratory (such as exploring baseline physical activity behavior) and intervention work. In addition, the need for future training and validated assessment instruments necessitate research into development and effectiveness in these arenas pertaining to the unique individuals educated at schools for blind students.

Conclusions

The importance of physical education for school-aged individuals with visual impairments cannot be overstated. Quality programs can promote physical activity participation while also touching upon components of the ECC. Previously, most attention in research in this area was given to inclusive physical education experiences or residential physical education for those with visual impairments and no additional disabilities. The purpose of this study was to focus attention on the experiences of physical education

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teachers at schools for blind students. Because of this study, we have important information that could be utilized to further develop physical education programming at schools for blind students around the country that is appropriately created and implemented for all enrolled students.

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