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ADAPTED PHYSICAL EDUCATION

Using Paralympic School Day as a Model for an Adapted Physical Education Professional Development for Physical Educators

Marie Leake, Martin Block, Cathy McKay

Abstract

The successful inclusion of children with disabilities into general physical education (PE) depends in large part on the attitudes and competence of general PE teachers. Unfortunately, many PE teachers' undergraduate preparation is insufficient when it comes to including children with disabilities. In-service professional development can provide specific information about inclusion that can make up for the lack of training during undergraduate training. This paper presents a guide for the use of the Paralympic School Day (PSD) program, a disability awareness program targeting school-age children without disabilities, in the development of an in-service PE teacher training. It begins with a summary of PSD and contact theory, on which PSD is based. This is followed by specific information on the development of a PSD-focused in-service training that uses Paralympians and PSD activity stations to reduce prejudicial beliefs and help general PE teachers understand the importance of supporting students with disabilities in their programs.

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Perhaps the most important factor in successful inclusion of children with disabilities into general physical education (PE) classes is the attitude, training, and competence of PE teachers (Block et al., 2016; Özer et al., 2013; Reina et al., 2019). PE teachers who feel they have had good academic preparation and positive hands-on experiences have higher levels of perceived competence toward working with students with disabilities (Obrusnikova, 2008; Özer et al., 2013; Tripp & Rizzo, 2006). Unfortunately, many PE teachers' undergraduate training and clinical experiences are inadequate to prepare them for teaching PE to children with disabilities in inclusive settings (Hersman & Hodge, 2010; Wilson et al., 2020). In general, PE teachers feel that inclusion is ethically the right thing to do, but they also feel that lack of knowledge and experiences during teacher training presents barriers to including children with disabilities into their programs successfully (Pocock & Miyahara, 2018).

Participation in in-service professional development programs can make up for the lack of training during undergraduate preparation. In-services can help general PE teachers gain specific knowledge and competencies to accommodate students' needs and facilitate social acceptance by peers without disabilities, which in turn may improve PE teachers' attitudes toward inclusion. Many PE teachers do not feel prepared for inclusion and want more in-service opportunities to improve their knowledge and teaching skills (Haegele et al., 2018; Wilson et al., 2020). Most school districts offer regular in-service opportunities for their teachers, although it is often the case that there are no presentations specific for PE teachers. However, when in-service training is made available, it may offer opportunities for PE teachers to learn how to best serve children with disabilities.

Interestingly, only three studies (only one in the United States) have specifically examined the effects of an in-service on attitudes and knowledge of PE teachers toward including students with disabilities, and only one found significant effects on improving self-efficacy of participants. Reina et al. (2019) provided 18 hours of training over a 3-week period with PE teachers in Spain. The training resulted in a significant improvement in the participants' self-efficacy and beliefs toward inclusion. Unfortunately, Taliaferro and Harris (2014) with a 1-day workshop (in the United States) and Haegele et al. (2018) with

a 2-day workshop (in Brazil) did not find significant improvement in self-efficacy or attitudes toward inclusion.

Perhaps these in-service workshops were missing more hands-on, positive experiences and interactions with people with disabilities. Taliaferro and Harris's (2014) in-service focused on children with ASD, and the workshop included lectures, discussions, and group work, but no interactions with people with disabilities. Haegele et al. (2018) provided lectures, discussions, and some hands-on demonstrations for using visual support and for modifying fitness and soccer activities. It was unclear if the demonstrations were activities in which participants watched or in which they participated with people with disabilities. Reina et al. (2019) included interactions with Paralympic athletes in the last session of their 6-day workshop (3 hr/day across 6 weeks), and participants played various Paralympic sports with Paralympians. Interestingly, only Reina et al.'s study found significant improvement in self-efficacy and attitudes. Teachers are able to gain a deeper understanding and appreciation of individuals with disabilities and the importance of making accommodations in general physical education through direct interactions with people with disabilities, which surpasses the mere learning of facts about disabilities.

Paralympic School Day

Paralympic education is one of the primary goals of the International Paralympic Committee (IPC), with a specific goal of increasing awareness and understanding toward individuals with impairments (IPC, n.d.-a). One of the primary mechanisms the IPC uses to promote Paralympics education is the Paralympic School Day (PSD) program. PSD was established in 2004 on the basis of the belief that through education about the lives and abilities of individuals with impairments, those without impairments would develop an increased awareness and understanding about those with impairments (McKay, 2013). The PSD program consists of three goals (IPC, n.d.-b):

- create an environment where students are able to experience realistic and holistic portrayals of disability sports and the athletes who play these sports;
- engage learners through an array of activities and teaching modalities that would reach a diverse community of learners,

allowing them to challenge and find meaning in their own beliefs and experiences; and
- provide an opportunity for reflection.

The PSD program is available on the IPC website and consists of 19 activity cards, which are divided into the categories of respect for sporting achievement, respect and acceptance of individual differences, sport as a human right, and empowerment and social support in sport (IPC, n.d.-b).

The use of the PSD program as an intervention for attitude change toward individuals with disabilities has been well researched over the past 2 decades (Liu et al., 2010; McKay et al., 2015; McKay et al., 2019; Panagiotou et al., 2008; Xafopoulos et al., 2009). These studies have primarily focused on the attitudes of children without disabilities toward individuals with disabilities through the use of quantitative measures, with the exception of McKay et al. (2019), which has examined qualitative reflections from the participants. Overall, findings have shown that participation in a PSD program can result in positive attitude change toward individuals with disabilities, although the results have not always been statistically significant (Liu et al., 2010; Panagiotou et al., 2008; Xafopoulos et al., 2009).

Theoretical Foundation: Allport's contact theory

Experts in Paralympic sport, disability, and pedagogy developed the PSD program through several established theories (McKay, 2013, 2018). Most notably, Allport's (1954) contact theory provided the foundation for PSD. Allport's contact theory proposed that positive social contact under the right conditions could lead to a reduction in prejudicial beliefs between members of the majority and minority groups (McKay et al., 2018). In the context of the PSD program, members of the majority would be the participants without disabilities and the minority would be those with disabilities.

Allport (1954) identified six key variables for optimal conditions to lead to a reduction in prejudicial beliefs. Of these, equal status, cooperation, meaningful interactions, and community/authority support are essential and have been well researched in the field of attitude change (McKay, 2018).

Equal Status

Equality is crucial for meaningful contact to take place (Allport, 1954). If there is a power differential between the two groups, either in role or status, existing stereotypes may be reinforced (Allport, 1954). Equal status between the athletes and participants is needed for meaningful and intimate interactions to take place (McKay, 2013). Many of the activity cards uphold the equal status requirement by having participants learn new skills or share past experiences.

Cooperation

To have maximum benefits for prejudicial belief reduction, activities in which members of the majority and minority groups are participating need to emphasize cooperation rather than competition (Allport, 1954; McKay, 2013; Panagiotou et al., 2008). The PSD activity cards are designed to create experiences where participants work with Paralympians toward a common goal (McKay, 2013). Activity cards throughout the PSD program seamlessly weave cooperative and collaborative activities with which to engage and empower participants.

Meaningful Interactions

It is important that members of different groups have meaningful and intimate contact (Allport, 1954). Intimate contact provides the opportunity for participants to learn about each other and identify similarities of interest (Allport, 1954). Meaningful contact is a key component to the PSD programming, and the program encourages Paralympian involvement with PSD events (McKay, 2013). Opportunities for meaningful interactions during PSD events can be increased with athletes leading the stations. This allows participants to learn from those who are different from themselves as well as to have the opportunity to engage in conversation and ask questions, which allows for a deeper level of learning about one another.

Support From Authority

The fourth essential condition of Allport's (1954) contact theory is the need for support from authority. This condition can take on a variety of forms. For a school to host a PSD program, there needs to be some level of support from school leaders. Many schools also make a commitment to addressing the need for diversity, equity, and

inclusion education among students and staff. The PSD program helps to develop a school culture that strives for equitable practices that best serve all students. Aside from approval from school officials to allow for a PSD program to be conducted, these school leaders can actively participate in the event with the students to reinforce the expectation of inclusive practices (McKay, 2013).

While numerous research and practical papers have been published related to PSD, one gap in the literature has been the application of PSD to the professional development of PE teachers. The PSD program provides plenty of hands-on experiences in which participants interact with Paralympians while learning various Paralympic sports and instructional accommodations. Meaningful contact with people with disabilities is one of the key tenets of contact theory, and these meaningful interactions can lead to improved attitudes and confidence of PE teachers toward including children with disabilities in PE. This paper presents a guide for the use of the PSD program in the development of an in-service PE teacher training. This PSD-focused in-service training utilizes a variety of the PSD activity cards as well as emphasizes alignment with the four essential conditions from Allport (1954) for reducing prejudicial beliefs (equal status, cooperation, meaningful interactions, and community/authority support).

Planning the PSD In-service Day

The first step in hosting an in-service that uses the PSD model is to identify the setting. Two options include (a) having the in-service at a local school or nearby facility during a professional development day or (b) having the in-service as a workshop at a state or regional physical education conference. Both options are good choices, with the local option allowing for a more locally focused event with guest athletes and perhaps children from the community and the workshop at a conference reaching a broader group of PE teachers across multiple communities. The other advantage with the state or regional conference is that participants can learn to conduct a PSD-focused in-service back in their community.

Funding is another consideration for conducting the in-service. Costs for conducting a PSD in-service include paying for Paralympic athletes (travel, hotel, stipend), renting or purchasing wheelchairs and other adapted equipment (e.g., Goalballs and blindfolds),

and paying fees for facilities including janitorial staff. Local sports teams such as a wheelchair basketball team might be able to provide wheelchairs, whereas a school for the blind should have Goalballs and blindfolds to lend. School districts often pay for the cost of in-services they host, although they may balk on providing funding for Paralympians. The cost of the facility should not be an issue, as the in-service would be hosted at one of the schools in the district. All costs, with the exception of cost for the facility for a workshop conducted at a conference, will be incurred by the workshop developer. Small grants through private foundations could also fund some of the cost of the program.

A Sample PSD Teacher In-Service Training

This section outlines a sample PSD teacher in-service training for a hypothetical school district, Cavalier County Public Schools. This hypothetical school district employs 50 PE professionals, divided between 23 elementary, middle, and high schools. In addition, the county employs 10 PE paraprofessionals who will also be attending the in-service training. The training will be held at one of the county high schools, where the program planners have reserved several spaces to execute the workshop, including the main gymnasium (with the curtain down for use of two full courts), the auxiliary gymnasium, the wrestling room, and two classrooms located near the activity spaces. The program planners reserved six spaces, and with 60 attendees they are planning on separating the group into six groups of 10 participants to rotate through six activity stations. The size of the groups rotating through the stations is somewhat dependent on the equipment available for use during the stations. For example, if the planners can secure only eight sport wheelchairs, changing the number to eight participants per station would allow for 100% involvement and no wait time. If this were the case, perhaps a seventh station would be offered to accommodate the smaller number of participants per station. This hypothetical in-service will last for 3.5 hr (8:30 a.m.-12:00 p.m.) on the morning of a teacher workday. The morning will start with an introduction (15-minute), and then participants will rotate through the six stations at 30-min increments. A final 15-min closing debrief will conclude the in-service. If the hypothetical school district had a larger number of faculty attending the in-service, program planners might propose a

morning and afternoon session option to split a larger group in two, or they might add additional spaces and stations to keep the groups around 10 participants each.

While planning this in-service for the Cavalier County School District, program organizers utilized the PSD goals, with slight modifications for teachers as the audience. Modified goals included

- create an environment where teachers can experience realistic and holistic portrayals of disability sports and the athletes who play these sports;
- engage teachers in an array of contact-based activities that focus on Paralympic sport education, awareness, and inclusion, allowing them to challenge and find meaning in their own beliefs and experiences, and to translate these new understandings and skills to increased inclusionary practices; and
- provide an opportunity for skill development, knowledge acquisition, and reflection.

With these goals in mind, and with consideration of the space, time, and budget, the program planners for this hypothetical in-service training began to consider stations and recruit athletes.

To start the station and athlete determination process, the planners reached out to the local adaptive sport club and recruited three local athletes to join the in-service facilitation team. In addition to helping facilitate, the club offered to bring 10 sport wheelchairs for use in teaching wheelchair basketball. The program planners were keen on including wheelchair basketball, as it is highlighted in multiple studies that use the PSD framework; however, the equipment constraints are clear. Had the planners not been able to bring chairs into their in-service, they would have reached out to a local university that had sport wheelchairs for inclusive recreation use, to possibly determine if the in-service could take place as a partnership between the university and the school district. With the wheelchairs secured, the planners reached out to a Paralympian from the Wheelchair Basketball team to join two of the local athletes in facilitating that station. While still tentative, the stations were starting to come together at this point!

Next, the planners secured volleyball equipment from the high school PE department at the host school and determined that they would lower the net to meet sitting volleyball regulation rules and then would reach out to a Paralympian from the Sitting Volleyball team to recruit as a facilitator. Sitting volleyball would tentatively be the second station offered. During the aforementioned outreach to the local adaptive sport club, the planners learned that one local athlete had a background in Goalball (sport for those with visual impairments) and was willing to facilitate Goalball skills and game play. The planners determined that Goalball would be the third tentative station and would be in the auxiliary gymnasium. While the host school did not have Goalball equipment, the PSD station card listed the modified equipment needed. The planners found a great article about offering Goalball lessons in the PE setting and using existing PE equipment to create a realistic Goalball setting (Laughlin & Happel, 2016). The planners also reached out to local universities to determine if they had Goalball equipment and contacted the state school for the deaf and blind to ascertain if they could borrow equipment for use at the in-service.

During this tentative planning process, the program planners noticed that they currently had three stations that represented the first PSD value, "respect for sporting achievement." These were Wheelchair Basketball (Station Card 5), located on one side of the main gym; Sitting Volleyball (Station Card 4), located on the second side of the main gym; and Goalball (Station Card 3), located in the auxiliary gym. With this in mind, the planners reviewed the PSD activity cards and selected one station from each of the three remaining PSD value categories, as a holistic PSD offering includes stations representing each of the PSD values. From the second PSD value (respect and acceptance of individual differences), the planners selected Station Card 8, A Fairy Tale: Discussion About Inclusion, which would be executed in the wrestling room and would be facilitated by two of the district's guidance counselors. The main goal of this station is for students to gain respect for the uniqueness of all human beings and to express their feelings and opinions related to ability and disability, including assumptions, experiences, and societal norms. Other facilitators considered included university professionals who specialize in inclusion and disability sport education,

equity and diversity professionals with experience facilitating discussions about othering and breaking down biases, and community professionals specializing in diversity and inclusion conversations. The wrestling room offered a comfortable location to sit in a circle on the floor, distraction free, and have an honest and open dialogue challenging the paradigm through which participants view disability and disability sport.

The final two stations were in the two classroom spaces. From the third PSD value (sport as a human right), the planners selected Station Card 16, Paralympic Games, and recruited a Paralympic swimmer to facilitate a presentation and Q and A about the Paralympic experience. This presentation included topics such as the fanfare and majesty of the opening and closing ceremonies, what it is like living in the athlete's village, experiencing the thrill of the size and scope of the stadiums and facilities, and the experience of standing on the podium as the national anthem plays. While a swimmer was recruited for this hypothetical day, the nature of a station in the classroom setting that does not need specialized equipment opens a wide range of athletes for recruitment across all Paralympic sport offerings. Finally, from the fourth PSD value (empowerment and social support in sport), Station Card 19 was selected, where an "Athlete's Story" is brought to life. A Paralympic soccer player with cerebral palsy was recruited for this intimate discussion about their life, specifically focusing on their K–12 school experience, including the good, the bad, and the ugly that he experienced in the school and sport settings.

The manner in which these six stations were selected was fluid, as the process of reserving space, securing equipment, and recruiting athletes resulted in changes and modifications throughout the planning process. At the forefront of the planning were the four components of Allport's (1954) contact theory, as meaningful, collaborative, equal status contact that is supported by the school division is key to successful execution of the PSD in-service. In addition, each station included a portion of Q and A time and an opportunity for the teachers participating in the in-service to consider and troubleshoot how to utilize PSD and general skill modifications and inclusion strategies in their own PE classes. Station descriptions

for the six stations selected can be found at https://www.paralympic.org/the-ipc/paralympic-school-day.

Recruiting Paralympians

The hypothetical PSD-focused in-service briefly touched on the recruiting process of Paralympians. This section dives deeper into the considerations and strategies for navigating this process. The IPC recommends having Paralympians present at the event (McKay, 2013). While local, national, or collegiate athletes are great additions to a PSD event, a Paralympian can speak to the Paralympic experience firsthand.

A common barrier to conducting a PSD event is figuring out how to contact the athletes. A variety of organizations can aid in this process. The Team USA website hosts biographies on all Paralympians along with links to personal websites and social media pages. Through use of personal websites and social media, you can begin a dialogue with the athletes. Move United is another resource for finding athletes. Move United is a nonprofit that promotes parasport opportunities for individuals with disabilities. Move United maintains a national network of over 200 parasport clubs, and you can search for clubs in your local area (Move United, 2022). Local sport clubs can recommend and help connect the PSD planner to athletes in their area.

Additional characteristics of the athletes need to be considered in the recruitment of Paralympians for a PSD-focused in-service for PE teachers. The age of the athlete is important to consider. PE has changed drastically over the years, and as a result, it is important that the athletes are young enough to share their relevant PE experiences within the past 2 decades. This means that the athletes would need to have been born after 1990. Another rationale for this age recommendation is that the most recent reauthorizations of the Individuals With Disabilities Education Act (IDEA) starting in the mid 1990s emphasized the need for children with disabilities to have greater access to the general education curriculum, including general PE (Block et al., 2020). As a result, children with disabilities attending schools from 2000 on were likely to experience inclusion in general PE, and as young adults, they would be better able to recall and share their experiences when they were included in general PE.

Another consideration is the onset of their disability. Many Paralympians acquired their disability later in life and possibly even after they graduated from K–12 education. To provide the in-service participants with the most relevant perspectives of navigating general PE as a student with a disability, the athletes need to have had their disability while in school, whether the disability is congenital or acquired at a young age. Recruiting athletes with both congenital disabilities and acquired disabilities is a valuable consideration, as both offer a wealth of firsthand experiences in physical education and physical activity settings.

It is also important that athletes participating in the PSD event have different disabilities. This allows for diverse perspective sharing as well as a way of continuing to challenge the participants' beliefs of disability by creating an environment in which the participants have the opportunity to engage in meaningful contact with athletes with a variety of disabilities. The hypothetical PSD-focused in-service intentionally includes activity cards that highlight different parasports. It is important that there is a variety of parasport experiences provided. This increases the participants' knowledge of parasport opportunities for students with varying disabilities.

By now, the PSD planner has determined a list of potential Paralympians that are best suited to meet the needs of this PSD-focused in-service event. Next, there are more logistical tasks that need to be addressed such as travel and accommodation costs and if the athletes require guest-speaker fees. If there are funding constraints, the PSD planner may need to recruit Paralympians who are geographically conveniently located. The PSD planner will also need to provide to the Paralympians contracts that outline their roles and responsibilities during the event.

Summary

This paper provides the reader with a guide to developing and hosting their own PSD in-service for PE teachers. Although the PSD program was created for children without disabilities, the program can be used as a model for developing an in-service that can help PE teachers develop an awareness, understanding, and appreciation of disability sport and the abilities of individuals with disabilities. What makes the PSD-focused in-service so unique are carefully planned activities in which PE teachers experience disability sports

and have positive interactions with Paralympic athletes who play them. It is hoped that after participating in the in-service, PE teachers will develop better attitudes toward children with disabilities and be more willing to engage with and accommodate these children in their general PE classes. In and of itself, accommodating children with disabilities in general PE through provision of different equipment and subtle modifications to rules is not particularly difficult. However, in keeping with Allport's contact theory, PE teachers will more likely want to implement these accommodations and support children with disabilities in their classes if they have had positive contact with individuals with disabilities, in this case positive contact with Paralympians.

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ADAPTED PHYSICAL EDUCATION

Physical Education Skill Development of Individuals With Visual Impairments: A Preliminary Study

T. N. Kirk, Justin A. Haegele, Xihe Zhu

Abstract

Evidence suggests that youth with visual impairments often experience exclusion from participation in physical education (PE). This study examined the frequency that individuals with visual impairments reported having learned fundamental motor skills and commonly taught PE sports skills, the importance that they ascribed to learning such skills, and their confidence that youth with visual impairments could master them. Adults with visual impairments completed an online questionnaire regarding their experiences with common PE skills. Data were analyzed through frequency analysis and repeated-measures analysis of covariance. Participants engaged most frequently in fundamental motor skills and least in team sports. Participants' mean ratings of confidence and importance were highest for fundamental motor skills compared with other skill categories. Results regarding nonparticipation in some skills align with previous findings that youth with visual impairments often do not participate in all aspects of PE.

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Maintaining a physically active lifestyle may decrease a person's chances of developing ongoing health concerns such as coronary and metabolic diseases, stroke, and cancer (e.g., Piercy et al., 2018). Though many factors contribute to physical activity engagement, a person's perceptions regarding their own motor competence, fundamental motor skill development, and physical activity engagement are interrelated, beginning in childhood and lasting through adolescence and beyond (Robinson et al., 2015; Stodden et al., 2008). Some empirical inquiries support the link between participating in physical activity and higher levels of motor competence (Barnett et al., 2022; De Meester et al., 2018; Williams et al., 2008). For example, elementary children who have higher motor competence are more likely to meet Centers for Disease Control and Prevention's guidelines for physical activity than those who exhibit lower motor competence (De Meester et al., 2018). Though studies regarding this relationship have been cross-sectional examinations of youth populations, there has also been some evidence of a longitudinal relationship between physical activity engagement in K–12 years and health indicators, including physical activity engagement, throughout adulthood (Barnett et al., 2022; Robinson et al., 2015; Telama et al., 1997; Telama et al., 2005).

Research examining motor skill competence, and the role of motor competence in influencing physical activity, has extended to youth with visual impairments. Research indicates that youth with visual impairments typically have lower motor competence compared to their sighted contemporaries (Brian et al., 2021; Houwen et al., 2010; Wagner et al., 2013) and are more likely to be delayed in their motor skill development (Brambring, 2006; Sellers et al., 2001). In particular, youth with visual impairments tend to perform worse at object control skills such as dribbling and catching (Houwen et al., 2007; Wagner et al., 2013). In addition to difficulties with fundamental motor skills, across the lifespan individuals with visual impairments often do not accumulate sufficient physical activity to garner health-related benefits (Haegele, 2019; Haegele, Zhu, et al., 2021; Marmeleria et al., 2014).

Physical education (PE) in K–12 school is a key environment in which fundamental motor skills and sports skills are taught, developed, and assessed (Morgan et al., 2013; SHAPE America, 2013).

PE-based interventions designed to target fundamental motor skill acquisition are largely effective at improving motor competence in children (Morgan et al., 2013). Unfortunately, while many students with visual impairments are enrolled in integrated PE classes alongside their sighted peers, they are frequently excluded from many skill-building opportunities within those spaces (Haegele & Kirk, 2018; Haegele, Kirk, et al., 2021). Youth with visual impairments tend to feel excluded from PE activities for a variety of reasons, including a lack of appropriate modifications to the sport or equipment, inaccessibility of the PE environment, and lack of stakeholder belief that students have the ability to safely perform the skills needed to engage in the activity (Haegele & Kirk, 2018; Haegele & Zhu, 2017; Haegele, Kirk, et al., 2021). Further, exclusion from activity extends beyond traditional PE activities to activities for those who are visually impaired or blind such as goalball, five-a-side (blind) soccer, and beep baseball. For instance, a group of Paralympic goalball players from the United States were not introduced to adapted sports as a part of their PE curricula (Haegele et al., 2017). Instead, they relied on community-based outreach programs to learn and practice their adapted sport skills. Perhaps unsurprisingly, the participants considered these extracurricular programs more important to the development of their sport skills and athletic identity, when compared to their school-based PE experiences. Taken together, these findings indicate that students with visual impairments may not be given sufficient opportunity to improve the motor competence necessary for lifelong physical activity participation in sports and activities that are meaningful for this population.

To date, the literature surrounding pedagogical practices within PE for students with visual impairments has consisted principally of non-empirical works aimed at sharing best teaching practices with practitioner audiences (e.g., Lieberman et al., 2014). While the body of research around lived experiences of learners with visual impairments in PE has expanded in recent years, less emphasis has been placed upon acquisition of specific fundamental motor and sports skills and their relevance to learners with visual impairments. Therefore, this study aimed to examine the frequency with which individuals with visual impairments report having learned fundamental motor skills and commonly taught K–12 sports skills, the

importance that they ascribe to possessing such skills, and how confident they are that other youth with visual impairments can master them.

Method

Participant Recruitment

Participants were recruited via research-oriented, online directories for individuals who have visual impairments. To be included in the study, potential participants needed to (a) be 18 or older at the time of data collection, (b) have had a visual impairment (ranging from low vision to no light perception) during their K–12 education, (c) have spent the majority of their K–12 education within the United States, and (d) be able to access and complete the electronic survey. Recruitment materials were distributed by the coordinators of the registries and included a cover letter explaining the study aims, criteria for participants, an estimation of the time needed to complete the survey, and a link to complete the Qualtrics-hosted survey. If the policy of the directory allowed, one reminder email was sent to subscribers approximately 2 weeks after the initial invitation for participation was sent. When potential participants followed the link for the accessible online survey, they were brought to a welcome screen that included the informed consent for the study. Participants could only access the survey items after they had consented to participation. Procedures were accepted by the institutional review board (IRB) before data collection.

Participants

In total, 161 persons accessed the survey from the research announcements. Of those, 108 (67%) successfully completed the questionnaires in their entirety and were included in data analyses. Participants ranged from age 19 to 72 years old (M_{age} = 42.8; SD = 15.8). The majority of participants were female (71.3%) and identified as White or Caucasian (86.1%). Over half of the participants (56.5%) reported vision within the U.S. Association of Blind Athletes (USABA) B1 class (i.e., minimal light perception or less with the best possible correction), whereas 11.1%, 20.4%, and 12.0% reported B2 (i.e., 20/200–20/600 and/or a visual field of five degrees or less), B3 (i.e., 20/200–20/70 and/or a visual field between 20 and

five degrees), and B4 (i.e., low vision), respectively (USABA, 2013). Most participants reported attending integrated public schools for the majority of their education (85%), whereas the remainder reported attending schools for the blind (13.0%), integrated private schools (4.6%), or being homeschooled (0.9%). Fifty-five participants (50.9%) reported attending school in a suburban area. Detailed participant characteristics appear in Table 1.

Instruments

Two questionnaires served as the primary sources of data for this inquiry. First, perceptions and experiences regarding PE skills were measured through a novel questionnaire. The instrument was developed first through determination of the most commonly taught team and individual sports and activities in PE classes within the United States, as reported by Lee et al. (2007). Skills that were related to team or individual sports as well as lifetime fitness and were taught in 30% or more of public schools were included in the instrument. Infrequently taught skills (e.g., lacrosse, golf, hiking) and childhood games (e.g., duck, duck, goose; tag games) were not included in the instrument. In addition to the PE skills from Lee et al., the instrument also contained items derived from the locomotor skills included in the Test of Gross Motor Development (Ulrich, 2013). These accounted for early elementary experiences. In total, 30 skills were included in the instrument.

Three questions were associated with each of the listed skills. Participants gave their perceptions of the importance of the skill, whether they believed youth with visual impairments could master the skill, and if they themselves experienced the skill while in physical education. For each skill, participants were first asked to rate their agreement with the statements "This skill is important for a child with a visual impairment like me to learn in school PE" (perceived importance) and "I believe that children with visual impairments like me are likely to master this skill during K–12 PE" (ability to master) on a 5-point scale. Following, participants were asked whether they experienced each skill in their PE classes. Possible answers for these items were "yes," "no," or "my classmates did but I did not." Last, participant demographics such as (a) age, (b) gender identity (i.e., female, male, other), (c) vision level (i.e., USABA B1–B4), (d) racial or ethnic identity (i.e., African American/Black, Asian, Hispanic/

Table 1
Participant Characteristics

Characteristic	*N* (%)	*M* (*SD*)
Age	107 (100)	42.74 (15.83)
Gender		
Female	77 (72.0)	
Male	30 (28.0)	
Ethnicity/race		
African American/Black	3 (2.8)	
Asian	3 (2.8)	
Hispanic/Latino	5 (4.7)	
White	92 (86.0)	
Other	4 (3.7)	
Visual impairment level		
B1	60 (56.1)	
B2	12 (11.2)	
B3	22 (20.6)	
B4	13 (12.1)	
Additional disability		
Having other disabilities	14 (13.1)	
No other disability	93 (86.9)	
K–12 school type		
Public integrated school	88 (82)	
Private or homeschool	19 (17.8)	
Residential community type		
Rural	24 (22.4)	
Suburban	55 (51.4)	
Urban	28 (26.2)	

Latino, White, other), (e) school environment (i.e., public integrated, private integrated, homeschooled), and (f) community environment during schooling years (i.e., rural, suburban, urban) were collected with a seven-item demographic questionnaire. The accessibility of the survey for individuals with visual impairments was checked with

three screen reader users reviewing the survey and agreeing to its accessibility, prior to distribution.

Data Analysis

To analyze the data, we first conducted frequency analyses on the participation experiences for each of the skills and demographic characteristics and ran internal reliability for the perceived importance and confidence for each skill. Next, we grouped similar skills together into categories to compare overall ratings of perceived importance and competence for each type of skill. Skill categories included fundamental movement skills (e.g., galloping, hopping, running, skipping), individual sports and activities (e.g., aquatics, swimming, yoga), team sports (e.g., floor hockey, soccer, volleyball), and blind sports (i.e., beep baseball, five-a-side soccer, goalball, showdown). Then, we conducted the descriptive analyses on the composite average of the perceived importance and confidence by skill category. To examine the potential differences in perceived importance and confidence levels for different skill categories and whether they differed between individuals of different demographic characteristics, we ran analyses of co-variances with repeated measures (ANCOVA), in which participant age, gender, and visual impairment level were adjusted. The analyses were completed through SPSS (version 25) with an alpha of 0.05.

Table 2
Reported Skill Participation in Physical Education

Sport	Participated %	Did not participate %
Team sports		
Basketball	57.0	23.4
Baseball	70.1	13.1
Volleyball	54.2	28
Soccer	42.1	42.1
Football	38.3	43
Floor hockey	18.7	65.4
Ultimate frisbee	11.2	80.4
Lacrosse	10.3	83.2

Table 2(cont.)

Sport	Participated %	Did not participate %
Individual sports and activities		
Running	84.1	12.1
Jumping rope	79.4	14
Walking for fitness	78.5	20.6
Disc golf	2.8	93.5
Track and field	73.8	18.7
Yoga	17.8	81.3
Tennis	17.8	62.6
Other racquet sports	19.6	60.7
Bowling	48.6	51.4
Gymnastics	61.7	34.6
Resistance training	56.1	37.4
Cardio machines	54.2	43.9
Golf	18.7	76.6
Aquatics	41.1	57.9
Dance	51.4	43.9
Fundamental movement skills		
Hop/jump	86	13.1
Leap	74.8	24.3
Gallop	64.5	34.6
Slide	61.7	37.4
Skip	77.6	19.6
Blind sports		
Goalball	16.8	79.4
Five-a-side soccer	7.5	91.6
Beep baseball/kickball	20.6	79.4
Showdown	1.9	97.2

Results

The reported participation experiences for different skill categories varied (Table 2). On average, participants reported the highest rate of participation in fundamental movement skills (72.9%), followed by individual sports and activities (47.4%), then team sports (37.3%). Interestingly, participants reported the lowest rates of participation in visual impairment sports (11.7%) during PE classes. For example, only two participants (1.9%) had played showdown, a version of table hockey for players with visual impairments, whereas 97.2% had not played it in school.

The perceived importance and confidence items for team and individual sports, fundamental movement skills, and blind sports had good internal consistency, with Cronbach alpha values ranging from 0.85 to 0.94. As shown in Table 3, when adjusted for participant age, gender, and visual impairment level, repeated-measures ANCOVA showed that the perceived importance differed significantly among different skill categories, $F_{3,101} = 61.48$, Pillai's $\lambda = 0.65$, $\eta^2 = .65$, $p < 0.01$. Specifically, participants reported the highest perceived importance for fundamental movement skills ($M = 4.64$), which was higher than individual sports ($M = 4.17$), blind sports ($M = 3.89$), and team sports ($M = 3.34$). Similarly, the participant perceived confidence for different skill categories differed significantly, when adjusted for participant age, gender, and visual impairment, $F_{3, 101} = 81.45$, Pillai's $\lambda = 0.71$, $\eta^2 = .71$, $p < 0.01$. There was no difference in perceived importance or confidence in these skill categories between the types of schools (i.e., public or private) or those who participated in two or more skill categories compared with those who had participated in one or no skill categories (ps > 0.05).

Discussion

This study examined the frequency with which individuals with visual impairments reported having learned fundamental motor skills and commonly taught PE sports skills, the importance that they ascribed to learning such skills, and their confidence that youth with visual impairments could master them. Prior research concerning PE and motor skills among this population typically used qualitative interviewing to examine how this population experienced PE (e.g., Haegele & Kirk, 2018) or issues of motor competence and skill

Table 3
Perceived Confidence and Importance of Skill Categories among Participants

Dependent variable	$F_{3, 101}$	Pillai's λ	η^2	*p*	Sport	Cronbach's α	*M* †	95% CI
					Team	0.93	3.34	3.14–3.53
Perceived importance	61.48	0.65	0.65	< 0.01	Individual	0.87	4.17	4.06–4.27
					FMS	0.93	4.64	4.51–4.77
					VI	0.85	3.89	3.71–4.06
					Team	0.94	2.85	2.64–3.06
Perceived confidence	81.45	0.71	0.71	< 0.01	Individual	0.92	4.00	3.87–4.13
					FMS	0.94	4.57	4.42–4.73
					VI	0.91	3.86	3.64–4.09

Note. CI = confidence interval; FMS = fundamental movement skills; VI = visual impairment (blind) sport.

† adjusted for participant age, gender, and VI level.

acquisition (e.g., Brian et al., 2018). Further, the body of literature exploring suitable PE skills or modifications for individuals with visual impairments consisted largely of articles that were not empirical in nature (e.g., Lieberman et al., 2019). To our understanding, this study is unique in that examined the importance, confidence, and participation in common PE skills among this population.

Results of this study show that participation varies considerably across different PE skills. In general, participation in fundamental movement skills, such as jumping, skipping, galloping, is much higher than participation in any other skill category. Though the underlying reason for this discrepancy is unclear, possible explanations for the relatively high rates of participation in fundamental movement skills include the time in which these skills are focused on in one's education and physical educators' attitudes toward teaching students with disabilities at different educational levels. Typically, fundamental movements skills form the curricular focus of elementary PE, especially at the earlier grade levels (Kulinna, 2008). Additionally, it is well known that PE teachers generally report more positive beliefs about educating students with disabilities during the elementary years than middle or high school levels (Rizzo, 1984). This is reflected in research from the viewpoint of people with visual impairments, who report more favorable PE experiences coming during elementary school years in comparison to later educational experiences (Haegele & Zhu, 2017). As such, it is reasonable to suggest that the less structured activities and environments within elementary PE classes, which are generally highly rooted in fundamental motor skills, are more accessible and, perhaps inclusive, for youth with visual impairments than hypermasculine sport-focused activities that tend to permeate middle and high school PE classes.

Interestingly, the findings point to participants rarely participating in adapted sports and games for individuals with visual impairments, at least within the context of PE, with participants reporting beep baseball or beep kickball the most (20.6%) and showdown the least. This suggests that students with visual impairments have few opportunities to practice sports and games that are designed for them and may be well-suited to their interests and abilities. This is contrary to numerous calls in practitioner-based works that recommend infusing blind sports (e.g., goalball) into integrated PE class

curricula for students with visual impairments (Brian & Haegele, 2014; Laughlin & Happel, 2016). However, this may not be surprising given that earlier qualitative studies concerning PE experiences among this population suggest that, indeed, many individuals with visual impairments are not introduced to sports such as goalball, five-a-side soccer (blind soccer), or even beep baseball in school. Rather, in general, people with visual impairments who experience blind sports do so in extracurricular settings such as outreach centers for individuals with visual impairments or as students enrolled in schools for the blind, rather than in public schools (Haegele et al., 2017).

The findings show a difference in participants' perceptions of the importance of PE skills across categories; that is, fundamental movement skills are the most important, followed by individual sports and activities. Likewise, the participants' answers point to a higher confidence that students with visual impairments can master these PE skills within these categories. This finding may not seem surprising, as it generally reflects their participation rates; however, participants did report significantly higher confidence and importance values for blind sports, as compared with nonadapted team sports, which does not reflect their participation rates. This suggests that despite relatively little participation in blind sports during their own PE experiences, participants still value sports that are designed with students with visual impairments in mind. Research examining the role of activity choice on motivation in PE shows a link between perceived relevance and importance of PE activities (e.g., sports) and higher interest, autonomy, and participation among students in the PE classroom (Lonsdale et al., 2013; Vasconcellos et al., 2020). Though it is unknown whether the samples in these studies include individuals with visual impairments, they nonetheless underscore the need to include relevant activities in the PE curriculum. In the case of students with visual impairments, PE may be an important opportunity to introduce blind sports to support lifetime physical activity (Laughlin & Happel, 2016; Taunton et al., 2017).

This study's approach to understanding curricular histories of individuals with visual impairments and to evaluating this PE content is unique. However, it has a few limitations. For example, the sample skews toward women, Caucasians, and people within the

B1 classification. Second, while participant ages ranged from 19 to 72 years old, their average age is just under 43 years of age. This may be a limitation because it may not reflect the participation in PE for youth with visual impairments today. Finally, though only about 13% of participants report an additional disability, it is possible that co-occurring impairments such as mild hearing loss and mild cerebral palsy have some impact on the PE experiences of this subgroup.

This study extends the body of knowledge concerning the PE experiences of individuals with visual impairments. In particular, the results provide foundational knowledge about PE preferences of individuals with visual impairments and further illustrate experiences of exclusion and nonparticipation in many activities that are central to PE curricula. On the basis of these findings, practitioners such as PE teachers should seek to emphasize valued PE skills, such as fundamental motor skills, individual sports and games, and adapted sports, while decreasing the emphasis on team sports when teaching students with visual impairments. PE teachers should also incorporate sports and games designed for visually impaired populations, such as goalball and beep baseball or kickball. Further, PE teacher educators should introduce adapted sport content as a part of teacher training curricula, alongside other sports and games whose skills are considered essential content knowledge.

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EXERCISE PHYSIOLOGY

The Effect of an Intentional Functional Movement Warm-Up on Ninth Graders' Movement Quality

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Abstract

Dysfunctional movement, a suggested contributing factor for musculoskeletal pain and injury, appears to increase as adolescents experience puberty. This study investigated dysfunctional movement among a group of ninth-grade physical education students to determine if a standardized functional movement warm-up (FMWU) would improve movement quality more than a regular physical education warm-up. The FMWU group (n = 22) completed the assigned warm-up 3 times/week over 9 weeks, whereas the regular warm-up (RWU) group (n = 22) completed a regular dynamic warm-up. The Functional Movement Screen (FMS) was used in the assessment of movement quality pre and post. The FMS total composite mean score was 12.20 (SD = 1.56). Additionally, 45.5% of participants had at least one asymmetry and 93.2% scored a 1 on at least one FMS task. There was a significant Group × Time interaction, $F(1, 42) = 11.27$, $p = .002$. The FMWU group significantly improved for the total composite score, deep squat (DS), rotatory stability, and scores of 1. All other measures of movement trended positively for the FMWU group except the in-line lunge (ILL), which remained the same. The RWU group slightly

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or significantly worsened in the DS, ILL, active straight leg raise, and hurdle step, and the total composite score did not change. The findings of this study suggest there is a high rate of dysfunctional movement among ninth-grade adolescents and an intentionally designed FMWU is an efficient method of addressing movement quality in physical education.

Adolescents with musculoskeletal pain experience behavioral, physical, and psychological consequences and they are more likely to become one of the 160 million American adults who suffer from pain. Adolescents report being absent from school, a decrease in physical activity, and a lower health-related quality of life due to musculoskeletal pain (Jones et al., 2004; O'Sullivan et al., 2012).

Deficits in functional movement patterns have been suggested as a contributing factor to musculoskeletal pain and injury (Brown et al., 2008; Campbell & Muncer, 2005; Powers, 2003). Individuals can develop restrictions in joint mobility (i.e., production of movement) and stability (i.e., steadiness while resisting excessive motion), resulting in a change of coordinated movement. The adaptive movement patterns (i.e., dysfunctional movement) a person uses to overcome restrictions in mobility and/or stability can create undue stress on body structures, resulting in pain, inflammation, and injury (Comerford & Mottram, 2001a, 2001b; Cook, 2010; Powers, 2003).

After the onset of puberty, musculoskeletal pain and injury can dramatically increase, whereas quality functional movement appears to decline (Kamper et al., 2016; Wild et al., 2016). Injury can be a consequence of a decline in movement quality (Hewett et al., 2005; Omi et al., 2018; Ridder et al., 2017; Zazulak et al., 2007).

Overall, adolescent movement quality scores are low, with raw mean scores of 14 or less on the Functional Movement Screen (FMS; Lester et al., 2017; Liao et al., 2017). For example, a score of ≤ 14 is a potential threshold of injury for professional football players (Kiesel et al., 2007). Adolescents in general, though, may have a lower normal score due to their age and physical maturity. The reported total mean score for an active adult population is 15.7 (Schneiders et al., 2011), whereas the reported total FMS score for a regularly active adolescent population is 14.59 (Abraham et al., 2015). However, even with the lower normative value for active adolescents, some total FMS scores in the general adolescent populations are concernedly

low, falling below 14.59 (Duncan et al., 2013; Lester et al., 2017). Additionally, when there is greater than 50% of adolescents present with at least one asymmetry, this can further stress the kinetic chain (Coker, 2018; Mitchell et al., 2015).

Interventions that improve movement quality, as measured by FMS, have been widely researched in the athletic and physical labor force (e.g., firefighters, military) populations. Improvement in FMS total composite scores and reduction of asymmetries have been demonstrated in various populations such as football players, MMA fighters, and firefighters after 4 to 8 weeks of programming (Bodden et al., 2015; Kiesel et al., 2011; Stanek et al., 2017). Published studies investigating the effect of interventions on the general early to mid-adolescent population have been limited and have had mixed findings. While Coker (2018) and McFelea et al. (2010) found marked improvement of FMS scores for boys only, Wright et al. (2015) did not find significant improvement in the total composite score of participants. Thus, further investigation could further understanding of how FMS scores can be enhanced. Therefore, this study investigated dysfunctional movement among a group of ninth-grade physical education students to determine if a standardized functional movement warm-up (FMWU) would improve movement quality more than a regular physical education warm-up. We hypothesized that the FMWU would improve movement quality more than just participation in regular physical education in the general early to mid-adolescent population.

Method

This study used a convenience sample to gather information about the functional movement quality of adolescents in ninth-grade physical education. Participants' movement quality was assessed with the Functional Movement Screen (FMS) at the beginning of the school year and again 9 weeks later. For the 9 weeks, the intervention group completed a standardized functional movement warm-up (FMWU), whereas the control group completed their regular dynamic warm-up at the beginning of their physical education classes.

Participants

Ninth-grade students (aged 13–15) were recruited from a Midwestern public high school. After Institutional Review Board

(IRB) approval, parental consent was collected before the start of school. Students with parental consent were randomly assigned to Class A (35 students) or Class B (36 students) by the physical education department. Fifty-six of the eligible ninth-grade students (30 female, 23 male) assented to the study. Class A was assigned as the FMWU group and Class B as the regular warm-up (RWU) group. Exclusion criteria included a musculoskeletal injury that prevented physical education participation at the start of the study or pain while performing any FMS tasks. None of the participants met the exclusion criteria at pretesting. However, there was some attrition of participants due to moving of schools, being absent on testing days, or not completing every FMS task during posttesting. Forty-four of the 56 participants completed pre- and posttesting. There was also one teacher included in the study. The teacher led the FMWU.

Procedure

All ninth-grade physical education participants' movement quality was screened at the beginning of the school year with the FMS and again 9 weeks later. The FMWU completed the intervention 3 times/week (Monday, Wednesday, Friday), except for one week when the warm-up was only completed once due to school vacation (i.e., fall break). There were 25 total sessions. After participants were acclimated with the exercises, the warm-up was completed at the start of class in approximately 9 min. The RWU group participated in their normal dynamic warm-up for the 25 sessions. After completing their respective warm-ups at the beginning of class, all participants partook in their regular physical education activities for the day.

The lead researcher facilitated FMS testing and two raters independently scored the FMS via video. This ensured reliability of the ratings. Video scoring has been shown to be an effective method for inter- and intrarater reliability and even novice raters have been shown capable of scoring the simple tests effectively (McCunn et al., 2016; Minick et al., 2010). The FMS consists of seven tasks: deep squat (DS), in-line lunge (ILL), hurdle step (HS), active straight-leg raise (ASLR), trunk stability push-up (TSPU), rotary stability (RS), and shoulder mobility (SM; Cook, 2010). The seven movement patterns are each scored in value from 0 to 3, with a score of 3 being awarded when the movement pattern is completed with no

physical compensations. A score of 2 is awarded for completion of the movement pattern, but some deviation in the movement pattern is present. A score of 2 is still considered a satisfactory score. A score of 1 is awarded if the individual is not able to complete the movement pattern. A score of 0 is given if pain is present. The individual scores are added together for a total composite score out of 21. Additionally, there are three clearing tests for the shoulder and back that are simply scored as a plus (pain present) or minus (no pain; Cook et al., 2014b). Collected demographic and background information included age, gender, height, weight, participation in an organized sport, significant injury history, and physical activity. The Physical Activity Questionnaire for Adolescents (PAQ-A) was used in the assessment of physical activity (Kowalski et al., 2004).

The teacher of the FMWU group led the warm-up for 9 weeks, being provided written instructions and trained on how to lead the FMWU. The FMWU includes exercises to address ankle mobility (i.e., dorsiflexion), leg stability and mobility (i.e., hip mobility and weak and/or inactive gluteal muscles), thoracic spine mobility, shoulder mobility and stability, and trunk stability (i.e., weak and/or inactive core muscles). These issues are often reported in clinical practice when performance on FMS tasks results in a score of less than 3 (Cook et al., 2014a, 2014b). The lead researcher developed the FMWU and two board-certified physical therapists reviewed it. Table 1 shows the warm-up. The RWU group, led by a different teacher, completed their normal warm-up activities (i.e., jog and dynamic warm-up) each day. Postintervention, all participants were retested with the FMS, with the same protocol as the pretesting.

Table 1
Functional Movement Warm-up

Exercise	Description
Jog	Across court and back keeping hip, knee, and ankle aligned.
Shuffle	Across court and back keeping hip, knee, and ankle aligned.
Backpedal	Across court and back landing on toes and keeping knees bent slightly.

Table 1 (cont.)

Exercise	Description
Forward/backward hops	While maintaining slight bend in knees and keeping hip, knee, and ankle aligned, jump forward 3 times and backward 3 times.
Lateral hops	While maintaining slight bend in knees and keeping hip, knee, and ankle aligned, jump left 3 times and right 3 times.
Forward run 3-step deceleration	Across court and back without extending lead leg knee beyond toe on stop.
Walking lunges	Across court keeping hip, knee, and ankle aligned.
Low bear crawl	Across court, using reciprocal pattern and keeping knees only slightly off floor, maintain a flat back.
Bird dogs	While in a quadruped position, raise opposite arm and leg for 3 seconds for 3 repetitions and repeat for other side.
Bridge	Hold 3 seconds for 3 repetitions while laying supine on the floor, hips to the ceiling with knees flexed beyond 90 degrees.
Thoracic spine rotation with reach	Rotate torso with bottom arm reaching for the ceiling with top knee flexed at 90 degrees. From this position, take 5 deep breaths then repeat on other side.
Inchworm with push-up plus	3 repetitions of bending forward and walking hands out slowly, when in a push-up position push upper back toward the ceiling and hold for 3 seconds, then walk feet to hands and begin next repetition.
Single leg RDL with knee raise	Bend at hips and extending 1 leg behind body while lowering torso, extending arms back, palms up and keeping back flat, then return to standing position on 1 leg and bring knee up toward torso. Repeat 3 times for each leg.

Table 1 (cont.)

Exercise	Description
Deep (low) squat with calf stretch	With feet shoulder width apart, lower bottom to ground, attempting to keep heels flat, hold for 3 seconds, then walk out hands to downward dog position, eliciting stretch in hamstrings and calves, hold for 3 seconds, then bend knees, hold for 3 seconds, then push back into low squat. Complete 3 full repetitions.
Overhead squat	With arms at sides, palms facing body ,and thumbs up, flex straight arms to form a Y with the body while squatting to as close to parallel as possible, hold for 3 seconds. Complete 3 repetitions.

Note. For a complete description, contact the lead researcher.

Data Analysis

The FMS total composite mean score, individual tasks scores, asymmetries, and scores of 1 for all participants were reported with descriptive statistics. Whether a standardized FMWU in physical education improves movement quality more than a regular physical education warm-up was determined through a mixed-design (Group × Time) analysis of variance (ANOVA) for the total composite score. Paired-sample *t* tests were completed for within differences of all movement quality measures.

Results

Forty-four participants (19 male, 25 female) with a mean age of 14.25 (*SD* = 0.49) completed pre- and post-FMS testing. Table 2 shows the descriptive statics. The FMS total composite score of all participants was 12.20 (*SD* = 1.56). Scores ranged from 9 to 15, with 95.5% scoring ≤ 14, 56.8% scoring ≤ 12, and 22.8% scoring ≤ 10. The SM and ASLR were the highest of the seven FMS tasks, with 79.6% and 81.8% participants, respectively, scoring a 2 or 3. The DS and TSPU were the lowest of FMS scores, with 65.9% and 77.3% of participants, respectively, scoring a 1. Additionally, 45.5% of participants had at least one asymmetry; 93.2% scored a 1 on at least one

Table 2
Baseline Descriptive Statistics of All Participants

Descriptive	*N*	Range	*M*	*SD*
Total composite	44	9.00–15.00	12.20	1.56
SM	44	1.00–3.00	2.39	.81
HS	44	1.00–2.00	1.91	.29
DS	44	1.00–2.00	1.34	.48
ILL	44	1.00–2.00	1.80	.41
ASLR	44	1.00–3.00	1.98	.59
RS	44	1.00–2.00	1.59	.50
TSPU	44	1.00–2.00	1.22	.42
Asymmetries	44	0.00–3.00	.84	.78
Scores of 1	44	0.00–5.00	2.55	1.35

Note. SM = shoulder mobility; HS = hurdle step; DS = deep squat; ILL = inline lunge; ASLR = active straight leg raise; RS = rotary stability; TSPU = trunk stability push-up.

FMS task, 77.3% scored a 1 on two or more FMS tasks, and 27.3% scored a 1 on four or five FMS tasks.

Independent-samples *t* tests were used in the calculation of any differences between groups for numerical data and Fisher's Exact Test was used for categorical data at the start of the study. There were no significant differences between the groups in pre-FMS total composite scores, asymmetries, scores of 1, injury history, sports participation, physical activity levels, and overweight/obesity ($p > .05$).

A mixed-design (Group × Time) ANOVA on the total composite scores revealed a significant Group × Time interaction, $F(1, 42) = 11.27$, $p = .002$. Paired-samples *t* tests were used in the comparison of FMS total composite scores and individual FMS tasks scores pre versus post (Table 3). The paired-samples *t* tests revealed a significant increase from the pretest composite score ($M = 11.95$) to the posttest composite score ($M = 13.13$) for the FMWU group, $t(21) = -3.954$, $p = .001$, and no difference for the total composite score ($M = 12.45$ both pre and post) of the RWU group, $t(21) = .000$, $p = 1.00$. The paired-samples *t* test for individual FMS tasks scores

found the FMWU group significantly improved in DS (p = .011) and RS (p = .021), whereas the RWU group did not significantly improve for any task and the ASLR significantly declined (p = .04). Paired-samples t tests were also conducted for the comparison within groups pre versus post asymmetries and scores of 1, which denote dysfunction. There was no significant difference in asymmetries from pre to post for the FMWU group, $t(21) = 1.821$, p = .08, or the RWU group, $t(21) = 1.096$, p = .29. Scores of 1 significantly declined from pre to post in the FMWU group, $t(21) = 3.846$, p = .001. No significant difference was found in scores of 1 from pre to post in the RWU group, $t(21) = -.439$, p = .67.

Table 3
Means and Standard Deviations for the RWU and FMWU Group

	RWU group (n = 22)		**FMWU group (n =22)**	
	Pretest	**Posttest**	**Pretest**	**Posttest**
Total composite	12.45 ± 1.71	12.45 ± 1.74	11.95 ± 1.40	13.13 ± 1.75*†
SM	2.64 ± 0.66	2.86 ± 0.35	2.14 ± 0.89	2.36 ± 0.73
HS	1.95 ± 0.21	1.95 ± 0.21	1.86 ± 0.35	1.95 ± 0.21
DS	1.22 ± 0.43	1.14 ± 0.35	1.45 ± 0.51	1.72 ± 0.46*†
ILL	1.77 ± 0.43	1.68 ± 0.48	1.82 ± 0.39	1.82 ± 0.39
ASLR	2.05 ± 0.72	1.85 ± 0.71**‡	1.91 ± .43	2.05 ± 0.72
RS	1.59 ± 0.50	1.64 ± 0.49	1.59 ± 0.50	1.82 ± 0.39*†
TSPU	1.22 ± 0.43	1.32 ± 0.57	1.22 ± 0.43	1.41 ± 0.59
Asymmetries	0.77 ± 0.81	0.55 ± 0.74	0.91 ± 0.75	0.64 ± 0.73
Scores of 1	2.50 ± 1.50	2.59 ± 1.50	2.59 ± 1.22	1.68 ± 1.09**†

Note. RWU = regular warm-up; FMWU = functional movement warm-up; SM = shoulder mobility; HS = hurdle step; DS = deep squat; ILL = inline lunge; ASLR = active straight leg raise; RS = rotary stability TSPU = trunk stability push-up.
*significant increase at $p < .05$. **significant decrease at $p < .05$.
† positive change. ‡ negative change.

Discussion

This study investigated dysfunctional movement among a group of ninth-grade physical education students to determine if a standardized FMWU would improve movement quality more than a regular physical education warm-up. We hypothesized that the FMWU would improve movement quality more than just participation in regular physical education in the general early to mid-adolescent population. The results of this research indicate that dysfunctional movement is prominent among ninth-grade physical education students. The baseline total composite score of all participants was 12.20 (*SD* = 1.56), which is considered low (Kiesel et al., 2007). This is consistent with other research that has found low FMS composite scores (≤ 14) in the general adolescent population (Lester et al., 2017; Liao et al., 2017). The total composite score in this research is even lower than the 14.05 (± 2.48) in Lester et al. (2017) for a group with a similar mean age (12–16, *M* = 14.42, *SD* = 0.98). The low composite scores in this study appear to be largely due to poor performance in the TSPU, DS, and RS, as well as the high rate of scores of 1. Overall, 93.2% of participants scored a 1 on at least one FMS task, and 77.3% of participants scored a 1 on two or more FMS tests. The TSPU (77.3%), DS (65.9%), and RS (40.9%) had the highest percentage of participants receiving a score of 1, with no participants scoring a 3 at baseline. The TSPU having the lowest mean score in the adolescent population is consistent with other research (Abraham et al., 2015; Lester et al., 2017) and is not surprising considering the need for upper body strength along with core activation. The DS (second lowest) and RS (third lowest) scores are the same as in Mitchell et al. (2015) in 8- to 11-years-old, but contradicts Abraham et al.'s (2015) finding of the DS being the second-highest FMS task in those 10 to 17 years old.

Interestingly, the total composite score and scores of 1 in this study are worse than in previous research; however, the number of asymmetries is slightly better. The rate of participants with at least one asymmetry in this study (45.5%) is lower than the 63.8% in Mitchell et al. (2015) and 51% in Coker (2018), although caution is warranted in comparisons of adolescent FMS scores across research due to varied samples (i.e., size and age groups) and the maturational stage of participants. Even though participants may be of similar

chronological age, their point in maturation may vary. FMS tests that require a higher rate of strength and stability are typically performed better later in maturation (Wright & Chesterton, 2019), and the decrease in being able to maintain the three points of contact (head, upper back, and tailbone) with the dowel during the ILL may be due to decrease of thoracic spine mobility with an increase in age (Lester et al., 2017). For research with pubescent adolescents, consideration of maturational stage, even though participants are of similar age, may be necessary. Nevertheless, the low total composite score, along with the rates of asymmetries and scores of 1 demonstrate a high rate of dysfunctional movement, which may lead to musculoskeletal pain and injury. The plethora of scores of 1 is most concerning since a score of 1 indicates the participant could not perform the movement, and intervention is recommended.

The findings of this study suggest the FMWU is an intervention that improves movement quality of ninth-grade physical education students and does so more than a regular physical education warm-up. These findings are consistent with Coker's (2018) study of a different functional warm-up that includes the use of exercise bands with seventh- and eighth-grade physical education students over 6 weeks. In the current study, the FMWU group demonstrated slight or significant improvement in all measures of movement in this study except the ILL, which remained the same. The RWU group slightly or significantly worsened in three of the FMS tests (DS, ILL, ASLR), slightly improved in three tests (SM, RS, TSPU), and did not change in HS and total composite score. Even though the RWU group performed a dynamic warm-up on most days that the FMWU group completed the FMWU, the intentionality of exercise selection may explain the differences in improvement. The FMWU was designed to improve movement. Exercises for the FMWU were selected with consideration of previous research and expert opinion for high-impact movements. Intentionally focusing the warm-up to address mobility and stability in areas of the body that are commonly reported as issues in clinical practice, instead of approaching it as only a way to prepare for the main activity for the day, may be beneficial.

There are limitations to acknowledge. Even though information was collected regarding injury history, BMI, physical activity level,

and sport participation, and no significant differences between the two groups were observed, the generalizability of the results is limited due to the small sample size. Additionally, it is unclear which exercises and/or combination in the FMWU contribute to improvement. It is unknown if exercise substitutions will have the same effect. Future research with larger sample sizes and consideration of how to discern the effect of individual exercises/combination is suggested.

This research provides evidence that ninth graders have a high rate of dysfunctional movement and an intentionally designed standardized, physical education warm-up can improve movement quality. The FMWU is not only time effective (less than 10 min) in addressing dysfunctional movement in physical education but also cost effective. To our knowledge, this is the first research demonstrating an effective FMWU in physical education that does not require any equipment. Including warm-ups, such as the one designed for this study, in physical education is a practical way for physical educators to combat dysfunctional movement that may affect students' ability to be healthy, lifelong movers.

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PEDAGOGY

Using Digital Video Analysis to Develop Elementary Education Majors' Noticing Skills in Elementary Physical Education

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Abstract

Preparing future teachers is a complex endeavor, yet there are tools that help prepare preservice teachers (PST). One tool is digital video (DV). DV provides opportunities for PST to see and hear themselves teach and make the needed corrections in their lessons and activities. This study examined the accounts of elementary education majors' experiences with DV self-analysis and how these related to noticing skills in their teaching elementary physical education lessons. The PST benefited from noticing themselves teach and that DV is an appropriate tool in the preparation of PST.

The preparation of new physical education teachers is a complex endeavor that encompasses many and varied pedagogical elements often organized into three broad categories: instruction, management, and discipline. In turn, each of these comprise more explicit pedagogies such as giving specific or general feedback, skill modeling, skill cuing, classroom management routines, moving equipment, grouping students, and dealing with noncompliance

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(Pangrazi & Beighle, 2013). Often, these pedagogical elements are modeled and then practiced in peer-teaching experiences. Ideally, preservice teachers (PST) will also engage in early and frequent field-based experiences or an extended practicum in the gymnasium or on the playground.

In some states where physical education specialists are not required, elementary classroom teachers must also be prepared to plan and deliver quality elementary physical education (EPE) lessons to their elementary classes. To make the most of the limited amount of coursework dedicated to EPE preparation, we turned to digital video (DV) technologies to maximize the internalization of the list of complex teaching behaviors.

For example, EPE majors prepare for and deliver a weekly 30-min physical education lessons over 5 weeks. Each of these lessons is video/audio recorded and uploaded to a DV analysis platform. We began with a stand-alone program (StudioCode, now defunct) and now use GoReact (an online program and platform; https://get.goreact.com/).

The use of video recordings of teaching instances is not necessarily new, but the advancement of DV technologies, cloud storage, instant video manipulation, and a host of program features and functionalities provides game-changing improvements in quality, immediacy, and depth of analysis. Traditional feedback sources such as systematic observation and reflection are greatly enhanced when paired with actual objective video evidence (Prusak et al., 2010). Further, video-recorded episodes guard against memory decay and misperceptions for student and observer (Prusak et al., 2010). Last, DV recordings offer a third source of feedback, performance analysis (Prusak et al., 2010).

Performance analysis, however, requires a clearly articulated set of descriptors of desired behaviors or competencies that act as a scaffolding and serve to guide student attention to a finite set of salient details that occur in a complex lesson. The utility of such scaffolding was recognized after researchers (Brophy, 2004; Brawdy & Byra, 1994) showed a lesson to a group of PST who were later unable to speak directly to the specifics of key lesson components and ideas. They simply did not know of what they should take note or, in other words, *notice*. As a result, the video content simply washed over

them without taking hold. Researchers realized that unless there was specific prompting or attentional cuing, PST did not *notice* what the instructor hoped for (Bransford et al., 2006; Sherin & van Es, 2005).

Video can help pre-service PST (Kang & van Es, 2019). First, it lets the teacher educator slow down, rewind, or zoom in on specific teaching moments. As a result, PST see and learn from highly accurate examples from their or others' teaching. Next, PST can share their teaching with others for feedback or for evaluative purposes. Last, DV analysis gives the PST the opportunity to identify discreet instructional, management, and discipline episodes as they unfold during the entirety of the lesson. In other words, they gain the skill of noticing.

Noticing comprises three key aspects:

> (a) identifying what is important or noteworthy about a classroom situation, (b) making connections between the specifics of classroom interactions and the broader principles of teaching and learning they represent, and (c) using what one knows about the context to reason about classroom interactions. (van Es & Sherin, 2002, p. 573)

To ensure appropriate *noticing*, we sought to develop a list of desired competencies (instruction, management, and discipline) and their respective critical elements (what the teacher should look like, sound like, or do, etc.) to act as scaffolding to guide and delimit their noticing. Further, we created student and instructor rubrics for systematic observation, reflection, and performance analysis to serve as rich sources of timely and accurate feedback specific to the desired competencies-based scaffolding. Student self-analysis greatly multiplied the amount and timeliness of meaningful feedback. Thus, during these practicum experiences, DV recordings became a source of high-fidelity feedback to students and instructors. As students watched, reflected on, and analyzed their own teaching, guided by the set of specific desired competencies, they noticed strengths and deficiencies and then made adjustments for subsequent teaching experiences (Prusak et al., 2010).

Prusak et al. (2010) proposed that by using DV self-analysis tools, PST can become their own powerful source of accurate feedback, by "essentially, [learning] a new skill set, necessary for accurate

'noticing'" (p. 137). Prusak et al. examined student accuracy and reliability when students attempted to conduct DV self-analysis. Within three attempts, PST matched expert coders 75% of the time and with an additional fourth attempt, 83%. Further, of the 300 coded instances, coding accuracy was 91%. Prusak et al. concluded that within a reasonably short time and when provided with a clear set of coding criteria, PST learned to become more than adequately proficient at DV self-analysis.

The conceptual basis for noticing proposes that developing systematic ways of learning entails learning to identify, evaluate, and make connections of classroom interactions guided by a clearly defined and articulated set of pedagogical practices and routines (van Es et al., 2017). Estapa et al. (2018) observed that learning from prerecorded classroom episodes fell into two categories: (a) watching others, especially master teachers, who serve as virtual models of best practices while concurrently recording thoughts about what they noticed or later as they reflected and (b) watching and recording thoughts about their own performance (i.e., engaging in DV-based self-assessment). In both instances, noticing skills improved greatly when students engaged in written reflections.

Expanding on early work focused primarily on PST behaviors, others (van Es & Sherin, 2002) used DV review to identify (notice) and unpack the complexities of instructional chains that linked teacher behaviors to student reactions (Lee, 2020) and success rates of student cognitions, work product, or achievement learning outcomes. In Lee (2020), noticing and understanding each link in an instructional chain provided a powerful means for PST to make informed and targeted interventions to increase student learning. Lee used DV analysis to detect students' reasoning and errors in their written and verbal problem-solving efforts in a math class. A majority of the PST that observed individual students working on math problems did not successfully identify students' difficulties as they attempted to solve the math problems. Thus, the PST needed to have many opportunities observing students and other teachers to improve their noticing skills (Lee, 2020).

The aforementioned studies present a collective conclusion: DV analysis guided by clearly articulated prompts provides access to accurate and rich feedback on not only teacher and student behaviors

but also the complex instructional chains and iterations that make up the teaching and learning equation. Further, DV analysis can be applied equally well across all subject areas if PST are provided the scaffolding unique to each setting. If PST are taught to notice pertinent aspects of teaching episodes selectively, perhaps it will help them improve personal practices more quickly. It appears that PST experience with DV analysis is an effective means of noticing across all subject areas in this examination, with most of the work having been done in math and geography and less in EPE. It remains unclear in EPE whether DV analysis experiences are received positively or negatively.

Therefore, this study examined the accounts of elementary education majors' experiences with DV self-analysis and how these related to noticing in their teaching EPE lessons.

Method

Participants and Setting

Participants for this study were 251 elementary education majors (12 males, 239 females) from approximately 20 sections of an EPE methods class at a private university in the western United States. Participants were in the first year of their elementary education coursework. Participants signed a letter of informed consent to participate in this study. Each participant was enrolled in an elementary physical education methods class specifically for elementary education majors. The class met twice weekly for 2 hr over an 8-week term. During the final five weeks, participants planned and delivered a 30-min physical education lesson to an assigned K–6 class in one of several local schools. Depending on availability of public-school classes, some students taught in pairs and others taught alone.

All PST were instructed on how to set up the camera and remote microphone and record each of four or five lessons taught. Upon returning to the university, participants uploaded their lessons to the DV analysis platform and then performed their analysis before the next class when a group debriefing was held. Participants were free to share their experiences or to ask questions of the instructor or classmates.

Digital Video Analysis Platforms

Both StudioCode and GoReact video analysis software platforms allow instructors to create a set of predefined codes specific to desired learner outcomes (referred to as *desired competencies* for teaching episodes). Captured video is presented in a viewing window complete with the typical stop/start, advance/rewind buttons, as well as a scrubber tool that can be dragged to any point in the video timeline. There is a coding window with buttons for each of the coded competencies. There is a timeline window that spans the entire length of the video and is automatically populated with time-referenced, coded instances. Finally, there is a text window that allows for student comments that are also time-referenced. Users can move instantly to and view any point in the lesson that is coded or for which they have made a comment.

Coded behaviors for this class included five general behaviors: (a) stopping/starting a class, (b) transitions involving equipment, (c) transitions for moving/grouping students, (d) instructional episodes and techniques, and (e) the discipline plan. Nuanced behaviors within these five main categories also have assigned code buttons. For example, instructional episodes might consist of short or long instructions or modeling group activities. Another example, the discipline plan, has code buttons for each of six steps in the discipline plan. The advantage of user-defined coding functionality is that any instructor can create scaffolding to guide student noticing toward those things deemed central to the experience and its desired outcomes. The present example is simply the one used in this course and this attendant examination.

Students in this EPE methods class first practice coding a previously recorded lesson taught by a master teacher. In this manner, they become familiar with the DV analysis tool while learning to identify the specific teacher behaviors in a real-time lesson. They are instructed to code all instances that occur, whether or not they are effective. If a code is missed or miscoded, they simply move back in time and correct their mistake. Coding *every* instance strengthens their noticing abilities and initiates their quality-of-performance analysis, which occurs later in the process. Once a lesson is fully coded, students can then click on any of the populated codes and instantly review the episode and assess its quality and look for

strengths or weaknesses. At this point, the student begins to make plans for improvement. One advantage of self-analysis lies in its privacy. Mistakes can be reviewed and a plan for improvement can be devised privately.

Data Collection and Analysis

Students in 20 sections of the EPE methods class, all of which used DV self-analysis, were asked to complete five open-response questions. The first four questions asked participants to provide their perceptions of the course as a whole. For example, they were asked what they liked least or most about the course, the teacher, and what suggestions they might have to improve the course. The final question asked, "Did you find it helpful to analyze your teaching using [the coding software]? Please explain why or why not." Responses from the open-ended questions were transcribed and content analyzed by one of the present researchers in search of common themes (O'Sullivan & Tsangaridou, 1992; Mueller & Skamp, 2003). Sarvela and McDermott (1993) have defined qualitative thematic content analysis as a technique for making objective and systematic inferences and identifying certain characteristics of messages.

Once the initial content analysis was completed and themes were identified, the results were presented to the other members of the research team who sought to confirm or deny the findings of the initial analysis. Research team members met to discuss and refine the analysis in preparation for its reporting in this paper.

Results and Discussion

This study examined the personal accounts of elementary education majors' experiences from the use of DV self-analysis. Of particular interest was how the course and DV self-analysis may have influenced their noticing ability in their own teaching episodes. We present the results and discussion together to provide greater continuity for the reader.

Content analysis of the transcripted responses yielded three themes: (a) DV self-analysis allowed students to notice teaching behaviors specific to this EPE class that they had forgotten or were not aware of in the moment, (b) watching oneself teach could be uncomfortable, and (c) watching their teaching was helpful.

Theme 1: I Forgot or Was Unaware of What Had Happened

Prusak et al. (2010) described several shortcomings of traditional assessment and feedback practices (i.e., reflection and systematic observation) including memory decay, unawareness while teaching, and communication breakdowns. They argued that DV analysis provided a high-fidelity representation of one's performance that helped to mitigate these deficiencies.

Thus, the first theme was that DV analysis helped students who often forgot some of the many details about the lesson. For example, Sharon (all names are pseudonyms) stated, "You notice a lot more when you go back and watch a video than you would ever take away from just the teaching experience itself." Joan said, "I love watching videos because it helped me to notice things that I didn't see while I was teaching." Ashley said, "It was weird [watching myself teach], but it's nice to go back and see what actually happened and look for things I forgot." Beth stated, "When you are nervous [while teaching], it's hard to know how it went and when you go back to code, you see what you did and didn't do and what to practice. It really helped me." Sally stated, "When I went back and watched myself teach, I caught a lot of things that I didn't notice in the moment I was teaching." Barbara said, "You notice a lot more when you go back and watch the video than you would ever take away from just the teaching experience."

Understandably, students were so involved in their lessons they did not notice certain aspects of their teaching. Without the aid of DV evidence, much valuable information would have been lost due to memory decay or unawareness of areas needing to be remediated. Prusak et al. (2010) also reported that noticing accuracy increased when there were explicit prompts and attentional cueing, thereby increasing the amount and accuracy of what Sharpe (1997) referred to as self-feedback.

Theme 2: Watching Oneself Teach Could Be Uncomfortable

Some students felt uncomfortable or self-conscious about watching themselves teach (often because they dreaded seeing themselves make mistakes). Thus, the second theme was that DV self-analysis

provided students with a reality check (not always a pleasant one) that was, nevertheless, very helpful. Robert and Karen both said, "As much as I hated doing [DV self-analysis], it was really helpful to make sure I got all the desired competencies [teaching requirements] completed." Mary explained, "It's helpful to go back and watch yourself and say, 'oh that was great or wow that probably wasn't the best thing to do.' This way we learn from … our experiences and watching ourselves." Sally stated, "I could see exactly what my strengths and weaknesses were and what desired competencies I was missing in my lessons." John said, "I didn't always love watching myself, but it was good to see how the students see me and have specific things to look for in my teaching." Beth stated, "Sometimes it was painful to watch, but it really made me aware and helped motivate me to work harder each day."

Theme 3: Digital Video Self-Analysis Strengthened Noticing Skills, Which, in Turn, Helped Their Teaching

Students also found that DV self-analysis was helpful to their teaching. Sun and van Es (2015) argued that the video technology helped PST view themselves as they achieved specific expectations, goals, or milestones. Van Es and Sherin (2002) reported that the more that alternative certifications students in math and science used DV self-analysis, the more depth and nuance their noticing skills had. Early self-analysis attempts were often shallow, but, with practice, led to more salient pedagogical examinations and decisions, which they attributed to DV self-analysis. In other words, the ability to accurately notice the quality of instructional episodes aided PST to strengthen their teaching behaviors.

Carol stated, "While using [DV analysis tools], I was able to analyze and see both the things I did well and what I could improve on as a teacher. It was a great form of self-evaluation." Joan said, "I found it very helpful to *re-watch* [emphasis added] myself teaching because I could see what I was doing right and what I could improve on." Maggie said, "I enjoyed seeing where I needed to improve in my teaching. I didn't realize [there were] so many things I could change." Becky stated, "There were so many things you don't realize until you play it back. Sometimes I feel like I did a horrible job, but when I watch it I see that it wasn't as horrible as I thought. It helped in my planning for my next lesson."

Implications for Physical Education Teacher Education

These results suggest that the use of DV self-analysis can strengthen the skill of noticing or focusing on what is of central importance, whether the performance is good or the performance is in need of remediation. DV self-analysis improves their pedagogy in physical education. By creating a clearly articulated set of criteria for a set of desired competencies, PST can reliably develop their noticing skills in as few as three or four attempts (Prusak et al., 2010). The student comments in this study support the notion that repeated attempts yield increasingly accurate and meaningful feedback (Estapa et al., 2018; van Es and Sherin, 2002) that enhances their pedagogy.

Another implication to this study is that noticing forces PST to reflect on their teaching and strategize their teaching for their next lesson. On the basis of this study, after PST observe their their teaching, they notice certain pedagogical aspects of their lesson that they are not particularly pleased with, but they have the desire to improve for their next lesson. For example, reflecting on what she had noticed and thinking of ways to improve for the next lesson, Susan stated, "I felt like it was helpful because it forced me to go back and actually figure out how I teach and where I needed to improve." Thus, by reflecting on what they noticed in their teaching PST figure out how to improve their teaching. Reflection is a long-used and powerful means of personal feedback. DV-aided reflection, with accurate noticing, is even more beneficial. Feedback is only as good as it is accurate and timely.

PETE faculty often have had a background in coaching sports and likely have reviewed game film because of its impartial effectiveness of noticing strengths and weaknesses. It seems a prudent practice to make use of the same practice in the training of new physical educators. DV self-analysis trains new teachers to become their own source of analysis and feedback as they strive to become better teachers.

Limitations

There are two limitations for this study. First, the participants came from a single, private university and therefore may not be a representative sample of participants from other colleges or universities, public and private, or of geographic regions, which may

limit the generalizability of the findings. Second, the conclusions and implications are limited and perhaps mostly applicable to those participants' demographics. Thus, further research with a broader demographic would give a richer data set to ascertain the generalizability of the conclusions and implications of the study.

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PEDAGOGY

If You Build It, They Will Come: Physical Educators' Perceptions Regarding How to Design an Optimal Online Physical Education Resource

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Abstract

In the age of COVID-19, online physical education (OLPE) has emerged as a major part of the day-to-day professional practice of P–12 physical education teachers and physical education teacher education (PETE) faculty. Yet little is known about what would optimize an OLPE resource from the perspective of physical educators. This study addressed this knowledge gap. A convenience sample of P–12 physical education teachers (n = 9) and PETE faculty (n = 10) was recruited to participate in six focus groups. Data were qualitatively analyzed with both deductive techniques and inductive techniques and themes across both participant groups (physical education teachers and PETE faculty) and by group were identified. Across-group themes included generally negative views of OLPE, concerns of equity and context, thoughts on assessment, and design ideas for virtual resources. Within groups,

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P–12 physical educators shared concerns about grading and providing meaningful feedback, whereas PETE faculty focused on ensuring that OLPE was designed and delivered considering best practices. This study builds on a nascent line of inquiry that informs the development of an OLPE resource to meets physical educators' professional needs during the pandemic and into an inevitable future where virtual teaching and learning are status quo.

Prior to the COVID-19 pandemic, online physical education (OLPE) in the United States was mainly a matter of choice for teachers and students to best fit their teaching and learning needs (Daum et al., 2021). It was defined as "an alternative medium used to deliver physical education – often to secondary students" (SHAPE America, 2018, p. 4). OLPE was never intended to serve as a ubiquitous educational model to meet the needs of every teacher and child, but the pandemic, which drove schools to quickly adopt online instructional methods, has forced educators to strive for this outcome. Nearly all (95%) physical education teachers who responded to a national survey indicated they were using fully online or hybrid formats to teach their classes during the 2020–2021 school year (Burgeson et al., 2021).

The sudden rollout of OLPE at scale has presented numerous challenges. Only 10% of teachers from a national sample reported prioritizing National Standard 1 (the development of students' motor skills; Mercier et al., 2021), even though SHAPE America states in its guidelines for OLPE that it "considers the development of motor skill competence as the highest priority of physical education" (SHAPE America, 2018, p. 1). Issues with the unprecedented pivot to OLPE have been evidenced in other countries, as well. In a survey of physical education teachers in Hong Kong, over half (53%) reported having difficulties with OLPE, with "lack of practical skill training" being the most frequently cited difficulty (Chan et al., 2021). Additionally, case study research with teachers in South Korea found that they used trial and error to cope with virtual programming when school campuses closed (Jeong & So, 2020).

Since the pandemic's onset, there has been a turgid expansion of OLPE resources and recommendations for teachers in the United States, from leading OLPE scholars (e.g., Daum et al., 2021; Goad et al., 2021; Killian et al., 2021) and SHAPE America (2020), as

well as through initiatives such as the Online Physical Education Network (OPEN; openphysed.org). Yet the evidence base informing best practices in OLPE remains relatively undeveloped (Kooiman, 2017), and little research has specifically investigated how to optimize the design and delivery of OLPE resources to facilitate their use by teachers and students. An essential step toward understanding how to increase the usability of OLPE resources is considering the perceptions of physical educators, including P–12 teachers and university teacher education faculty. Physical education teachers serve as frontline end users of OLPE who directly engage in its technologies to deliver quality learning experiences to students. Further, physical education teacher education (PETE) faculty are called upon to prepare both preservice teachers and in-service teachers to use such technologies effectively (Krause et al., 2020).

This study explored physical education teacher and PETE faculty perceptions of how to optimize the design and delivery of an OLPE resource that is (a) easy to navigate and user-friendly, (b) equity-minded, (c) developmentally appropriate, (d) progression-oriented, (e) learning-focused and aligned with physical education standards, (f) assessment-driven, and (g) able to support students' accumulation of 60 min of physical activity each day. These conditions for OLPE are based on another study we conducted with P–12 physical education teachers (D'Agostinoet al., 2021) and are consistent with several key perspectives from the related literature. Research has found that physical education teachers and PETE faculty experience challenges using OLPE (Baek et al., 2018; Gibbone et al., 2010; Jones et al., 2012), and this has continued to be an issue in the context of COVID-19 (Centeio et al., 2021). Thus, understanding physical educators' perspectives on what characteristics are needed to make an OLPE resource easy to use is important to reducing perceived implementation barriers and ensuring these end users can successfully adopt such a resource.

Additionally, issues of equity warrant careful attention in the context of OLPE (Daum, 2020). The digital divide separates students who have more and less (or no) access to OLPE technologies needed for successful learning, on the basis of geographic location (e.g., urban vs. rural), sociocultural status (e.g., high-income vs. low-income), and available technical options (e.g., types of devices used

at home; Centeio, 2017; Huerta et al., 2015; Webster, D'Agostino, et al., 2021). In a recent survey study with school-based professionals in the United States (primarily physical education teachers), one of the most frequently cited challenges of school closures during the pandemic was students' access to online learning (Pavlovic et al., 2021). Mercier et al. (2021) found similar results from their survey data, with just under half (49%) of physical education teachers responding that their students had sufficient access to OLPE technology for learning purposes. Further, scholars have stressed that considerations for students with disabilities must be given a high level of priority in the design and delivery of OLPE (Basham et al., 2015; Webster, D'Agostino, et al., 2021).

A third perspective informing this study was the repeated contention in the literature that OLPE should be consistent with in-person physical education with respect to expectations for quality programming (Daum, 2020; SHAPE America, 2018; Webster, D'Agostino, et al., 2021). For instance, SHAPE America (2018) outlines appropriate practices for OLPE, which largely mirror those recommended for in-person physical education (e.g., following a curriculum that addresses all state and/or national standards, using assessments that monitor students' standards-based learning and physical activity participation). Yet there appears to be a weakness in OLPE to fully address the national physical education standards, particularly the development of students' motor skills (Daum & Woods, 2015; Mercier et al., 2021; Killian et al., 2019). Additionally, just over half of the respondents in the Mercier et al. study (2021) reported they had required their students to do assignments for physical education during school lockdowns.

Finally, the promotion of students' physical activity is an important role of physical education (Sallis et al., 2012), but research conducted during COVID-19 has revealed that the physical activity levels of school-aged youth in the United States have declined in the wake of the pandemic (Dunton et al., 2020). Webster, D'Agostino, et al. (2021) recommended that OLPE research and practice align with the Comprehensive School Physical Activity Program (CSPAP) framework, which draws on before-, during-, and after-school contexts—including family and community settings where many students engage in OLPE—to increase students' daily physical

activity while supporting the educational goals of standards-based physical education. Consistent with this view, exploring physical educators' perceptions about the link between an OLPE resource and the promotion of students' physical activity was an important aspect of this study.

This study expands upon an investigation from D'Agostino et al. (2021), which used a quantitative survey to examine physical education teachers' perceptions about optimal design features for an OLPE resource. In that study, participants considered the significance of four design features (e.g., a bank of videos for teachers, a bank of videos for students, a list of activities categorized by standards, and a discussion board for teachers) in relation to each of the aforementioned conditions for OLPE (e.g., equity-minded, assessment-driven, able to support students' physical activity). D'Agostino et al. found that participants rated a bank of videos for students as the most significant design feature for creating an OLPE resource that is usable, accessible, and can facilitate assessment. Participants rated a discussion board for teachers as the most significant design feature to support the delivery of equitable physical education. To track students' physical activity, participants rated a list of activities categorized by standards as the most significant design feature. In the present study, we sought to probe physical educators' perceptions more deeply about an optimal OLPE resource, by using a qualitative research approach.

Method

Participants

Through convenience sampling (Creswell, 2013), we recruited nine P–12 physical education teachers (5 female, 4 male) and 10 PETE faculty (6 female, 4 male) to participate in the study. Fourteen of the participants were White, two were Black, two were Asian, and one was Hispanic. Participants were from California (1), Colorado (4), Connecticut (1), Florida (2), Georgia (2), Illinois (1), Indiana (2), Maryland (1), New Jersey (1), North Dakota (1), South Carolina (2), and Virginia (1). We sent an email to these individuals inviting them to participate in the study, on the basis of their previously established familiarity with one or more members of the research team. All participants provided their consent to participate,

and the research design was approved by the Institutional Review Board (IRB) at Indiana University Purdue University Indianapolis.

Data Collection

To explore the perceptions that P–12 physical education teachers and PETE faculty had of OLPE development and delivery, a qualitative design was adopted (Creswell, 2013). Interviews (in the form of focus groups) were selected as the method for data collection because it was important to learn about this phenomenon from the lived experience of the interviewee (Kvale & Brinkmann, 2009). During the summer of 2020, P–12 physical education teachers and PETE faculty participated in focus group interviews. A semistructured interview format was used for the focus groups, which allows the researcher to react to the responses of the participants and more closely mimics a conversation than a traditional interview (Kvale & Brinkmann, 2009). Three focus groups were conducted with P–12 physical educators and three were conducted with PETE faculty. Each focus group included between two and four participants from the specific stakeholder group and lasted approximately 60 min. All interviews were audio recorded and were subsequently transcribed verbatim. The interview guide was developed on the basis of the previously mentioned conditions for OLPE (i.e., user-friendly, equity-minded, developmentally appropriate, progression-oriented, standards-aligned, assessment-driven, and physical activity–promoting), as informed by research from D'Agostino et al. (2021) and the related literature (e.g., Centeio et al., 2021; Daum, 2020; Mercier et al., 2021; SHAPE America, 2018; Webster, D'Agostino, et al., 2021). Questions varied by stakeholder group on the basis of the context through which they could provide insight on the topic. Sample questions included "Considering different types of home environments for students (e.g., apartment, small spaces, no outdoor access, no supervision, etc.), what aspects of an OLPE resource would need to be adaptable and what adaptations would be needed?" and "Describe your use of virtual/remote/online tools or resources to design, develop, and/or deliver physical education and physical activity opportunities to students during the pandemic."

Data Analysis

Prior to analysis, each interview transcript was read and reread multiple times to establish familiarity with the data. Following this procedure, data were analyzed deductively with a provisional start-list of codes that were established on the basis of the research questions (Miles et al., 2019). Each focus group was coded from the start-list and additional codes emerged inductively during this process. Next, pattern coding was conducted and codes condensed together into groups on the basis of similarities between codes and theme codes were established. An independent member of the research team confirmed the theme codes and any discrepancies were settled at this stage of analysis. Last, the theme codes from the P–12 physical educators and the PETE faculty were compared for similarities and differences between groups. Interpretations of the results were made on the basis of the themes and patterns established throughout the coding process. Participants are identified using pseudonyms.

Findings

The findings reflected some themes that were evident across both groups of participants (P–12 physical education teachers and PETE faculty) and other themes that were specific to each group. Across-group themes included generally negative views of OLPE, concerns of equity and context, thoughts on assessment, and design ideas for virtual resources. Within groups, P–12 physical educators shared concerns about grading and providing meaningful feedback, whereas PETE faculty focused on ensuring that OLPE was designed and delivered considering best practices.

Across-Group Results

Several themes related to perceptions of OLPE design and delivery were shared across groups. All participants (except for two PETE faculty) shared that they had mixed feelings and somewhat evolving perceptions of OLPE and/or that they had not spent much time considering this mode of instruction. "Leila" (P–12) felt very strongly that OLPE was not the best delivery mode for students. She explained,

> I feel very confident that virtual [physical education] should not ever be a thing. Um, I think the hybrid, I liked the hybrid

> thought of it, but there's so much social-emotional aspects of PE that the students are not getting. And it's terrifying right now. So, um, you know, just interacting with one another and, you know, they learn so much from one another in PE, you know, just modeling different behaviors with each other and working in groups and things like that, that I think you can't replace, you know, virtually in any way, shape or form.

Participants also shared opportunities that they had discovered after teaching (or observing others teaching) physical education online for a short time including focusing more on cognitive concepts, more time to cater to social-emotional learning, and opportunities to advocate for their profession. Further, some who initially had a more negative view came around to appreciate the possibilities after teaching online for a short time. For example, "Brooke" (P–12) shared that "there's been a lot of silver linings to this. I feel like we can, like, move forward in [physical education] and use a virtual platform to further promote physical education as a whole." However, she added that she would "rather be in person." Many of the negative views of OLPE likely stemmed from the reality, which was reiterated by all PETE faculty, that there was a lack of training in PETE programs related to OLPE development and delivery.

All participants also shared their concerns about equity and the need to understand home context when designing and delivering OLPE. While awareness of specific equity issues varied, participants felt that there was a lack of equity in general with current OLPE approaches/options and that equity was a necessary consideration in online programming. Ensuring that OLPE resources were available for English language learners (ELL) was important to all participants. For example, "Veronica" (P–12) shared, "Obviously if you had a bunch of languages that would be helpful cause we have quite a few, a big ELL population, but I also think that the visual is huge to make kids understand." Similarly, "Zoe" (PETE) explained,

> If equity is at the forefront, offering multiple languages, at least in that initial rollout, I think speaks volumes that we're trying. We're never going to always get it right on the first attempt. But at least we have English, Spanish versions of this

> [OLPE resource] to address some of the major languages that are spoken in different communities.

The participants also referred to language in regard to making OLPE more inclusive for students with disabilities and students who may be experiencing homelessness (e.g., not specifying a room in a home that students may not have).

Knowledge of the home context and family "unit" were also frequently mentioned with respect to equity. Discussing the home context, "Jasmine" (P–12) said, "Some kids may live in homes, some kids may live in apartments. Some kids may live on the second floor; there's somebody below them. There's just a lot to consider." Participants also addressed the importance of being aware of different contexts beyond the physical structure of the "home" when designing content for OLPE. "Gregory" (PETE) said, "If it's not even a safe neighborhood, then it's probably not a great idea to tell kids 'Okay, go for a couple laps around your block.'" He continued,

> I do think there needs to be a preassessment check that the teacher can send to the families about where do you live, what kind of access, what kind of equipment do you have in the house, what resources do you need help with. It gets that family input in regard to what do you have access [to] currently.

Regarding the family unit, participants mentioned multigenerational homes, students in foster care, number of siblings, and students who may not have a supportive family as things to consider when planning OLPE experiences. "Lucy" (PETE) explained,

> I don't remember where it came from, but someone mentioned using the language of your "grownups." So, don't refer to the parents at home…we say parents all the time and they might not be living with a parent or a guardian. Well, guardian is a weird term to call a grandma or a foster parent or whomever it is that is the person in charge. So, I mean, that doesn't have to be the term, but I think "Ask your grownup" or something like that is more inclusive than saying parent.

While all participants acknowledged the importance of support from parents/families, "Lenny" (P–12) acknowledged that some students cannot depend on support at home. He shared,

> For kids who don't have that parental support, or have parents who are, um, working all through the day, it's just not fair. Um, and something, you know, growing up in a middle-class home that I probably wouldn't have thought of until, you know, I saw some students experience [lack of parental support at home] this year.

This acknowledgment that he hadn't spent a lot of time thinking about this concept prior to the pandemic was not unique. While physical educators traditionally developed strong relationships with students, many participants shared that teaching virtually forced them to get to know their students in different ways than they had previously.

Other issues of equity that both groups acknowledged included access to reliable internet and compatible devices, older siblings (who are also students) acting as caregivers, and general concerns with how to get enough information about students' circumstances to design equitable learning experiences.

Discussion of assessment was also common across groups and included thoughts around developmental appropriateness, consideration of standards, ways to engage families, the need for various options, and shifting how they think about assessment. Participants felt that assessment should be at the forefront of any curriculum design process. As "Micah" (PETE) explained, "You can't build an activity without thinking about academic language and assessment." Many of the participants mentioned focusing on cognitive and affective skills for assessment and using various strategies for assessment, but it was also something that many of them were not confident doing because of lack of training related to teaching OLPE. However, "James" (P–12) explained that online programming presented an important opportunity for assessment in physical education. He said,

> If we assessed correctly, it can help parents and students because that's really essentially going to be a lot of their feedback, you know? So, they start to generate that self-feedback, maybe some peer feedback if they were shooting

> [basketball] with someone else, because that's probably the one thing that misses [in OLPE] is that specific individual feedback, right? At the time as they're doing it, you know, and maybe even helping them to understand that, you know, the feedback that they can get from themselves is more valuable than the feedback that I can give them.

The most consensus between P–12 and PETE participants came when discussing design ideas for virtual resources. Both groups agreed that OLPE needed to be delivered through a simple, engaging, and customizable platform/resource. When thinking about making it simple, they frequently mentioned being organized as an important factor. "Brooke" explained her organization of online content:

> So, I have it organized almost in units. Instead of having like the daily theme, I'd have agility, coordination, basketball skills. So, then, if the student wants to do basketball skills, they can click on the classroom, scroll down the basketball skills and then they could progress. So, they are at level, whatever, like they feel comfortable dribbling, they can do like another challenge. So just trying to do progressions that way.

Being engaging was also viewed as important. Participants suggested strategies such as the use of pictures, videos, options, and clear navigation. "Alejandro" (P–12) explained that his biggest concern was keeping online program delivery engaging just like he would for in-person instruction. He said,

> Kids are gonna get tired and bored of the same stuff. And it's like, we've got to log in to the computer at the same time and it's the same, you know? So just finding a way to break up the monotony of things.

Participants also all agreed that the online platform and resources should be customizable and flexible for teachers to use, such as by having options for teachers to include a video of themselves, integrate specific language that they use in their own teaching, and select different equipment. "Jada" (PETE) envisioned something like a website she used in her daily life:

> I don't know about you all, but if I ever go to like recipes.com and look for something, I'm always like "okay do I have the ingredients? Yea yea. Do I know how to do it?" Sure, but then, like, I'm looking at all the different reviews like how people are like "oh you know what I hate are onions so I added something else."

P–12 Physical Educator Results

While the P–12 physical educators recognized the need for assessment within OLPE, their main concern related to grading online and providing meaningful feedback to all students. Leila shared, "I'm aware of best practice with grading with physical education, but I'm not aware of grading online, what is considered best practice." This was consistently echoed by other participants, and some also had a hard time expressing their concerns related to grading because early on in the pandemic, they were prohibited from assessing and grading students at all in physical education. "Will" (P–12) worried about accountability when it came to grading on the basis of the type of content he was teaching online. He shared,

> I'm giving them crossword puzzles and exercises to do . . . so that I'm able to show some results or, some kind of grades . . . because [administrators and parents are] going to look at the science teacher, the math teacher, and say, well, you guys are more important [than physical education] because y'all have grades on this. Well, [physical education] you're just doing a grocery game or something like that. So that's the big thing that concerns me. Accountability and making it, um, worth it.

Others talked about the need to ensure that grades were also attached to meaningful feedback that was individualized for each student. While most participants agreed that this was a big challenge because physical educators see most (if not all) students in a school building, "Ana" (P-12) shared a strategy she learned from one of her own children's teachers:

> She would just record herself, giving him the feedback. Saying his name multiple times was very rewarding. Like

> even as a parent. You know? Like that was just, she made it personal. She didn't just give him a written email feedback. It was personal. And it was like probably 20 seconds of her time. Done. She sent it off. It's big.

However, there was still some concern around the extent to which students were engaging with feedback. Veronica expressed,

> I think for me, one of the more frustrating things, and I get this on this online teaching, is kids just don't read your feedback, period. And then they email you, why did you, blah, blah, blah. And I'm like, it's in your feedback.

PETE Faculty Results

PETE faculty who participated in this study shared many of the same thoughts about OLPE as their P–12 counterparts, but they also consistently focused on ensuring that OLPE was designed and delivered while considering best practices. Specifically, along with the other elements mentioned previously (e.g., equity, assessment), they frequently mentioned a standards-based curriculum that was developmentally appropriate and included proper alignment. "Carl" (PETE) acknowledged that there were enough online/virtual resources for physical education but emphasized "there's so much out there but it's not evidence- or standards-based." In discussions of best practices related to assessment, the notion of developmental appropriateness came up. "Grace" (P–12) asked, "What do we do with our six-year-olds and seven-year-olds who might not have that same level of ability to self-reflect because developmentally they don't know where they stand?" This point around developmental appropriateness was also mentioned with respect to providing progressions, multiple opportunities to practice, and alignment with standards. The concept of backwards design also came up in discussions of developing OLPE programs and associated resources as a best practice for curriculum development.

Discussion

This study explored P–12 physical education teacher and PETE faculty perceptions of the following conditions for OLPE design and delivery: (a) easy to navigate and user-friendly, (b) equity-

minded, (c) developmentally appropriate, (d) progression-oriented, (e) learning-focused and aligned with physical education standards, (f) assessment-driven, and (g) able to support students' accumulation of 60 min of physical activity each day. We adopted a qualitative research design to build upon the quantitative results of the D'Agostino et al. (2021) study, in which D'Agostino et al. (2021) asked physical education teachers to consider these same conditions while rating the significance of different OLPE design features. This developing line of inquiry is important because understanding how to design optimum OLPE resources for physical educators is a priority in the context of the COVID-19 pandemic and in other instances when remote learning is necessary. It is also foundational to ensuring that physical education keeps pace with the increasing digitization of the education field at large (Digital Learning Collaborative, 2020; Evergreen Education Group, 2016; Kooiman, 2017).

On the basis of this study, views of OLPE among physical education teachers and PETE faculty are generally negative, although there is evidence of a growing understanding of how OLPE might support student learning. One area of focus is students' development beyond physical skills. For instance, although the pandemic has limited students' in-person interactions with peers, OLPE presents new opportunities to foreground social and emotional learning. In a high school in New Zealand during the COVID-19 pandemic, teachers support collaboration by facilitating small group activities (Yates et al., 2021). Additionally, students take initiative to connect with one another during class by using social media, and this may allow for better collaboration compared to in-person lessons in which the teacher exerted more control over class activities (Yates et al., 2021). In tandem with the finding that a bank of videos for students is the most significant design feature that supports the usability, accessibility, and assessment feasibility of an OLPE resource (D'Agostino et al., 2021), we suggest that videos include social activities that involve the use of breakout rooms and social media.

Equity is also a prominent issue in OLPE during COVID-19 (Centeio et al., 2021; Howley, 2022; Vilchez et al., 2021). For instance, physical education teachers find it a challenge to reach all students during remote learning because of problems with internet access for some students (Centeio et al., 2021). Moreover, physical education

teachers have concerns about inclusiveness, not only in terms of access to technology but also from other perspectives, including equipment availability, students' outside-of-school responsibilities (e.g., work), and families being able to support virtual learning (Vilchez et al., 2021). Our study raises additional considerations, such as the need to support ELL learners and students living in a variety of situations (e.g., unsafe neighborhoods, multigenerational homes, foster care). Give that physical education teachers rate a discussion board for teachers as the most significant design feature to enhance the equitability of an OLPE resource (D'Agostino et al., 2021), we recommend that such a resource include discussion threads that focus on students' individual differences (e.g., language fluency, ability), home contexts (e.g., available technology, space for physical activity, family support), and strategies that physical education teachers are using to tailor their virtual programming to meet the diverse needs of their students.

This study further builds on the results of an earlier investigation (D'Agostino et al., 2021) by providing deeper insight into integrating assessment practices into an OLPE resource. For P–12 physical education teachers, teacher feedback is a particular area for professional support, especially feedback for use to enhance students' skill development. This aligns with the finding from D'Agostino et al. (2021) that physical education teachers believe a bank of videos for students is the most significant OLPE design feature for facilitating assessment. The use of video feedback in physical education is a well-established practice in in-person lessons (Darden & Shimon, 2000) and it can be an effective means for increasing students' motor learning (Modinger et al., 2022). For remote learning purposes, students can be asked to video record their performance of different skills, self-assess their performance, and send the videos (e.g., upload, email) to the teacher for feedback. Therefore, the idea of having a "bank of videos" can be expanded from videos of activities for the class to try, to videos of each learner's skill progression, which might become a personalized resource for students. This also supports another key area of physical education teachers' focus in this study: grading and accountability.

For PETE faculty, standards-based instruction and developmental appropriateness in the design of an OLPE resource are important

areas, including concepts such as progression and backward design. It is also important for students to have multiple practice opportunities to achieve learning standards. A list of activities categorized by standards is a significant design feature for tracking students' physical activity participation (D'Agostino et al., 2021). From this perspective, it appears teachers view standards-based instruction and students' physical activity participation as joint pursuits in physical education. Optimizing the design of an OLPE resource may thus entail identifying the standards that each activity in the resource supports, including a range of physical activities that align with each standard, and presenting these activities in sequences that students can explore to work toward skill mastery while accumulating minutes of physical activity in line with public health guidelines.

This study adds to the small body of research that focuses on the perceptions of physical educators in the time of the COVID-19 pandemic. However, it is important to acknowledge that there are several limitations to our research. The purposive sample limits the generalizability of the study's findings. P–12 physical education teachers and PETE faculty who work in different contexts and have different resources, training, and experience related to OLPE may not share the views of the participants in this study. Additionally, the sample size is small, and it is possible that the data would have borne out richer themes with more participants. At the time of the study, it was a challenge to recruit participants because only a couple of months had passed since the onset of COVID-19 in the United States and physical educators in P–12 and higher education settings were struggling to cope with the new realities of their professional work.

It is clear from this study and others (e.g., Howley, 2022; Vilchez et al., 2021) that professional development specific to OLPE is lacking for physical education teachers given the shift to remote learning at the onset of COVID-19. Adequate preparation for OLPE must begin with preservice teacher education programs. Recent literature suggests there is a lack of technology integration in PETE (Krause et al., 2020). For preservice physical education teachers who teach virtually during secondary methods courses, personalization (e.g., demonstrating how class content relates to students' personal interests and goals) and inquiry-based instruction (e.g., asking questions,

encouraging students to use the chat feature of Microsoft Teams during lessons) constitute key areas of pedagogical skill development for the preservice teachers to be successful with synchronous OLPE delivery (Webster, Moon, et al., 2021). On the basis of the results of the present study, other areas of focus for learning to teach OLPE include supporting learners' social development, tailoring program delivery to meet individual students' needs, giving students' feedback, holding students accountable for learning, and teaching toward content standards. An OLPE resource that allows preservice teachers to practice these skills through supportive design features (e.g., a bank of videos for students that includes social activities, a list of physical activities linked to learning standards) will help to foster the confidence and competence that physical educators need to provide effective online learning experiences for P–12 students.

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SPORT MANAGEMENT

Justification of a Deficit Mentality in a Division I Intercollegiate Athletic Department

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Abstract

In the competitive context of Division I (DI) intercollegiate sport, an unwillingness to undertake change can often reflect the attitudes of complacency on the part of stakeholders, that their institution is doing an adequate job in providing the optimal experience for its student-athletes, or resignation, that they can do no more to increase success. This paper examines New State University's, a pseudonym for a DI Football Bowl Subdivision (FBS), organizational deficit thinking. It demonstrates prevalent deficit thinking in intercollegiate athletics and offers suggestions to reframe such thinking. Schroeder's (2010) case study cultural framework was used and the interaction of four collegiate environments examined. These were institutional culture, leadership and power, internal athletic department, and external athletic department. Data collection and triangulation analysis included 36 interviews, researcher observations, photos, archival data, and social media. The complexity of assumptions, traditions, deeply held beliefs, and values suggests a proud sense of identity projected to the outside world that, nevertheless, prevents the internal athletic department's ability to address perennial deficit thinking. In this case, the nexus justifying deficit thinking centered on geographical location of the university. Specifically, location was blamed for team losses, inability to retain quality coaches, and a negative culture of fandom. On a larger scale, deficit thinking may be prevalent in many DI universities

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attempting to compete with the few programs with perennial championships across sports.

Deficit thinking is seen and felt in many contexts, which ultimately marginalize individuals and groups of people (Delpit, 1995; Pohan, 1999; Valencia, 2012). One concept related to deficit thinking is negative thinking, in which social scientists apply social Darwinism to explain social stratification of groups of people on the basis of their alleged genetic lot in life (Hergenhahn, 1992; Valencia, 2012). Yet, in the classic sense, social Darwinism cannot answer to the role of societal structural forces creating social hierarchies (Valencia, 2012). The sociological-cultural framework creates, sustains, and justifies deficit thinking (Sharma & Portelli, 2014). Justification is the action of showing something to be right or reasonable (Merriam-Webster, n.d.). Today, the K–12 educational institutional context widely accepts the the construct of deficit thinking. We argue that this mentality carries over into higher education, specifically intercollegiate athletics. For the sake of clarity and context, this paper uses this characterization of deficit thinking:

> Deficit thinking is a very common way of thinking which affects our general way of being in and constructing the world. Differences from the 'norm' are immediately seen as being deprived, negative, and disadvantaged. It never questions the legitimacy of what is deemed to be normal nor does it consider that differences may actually go beyond expected norms. It discourages educators, coaches, and administrators from recognizing the positive values of certain abilities, dispositions, and actions. Deficit thinking leads to stereotyping and prejudging. It marginalizes certain people on the basis of misinformation and misconstructions. (Sharma & Portelli, 2014, p. 255)

Deficit thinking translates into action for the blamers when "victim-blamers identify social problems" (Valencia, 2010, p. 47). It is easy for victim blamers to seek simple answers for problems in an organization over complexities (Valencia, 2010).

Critical Influences on Deficit Thinking

According to Valencia (2010), an educational culture creates, sustains, and often "justifies" deficit thinking; for example, results of pseudoscientific academic progress reports, grade point averages (Aragon et al., 2013; Writer & Oesterreich, 2012), sport teams' perennial win–loss records are utilized in the building of stereotypical views of marginalized groups. In addition, deficit assumptions and dispositions seem to be deeply embedded in school culture and are sometimes invisible, but powerfully felt. "Values and artifacts often coincide, but may still inaccurately describe organizational culture" (Schroeder, 2010, p. 100). Artifacts make up the most superficial tier of Valencia's theory and refer to cultural elements that a person can see, hear, or feel (Sharma & Portelli, 2014). "Although artifacts like mascots, fight songs, and facilities are easy to perceive, underlying meanings associated with these artifacts are not always clear" (Schroeder, 2010, p. 99). As a result, artifacts offer an incomplete or inaccurate picture of organizational culture (Schein, 2010; Trice & Beyer, 1993).

It is not uncommon for an organization to act in complete contrast with its stated beliefs and values (Bolman & Deal, 2003; Schein, 2010). Such deliberate and/or unintentional practices contribute to the undertow development of social identity in "lack of diversity," "perennial low-performers," and "undesirable location," with respect to physical and symbolic capital, authority, and the process of work, which in turn make up their social class identity (Anyon, 1980; Brown, 2010).

Earlier research pinpoints to the impact of disparate roles of the athletic departments in higher education institutions (Thelin, 2011). Two conflicts athletic departments face within higher education institutions are the wild-goose chase of perennially winning championships and the incessant need for more money to fund athletic department facilities (Sack, 2009). First, university stakeholders value winning so much that they sometimes pay their head revenue-generating coaches (i.e., football and men's basketball) more than the president of the university. They also fire them within a few years of their contracts if they do not produce conference championships. Second, the race to produce the biggest and best sport facilities has faculty questioning the purpose of the athletic department's role in

higher education institutions. This paper documents deficit mentality statements of those working with a Division I (DI) intercollegiate athletic department.

Four Environments of an Intercollegiate Athletic Department

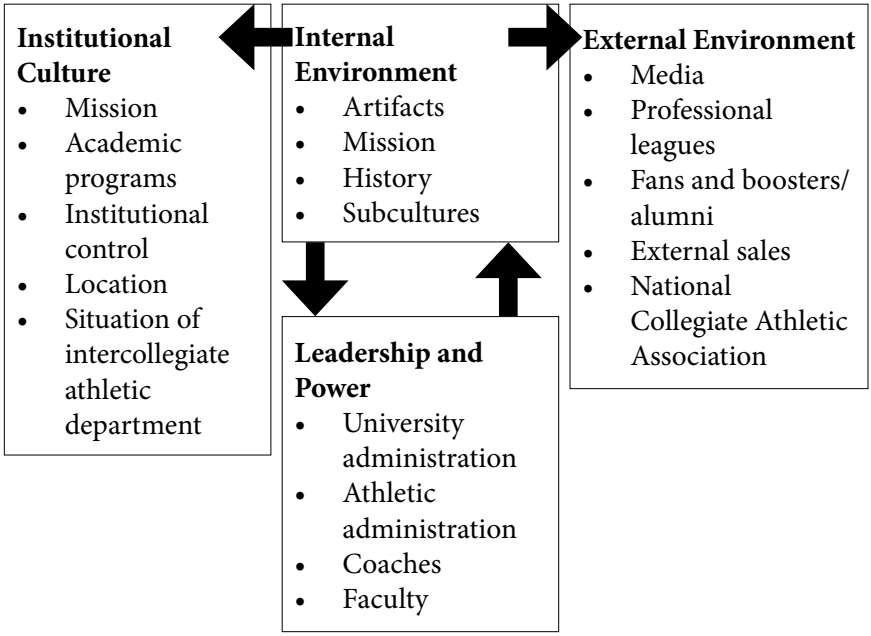
We examine and document the cultural context of intercollegiate athletic department stakeholders prominently institutionalized by working long-term in a higher education system. The essential components of Schroeder's (2010) intercollegiate athletic (ICA) department model are outlined here. The key components in Figure 1(Institutional Culture, External and Internal Environments, and Leadership and Power), although not mutually exclusive, of the intercollegiate athletic department culture are analyzed for patterns of meaning (Butin, 2010). These components interact in unique ways to form a well-defined athletic department culture (Schroeder, 2010). Figure 1 defines the distinctive cultures specific to athletic departments and presents themes to understand their organizational cultures.

Power and Leadership

Culture is intimately linked with leadership—"the only thing of real importance that leaders do is create and manage culture" (Schein, 2010, p. 11), which originates from three sources: (1) beliefs, values, and assumptions of founders; (2) learning experiences of group members; and (3) new beliefs brought in by new members and leaders. Beliefs, values, and assumptions of founders is the most important aspect underpinning culture (Schein, 2010). Therefore, leadership is highly sought by group members for a reduction in group anxiety (Conner, 1993; Northouse, 2013).

Clotfelter's (2011) *Big-Time Sports in American Universities* suggests that universities operate commercial sports programs while hardly acknowledging them. The form of college sports follows the loose structure of universities, which allows for a myriad of disconnected missions and goals. To that end, there is a lot of slack in university oversight hierarchies, thus giving athletic directors similar leeway to that of deans of academic departments and sometimes presidents of institutions (Clotfelter, 2011). Also, it is difficult to pinpoint leadership in athletic departments "because athletic

Figure 1
Interactions of the Elements Model of Intercollegiate Athletic Department Cultures



cultures have both formal and informal leaders and stakeholders are not easily defined" (Schroeder, 2010, p. 108).

Institutional Culture

A university's mission, academic programs, and admission standards all affect the values and assumptions about intercollegiate athletics (Trail & Chelladurai, 2002). A college's size and institutional control (i.e., private/public) can influence the number of fans an athletic department must deal with (Schroeder, 2010). "With the popularity of intercollegiate sports growing in the public eye, as well as the concern for college football integrity and safety, higher education administrations [endeavor] to legitimize and codify college sports" (Vanover & DeBowes, 2013, p. 42). College sports provide athletes and spectators with important life skills such as teamwork, persistence, and discipline (Duderstadt, 2006). They also provide a sense of unity and pride for the students, the university,

and the community. There are several areas of concern such as the quasi-professional nature of intercollegiate sports, exploitation of student-athletes, hindrances to the academic mission, tolerance of low graduation rates, and cheating and scandal (Brand, 2006; Duderstadt, 2006; Vanover & DeBowes, 2013).

Frey's (1994) seminal study on values in higher education attributes value discrepancies in intercollegiate athletics to "the structural and organizational characteristics of colleges and universities" (p. 111). Universities tend to operate with a norm of departmental autonomy, thus athletic departments can develop independent values that nobody questions in the university (Baxter et al., 1996). The institutional environment has a strong effect on a university's assumptions about athletics (Ridpath, 2008). Not all faculty members oppose intercollegiate athletics, but faculty tend to regard intellectual capacity higher than athletic ability (Brand, 2006). However, faculty perceive the opposite to be true of administrators, citing discontent with the financial favor that athletic departments, especially football and men's basketball, receive over academics in the institution (Brand, 2006; Vanover & DeBowes, 2013).

In universities with revenue-generating sports programs, "many top-level administrators learn early on they have little authority over their celebrity coaches and players, and often less status" (Clotfelter, 2011, p. 11). Unfortunately, limited presidential and top-level administrator power does not necessarily imply a lack of perceived value of intercollegiate sports (Moltz, 2009). "Compared to faculty from D3 schools, those at DI are more likely to agree that faculty at their institutions resent athletics and believe that athletic department personnel engage in practices of questionable ethics and opposing values" (Lawrence et al., 2009, p. 79). Universities with large sports programs are less likely to mention athletics in their formal mission statements than they are to mention research endeavors, accomplishments of faculty and students, or professional schools (Clotfelter, 2011). There is a paucity of research around sports and its place in higher education (Brand, 2006; Duderstadt, 2006; Jaschik, 2012; Vanover & DeBowes, 2013).

External Athletic Department Environment

External environments reinforce many assumptions upon which intercollegiate athletics operate (Southall et al., 2008), similar to the

concept of organizational culture (W. Scott, 2005). Fortunately for athletic programs, groups of fans tend to congregate on the "university's periphery to lend their support" (Clotfelter, 2011, p. 15). These groups as coalitions have two prominent values: winning and loyalty (Frey, 1994). The external environments include media and advertising companies, merchandisers, boosters, and donors. The established distribution of power by means of external groups is an accepted way of doing business for monetary necessity; they have internal athletic department support and some legitimation and adoption within the larger organization (Frey, 1994; Martin, 2002). Some external groups challenge the course of formal leadership and influence normal governance processes, which may result in significant breaches of a university's integrity (Benford, 2007; Nixon, 2014; Schroeder, 2010).

Coalition patterns are labeled traditions and eventually institutionalized (Schein, 2010). A booster coalition is mainly composed of external groups: athletic foundations, corporate sponsors, conferences, media, serious fans and boosters, and corporate sponsors "who exchange resources in the form of money, materials, and political influence for the right to associate with coaches and athletes, for the status or prestige this association brings, and for the access to other persons like themselves and may possess political and economic resources that the coalition need or want" (Frey, 1994, p. 116).

Coalitions plant roots for rights of involvement with their respective sports teams over many years through ritual participation (Nixon, 2014). The revenue gleaned from media, sponsors, boosters, and postseason appearances of teams can entice leaders into making changes that are inconsistent with athletic department assumptions (Yow et al., 2009). Together, external environments ultimately influence the actions of administrators, coaches, and athletes that lead to athletic department values and assumptions (Schroeder, 2010; Wolfe & Pulter, 2002). Administrators prefer to rely on their coalitions for funding special needs. However, with this deference means giving up some control. There are a myriad of external environments vying for their voice to be heard in intercollegiate athletic programs. Sports benefactors find fame and events draw audiences that major corporate sponsors gravitate toward. Commercialized sports have favor in

the U.S. mainstream culture and critics are not likely to dissuade the public to relinquish a long-running tradition (Clotfelter, 2011) .

Another component seeking a voice within athletic department cultures is the National Collegiate Athletic Association (NCAA; Schroeder, 2010). The NCAA mandates rules protecting student-athletes, yet benefits financially from corporate sponsorships. No doubt their monetary contributions, along with rules and policies, shape how stakeholders interact with one another and perceive their social identity among other sporting programs. The NCAA, moreover, is complicit in creating this logic by supporting commercial policies and ignoring its own rules for commercial gain (Southall & Nagel, 2008). The external environment provides a portion of the resources that athletic departments need to operate and build bigger and better facilities (Case et al., 1987). Ultimately, these factors combine to create situations in which athletic departments become "organizational mutations" (Frey, 1994, p. 120), or countercultures, with values conflicting with universities' academic missions. Even with monies from external environments, most colleges and universities struggle to balance the costs and justify their missions in higher education.

Method

A qualitative case study lends itself to researchers' subjectivities (Jones et al., 2013). Because we believe knowledge is socially constructed and emerges from the meaning individuals make of their experiences, we used a constructivist case study approach to the inquiry (Creswell, 2014). In evaluation language, we used an explanatory case study to describe and explain phenomenon such as organizational culture (Schroeder, 2010). As such, perceptions of key episodes or testimonies are told directly from participants. Direct responses to questions help the reader gain access to the subjective elements of a setting (Schroeder, 2010; Stake, 2005; Yin, 2011) In addition to the description, the final distinguishing feature of case study research is its heuristic nature.

Initially, Strauss and Corbin (2008) situated grounded theory methodology with an awareness of the interrelationships among conditions and interactions between people and the structures that illuminate a process. The premise of those interactions further suggests that researchers and participants can co-construct the meaning

in interviews and in turn generate the grounding of the theoretical rendering (Merriam, 1998; Stake, 2005). Further, interest in culture encourages the researcher to focus on concepts such as hierarchies, equity, fairness, privilege, and power (Schein, 2010). Thus, constructivist grounded theory is appropriate for studying how deficit thinking is justified within collegiate athletic departments. To that end, Schroeder's (2010) cultural theoretical framework perspective was also deemed compatible with grounded theory analysis, as we primarily considered how the process was also influenced by the systems that impeded or promoted the way participants constructed their deficit thinking (Klenke, 2008).

Setting

This study took place at New State University (NSU). NSU was selected because of its status as a member of the Football Bowl Subdivision (FBS) and athletic administration permitted access (Merriam, 1998). NSU is a pseudonym for a public land-grant university in the Western United States. The university is in a city of 25,000 to 45,000 people. Enrollment is close to 20,000 undergraduates and 3,500 graduate and professional degree students from 50 states and 90 countries.

Since 2010, the university has been busy with capital facilities projects. Private donations and legislative appropriations have fueled a building boom, including several new facilities with state-of-the-art classrooms and research areas. The athletic department's 2015 renovations and facility projects included a two-phase, $30 million basketball arena, a new locker room for soccer and wrestling, and a $1.5 million indoor training facility for golf.

Fifteen athletic teams compete in DI in the NCAA and the University belongs to a conference established in 1999 with eight original members. Conference realignment has welcomed four institutions since 2011. Its 12 members are in seven western states. Three of the original members have been conference rivals since the 1960s.

Participant Selection and Identification and Procedures

To ensure valid and credible information, we used purposeful criteria sampling (Patton, 2005) in this study. We selected universities on the basis of identifying as DI and participating in the FBS. We used snowball sampling approach only in the athletic department

and when employees recommended another person in the department, who would also recommend someone else and so on (Jones et al., 2013). If participants volunteered, we permitted consent to contact and scheduled individual interviews via email or in person. The inclusion criteria identified potential participants who qualified under one of the four criteria: (1) worked at the university for a minimum of 2 years in administration, in athletics, or as full-time faculty; (2) were members of the athletic department booster club; (3) were affiliated partners of the athletic department on contract as an outsourcing advertising firm; or (4) were a current student-athlete (Table 1). Four participants were not employees of the university. One was an employee of a multimedia firm associated with the athletic department. One male and one female booster offered external views of the athletic department. The NCAA faculty athletic representative provided broad institutional perspectives of the university. Information concerning academic life was garnered from an athletic-admissions representative, alumni director for university fundraising, two department chairs, and two faculty leaders.

The lead author conducted all interviews. During the interviews, the interviewer asked participants initial questions of when, what, where, why, how, and what consequences, to distinguish the process of forming culture, particularly what that meant for the individual, environment, and the institution (Table 2). The interviewer also asked participants questions related to who holds power and decision making (Schroeder, 2010).

Analysis

We followed qualitative case study data analysis procedures that align with constructivist grounded theory methods (e.g., initial, focused, clustered, and thematic coding; Charmaz, 2009; Yin, 2014). Over 2,250 min of interview recordings were transcribed by a transcription service. Interview data were initially read and 25 emergent themes and categories were discovered, with 14 themes and 5 meta-themes to emerging. Interviews, photos, website information, and newspaper articles were uploaded into NVivo 10 in their respective categories (4,659 NVivo codes). Some of the focused codes included "gender and racial inequity," "geography and population," "game day attendance," and "facilities." Those initial clusters provided the broad view, subsequent frequency count, and line-by-line coding of

Table 1
Professional Status, Gender, and Environment of the Interview Participants

Professional status	Gender	Environment
Coordinator of student admissions	Female	Institutional
Athletic department faculty representative	Female	Institutional
Professor of higher education and leadership	Female	Institutional
Assistant professor of sports psychology	Male	Institutional
Chair of the business school, marketing program	Male	Institutional
Chair of health sciences	Male	Institutional
Alumni director for university fundraising	Male	Institutional
Marketing and branding director	Male	Institutional
Business manager	Male	Internal
Financial aid coordinator for student-athletes	Female	Internal
Associate director-facilities and event management	Male	Internal
Equipment room manager	Male	Internal
Compliance director	Male	Internal
Head women's soccer coach	Male	Internal
Head volleyball coach	Male	Internal
Head women's tennis coach	Male	Internal
Head swimming and diving coach	Male	Internal
Head women's golf coach	Female	Internal
Head cheer coach	Male	Internal
Assistant volleyball coach	Female	Internal
Assistant men's basketball coach	Male	Internal
Assistant cheer coach	Female	Internal
Individual student-athlete	Male	Internal
Individual student-athlete	Female	Internal
Individual student-athlete	Female	Internal
Athletic director	Male	Internal
Senior associate director-internal affairs	Male	Internal

Table 1 (cont.)

Professional status	Gender	Environment
Associate director-development and revenue enhancement	Male	Internal
Associate director-media relations	Male	Internal
Associate director-business operation	Male	Internal
Senior associate director-external relations	Male	Internal
Booster Club member	Male	External
Booster Club member	Female	External
Booster Club member	Male	External
IMG Learfield property manager	Male	External
Newspaper sports reporter	Male	External

Note. This list included power and leadership and internal athletic department environment interview participants. In total, the interviewees (n = 36) were 26 men and 10 women with a range between 2 and 40 years of employment at the university. Age range was from 21 to 73 years.

interview transcripts. This was the largest data source of the study. Line-by-line coding was then followed by identification of pertinent text and reduced to 105 focused codes. We created memos about the focused codes to sort out interpretations about the meaning behind the codes. The last coding phase was then summarized and linked to the meta-themes and subthemes as these developed. Some of the thematic codes included "distance teams must travel for competition," "coach retention," "time away from classes because of weather delays," "isolated from big cities," and "small population." This encompassed reconnecting categories with rich quotations from participants that shed light on the athletic department's deficit thinking mentality. This in turn helped connect the conditions, properties, and dimensions of the coherent categories.

Trustworthiness

Trustworthiness relates to the rigor we employed throughput the data collection and analysis to support the credibility of the research (Yin, 2014). The way we stemmed epistemological and the theoretical foundations in the conception and execution of this study supports the integrity of this study (Creswell, 2014). We analyzed

Table 2
Beginning Questions for Investigating Culture in Intercollegiate Athletic Departments

Element of culture	Key questions
Institutional culture	• What is the mission of the college/university? • Is the institution private or public? What are the residency requirements? • What are the values and assumptions of the institution?
External environment	• How does the university structure the athletic department? • What is the scope of the department's environment? • What externalities influence the department? • How intense are the department's interactions with the environment? • What does the department gain or contribute to the environment?
Internal environment	• What is the history of the department? • What is the mission of the department? • What memberships does the department maintain? • What subcultures exist? • What symbols/artifacts exist? What meanings do they have?
Leadership & power	• Who are the formal and informal leaders? • What does the organization expect from its leaders? • What are the main sources of power? • How are decisions made?

data from transcripts with participants, document analysis, and field notes from site visits, to triangulate multiple sources of data to confirm or disconfirm findings (Creswell, 2014; LePeau, 2015). We used measures such as "offering thick descriptions of participant's word in providing rationale for the key categories in the theory, and we conducted member checks with participants by sharing a summary of findings" (LaPeau, 2015, p. 106). Participants confirmed the viability of the theory.

A peer debriefer and an external researcher experienced with intercollegiate athletics and familiar with grounded theory methodology and analytic methods raised questions about emergent themes that encouraged us to return to the data as we worked to saturate categories. The auditor tracked that there was congruence between data analysis and the theoretical rendering (Charmaz, 2009; LePeau, 2015). Finally, individuals involved in the peer-debriefing and member-check processes confirmed our rationale for support of the emergent theory (Creswell, 2014). We also kept a research journal to track decisions made throughout the research process, to examine researcher positionalities, and to reflect on perspectives about deficit thinking that the participants shared (Yin, 2014).

Limitations

Asking participants to provide an oral history of work, culture, and leadership between the environments (power and leadership, internal athletic department, external athletic department, and institutional) is a possible limitation to the study (Peterkin, 2010). Participants had to work or be affiliated NSU for at least 2 years, a benefit of gathering long-term influences in the culture of the athletic department and/or the institution. Nevertheless, participants' potential memories of events are an important factor (Yin, 2011). This said, it is important to note that the "participants' firsthand knowledge of the institution acted as an environmental historian and provided a thorough landscape of the issues" of intercollegiate athletics culture for several decades (LePeau, 2015; Yin, 2011).

Findings

The function of deficit ideology is to justify existing conditions by identifying problems of inequality as located within, rather than as pressing upon, disenfranchised entities so that efforts to redress

inequalities focus on "fixing" disenfranchised people rather than the conditions that disenfranchise them (Gorski, 2010). The voices, documents, field notes, pictures, and the researchers' observations address the issues of deficit thinking and the justifications of why the individuals think the way they do. The following narratives demonstrate attitudes and emotions associated with the athletic programs and are organized by reoccurring voices across the four environments. The core category was constructed around a singular nexus: geographical deficit as the plague of the athletic culture. Three core categories—"location," "population," and "geography"—emerged as elements of the theoretical process. More of narrative findings appear in the Appendix.

Lack of Population Surrounding the University

Participants viewed the small population in the state and city as having an overarching, detrimental effect on the athletic program. A sports psychologist explained the lack of population shared by other states:

> It's not just this state. You just have this geographical region where there is nobody. I don't mean to say that in a negative way; it's just people-wise there is nobody. This is an isolated state geographically and with that comes structural constraints.

As such, the relationship between population density and competition at the highest level of intercollegiate sports seems like a constant struggle for the athletic department. To that end, a kinesiology professor explained,

> Looking at it from a sporting perspective, the recruitment side of things, they struggle to recruit. Especially DI, particularly with football and men's basketball, there's an expectation to achieve perhaps more than it can. That's an issue they have. Particularly, what they're bringing in are very expensive coaches, to compensate for this lack of population, for a team, which, is at the bottom of the DI tier.

Not a lot of the athletes came from the state. Table 3 displays home origin. The media relations director said, "There are some really

Table 3
Student-Athletes Home of Origin Per Sport

Sport	In-state hometown	Out-of-state hometown	International	Total
Football	8	91	9	108
Men's basketball	1	11	1	13
Women's basketball	3	8	1	12
Tennis	0	1	7	8
Volleyball	2	15	0	17
Wrestling	5	21	0	26
Men's golf	3	5	0	8
Women's golf	2	6	1	9
Women's swimming	2	31	4	37
Men's swimming	4	20	2	26
Men's track and field	14	20	3	37
Women's track and field	23	22	3	48
Men's cross country	10	4	3	17
Women's cross country	14	9	1	24
Soccer	3	14	7	24
Total	94	280	42	414

Note. Data from the university website in 2015.

good athletes here. They're just raw." To that end, the assistant volleyball coach also reiterated,

> Athletes in this state need to be tapped into. It's kind of a raw place. We're not going to get the well-refined athletic kid. They're just not coming here. We have to find our niche. We can either find a lesser athlete that's a great volleyball player, or we can find a better athlete, and try to teach her how to be a better volleyball player—if we want to recruit players from this state.

At times, the lack of population was described as a "unique trait" rather than a challenge. This was especially true of administrators

who worked for several years in the athletic department. For instance, the athletic director of external affairs spun a positive then comparative angle on the sparsely populated state:

> Every time you talk about this place, you're going to talk of what makes us unique. We're unique. We are in one of the least populated states. There is no place like this. But it's also tough when there are more people in a three-square mile New York City block than we have in our entire state.

The lack of population may be a player recruitment problem. However, the much larger issue of exclusion is apparent. The depth and differences in race and ethnicity of all 128 employees and staff versus 525 student-athletes is particularly notable and mirrors the population of the state. "NSU's general student population [is] predominantly Caucasian and middle to upper middle class," explained a student-athlete. Yet most student-athletes are Black (student-athlete socioeconomic status was unknown to the researchers).

To that end, college admissions staff and coaches valued the compositionally diverse student-athlete body and strive to provide athletic scholarships. The lack of racial and ethnic diversity was only compounded by the lack of gender equity in the head coaching and athletic administration ranks. There was one female head coach of eight women's team coaches (including the cheerleading squad) and only one senior athletic director, who served as the senior woman administrator. Consequently, when the lack of females in power and leadership roles was brought up, the women's golf coach responded,

> I personally don't know how that's even shaped over there. Our administrators do a great job. I don't really know in what positions if any females have even really applied—in the past.

When probed deeper, "So it's not a big deal?" she responded, "No, I don't think so. I know I'm the only head women's coach on staff, but I don't think anything of it, I guess."

Consistent with the follower mentality, conformers are those with unmet needs, low core self-evaluations, and low maturity (Powers et al., 2016). Followers in fear of negative repercussions often take unspoken cues from leadership. In this case, the power and

leadership environment would not support any communication on a hot topic such as gender equity. With regard to this topic, a sports psychology professor criticized,

> Our women's golf coach is the only head women's coach. Then you look at staffs where for example swimming is co-ed, but they have no female assistants.

Women's soccer had no female assistants; they had a female graduate assistant but no paid female assistants. When broached on the subject, the soccer coach diverted with another equity concern:

> One of the people that I tried to hire when I first got here had been my assistant for five years, but she told me "I'm a lesbian. I'm not going go with you to NSU." I'm like, "I don't blame you. I wouldn't either." She wanted to live in a town that will be more accepting of her lifestyle.

However, students wanted to see someone who looked like themselves in leadership roles. Thus, the issue of compositional diversity was a physical justification for the school's limited ability to provide a multicultural representation of the student-athletes in the internal athletic and power and leadership environments.

Weather

In regard to geography, the a participant external to the university reported, "Geography presents some unique challenges not faced by peer institutions within the athletic conference. Travel costs are high, travel logistics difficult, non-conference scheduling extremely challenging . . . all in a very small (yet loyal) market." This impacts almost every area of the athletics program operation from student-athlete recruitment, to academic performance, staff recruitment and retention, alumni support, ticket sales, and game attendance. The city has a total area of 20 square miles. Located between two mountain ranges, it is on a high plain. The closest big city is 100 miles away. Due to the high elevation, winters are long, and summers are short and relatively cool. Driving across the state depends on the weather because of the drastic fluctuations. An assistant basketball coach pointed out,

> This is not Miami, Florida, and it's not really a destination that you would want to go to. I think there is no way you can get around it. I think coaches would either see this as a stepping stone to keep moving forward, unless you grew up here. Frankly, you just get tired of the freezing weather and the blowing wind, and the isolation. There is really no way around that.

Even though many coaches and administrators mentioned a stigma associated with NSU being in the middle of nowhere, there was a lot of state pride. The women's golf coach described the state as being one big town with a lot of long streets. A broader description of the state, people hunt and fish regularly and those activities attract tourists to the state.

Critical Influences on Deficit Thinking

Issue of Imputation: Low Expectations

An external advertiser exposed,

> Sometimes I hear coaches and athletic directors say, "Oh, we're not a Texas, we can't beat so and so." That bugs the crap out of me. There's no reason we can't. They may have some better resources than here. I've heard that from people from time to time from people who've been here forever. Now, I'm the rookie here, but I believe we shouldn't approach things like that. So I can see some attitudes that wear people down, bother me and others.

The same participant said,

> We had an ex-coach football coach who I heard on the radio say, "This is a horrible location, bad weather." We're not that. We've got an airport. We're not that remote. My last property, I was really remote. So, I don't buy that. As for the weather, own it. I don't buy that either. Having excuses bugs me.

At NSU, identified negative attitudes were most prevalent among employees who had been there the longest. Yet even a student-athlete with high status among his peers demonstrated a weak attitude about the success of his team: "I think our successes are short lived. I think

we strive for average—just not the bottom of the pack. But when you pose a question, could we be an Alabama? I'm going to say no, we will never be Alabama." A senior leader in the internal athletic department shared,

> I think there's a stigma associated with NSU. Nobody gets a letter from us, and says, "oh my, NSU just contacted me." We have to kind of try to find a way to bridge that barrier as we're not in the middle of nowhere.

The chief business director noted the perception of being inferior to peer institutions:

> Even in our conference, I think our teams are often looked down upon. We go into it thinking we are the underdog. I think they look at us as being from a small community. I don't think people look down on us in our conference from the standpoint of leadership. I think they believe that we have quality people.

A booster claimed, "There is a pervading opinion that 'good enough is good enough' in football and basketball [at NSU]." Thus, there is not a sense of urgency and accountability that accompanies programs with high expectations for competitive success. A climate assessment from a participant external to the university mirrored the same sentiments: "The current culture of acceptance and validation has a major influence on the bloodline of football and men's basketball. Recruiting to NSU can be challenging, due to unique factors; however, this is exacerbated if those involved choose to focus on this daily."

Many coaches and power and leadership stakeholders who come to NSU from other athletics departments constantly hear from peers at other institutions about the challenges that working there may bring. This consistent external messaging is obviously counterproductive to building and maintaining morale, which may lead to high rates of turnover adversely impacting the athletic teams. There were several ruminating tensions spoken of—across all groups—that at the core described inequalities resulting from moral, cultural, and behavioral deficiencies assumed to be inherent in disenfranchised

individuals and communities. This monocultural view of the institution and athletic programs became the excuse for complacency.

Issue of Imputation: Impact Recruiting Coaches and Mid-Level Administrators

The average tenure for men's basketball and football coaching jobs is 4.76 years, with a median of 4 years (Styczynski, 2009). The short tenure combined with limited or no access to private aircraft for coaches' recruiting efforts can have a drastic impact on the effectiveness of coaches throughout the season. Coaching and recruiting both suffer as the unique travel demands throughout the season wear heavily on the football and basketball coaching staffs, both of whom recruit primarily out-of-state. Coaches consider these as deficits when they weigh the pros and cons of working at NSU. As noted in Table 3, the number of in-state players is disproportionately smaller than the number of out-of-state and international players for every sport at NSU.

It was reported that NSU was a stepping-stone institution for coaches. Several participants voiced the university's difficulty in maintaining successful coaching staffs. The external advertising firm manager noted, "Coaches seem to move on to one of those Power 5 Conferences if they are successful." Coaching can be a transitory profession. The participant further explained, "I mean if you get somewhere that does really well, gets a better offer at a school with more exposure for his program, also doubling their salary, how do you compete with that if you're NSU?" The media relations director explained,

> There aren't a lot of people that desire to live here; unless they are from here. I don't know many coaches from anywhere in the state, much less who do well at this level that are in the coaching profession.

More findings appear in the Appendix.

Discussion

Four Environments of an Intercollegiate Athletic Departments

Schroeder's (2010) conceptual model was validated in this study as the interactions among the internal athletic department, external athletic department, institutional, power and leadership environments yielded three main tensions, which are likely to be similar at every other institution. The interactions among the internal athletic department, external athletic department, institutional, power and leadership environments validate Schroeder's (2010) conceptual model. The three main tensions are likely to be similar at every other institution.

First, within the internal athletic department environment, tension undoubtedly arises among administrators, coaches, and athletes as they negotiate the department's values and assumptions. There are numerous internal forces that impact internal athletic department values, but these forces are constantly evolving (Schein, 2010). The second major tension is each environment's attempt to draw the athletic department's values in their respective direction. While the internal athletic department environment can propel the department values in either direction, each cultural anchor can rapidly pull the values to either side if left unchecked or if not somewhat consistent. There is an assumption that the internal athletic environment has an obligation to adhere to policies of the university and that policies are reflective of values (Schein, 2010). Thus, the third major tension is when leaders attempt to move the athletic department culture along the institutional cultural continuum rather than the external athletic department pressures of perennial winning records.

The interaction of the internal, external, power and leadership, and institutional environments results in an assumption deeply embedded in deficit ideology. Due to factors such as a desolate location and low population, personnel issues may take the brunt of excuse-making team losses. The impact may come from critical incidents such as recruiting coaches and student-athletes, game travel, game attendance, and fans access to facilities and players—outcomes that relate to complacency and no effective method to address the underlying deficit mentality.

Another perspective regarding the assumptions of intercollegiate athletics is grounded in the values of its noninstitutional environments (Beyer & Hannah, 2000; Trail & Chelladurai, 2002). Restricting access to facilities is taboo, according to boosters, because "that's what we do to show our excitement." Limiting access does not seem to hold importance by enough supporters for reform. The tradition of the public rushing the field is representative of tradition that the power and leadership environment is not willing to relinquish, albeit a large concern for many mid-level administrators and head coaches. Those in power and leadership positions fear that if they take access away from fans, loss of ticket revenue may ensue. Tradition justifies complacency on this issue, which causes fear of facility damage and possibly to a player's physical safety.

Implications and Recommendations

Grounded in the participants' views, the results of this study confirm the notion that when a "deficit mentality" is present, it typically results in the assignment of blame and responsibility to others and/or outside factors for lack of desired outcomes (Vibert & Sheilds, 2003). Adopting a deficit mind frame is further counterproductive considering that it centers around the problems and not the solutions (D. Scott & O'Neil, 2003).

From a practical standpoint, replacing the deficit mentality with a strength approach can prove a useful alternative that is contingent upon a positive mindset of people from all four environments (McCashen, 2005; Seligman, 1996). To that end, rather than overexposure of problems and weaknesses, a strength approach may lead to an initial recognition of issues and sorting out a deliberate plan to address them (Lees, 2004).

As it relates to the case of NSU or other similar cases, working through the social issues from a strength standpoint may include the following process (see McCashen, 2005, for a review):

1. Recognizing and outlining of the issues from the perspectives of all parties involved.
2. Generating a picture of the future or envisioning a good enough outcome to the seeming issues.
3. Identifying the strengths (e.g., available resources, individuals' skills and characteristics), as well as the time periods

when the issues seem to have been partly resolved or at least improved.
4. Classifying presence and availability of alterative resources and strategies to assist in the improvement of the recognized issues.
5. Developing plans and delineating steps to solve or at least partly improve the issues.

Given the discourse at NSU, a more productive approach then entails

1. Recognizing the most forthcoming issues including lack of people, adequate representation, and inconvenient location and weather, as well as other related issues including lowered expectations, recruitment challenges with regards to athletic staff, coaches and athletes, travel difficulties, lack of game attendance, and demanding access to public facilities from the perspectives of all parties involved.
2. Generating a mental picture of the future with what would be acceptable solutions or improvements to the issues.
3. Identifying the strengths as applicable such as identifying other alternative resources or potential events to increase quality people and overall visibility, improving individuals' expectations, and facilitating recruitment, travel, game attendance, and access to facilities. Strategies might include hiring coaches who players can identify and trust, as well as identifying time periods when these issues may have been relatively inexistent or partly resolved or improved.
4. Classifying strategies to assist in the improvement of the issues, for instance, by modernizing the brand and image of the university and athletic department.
5. Developing plans and delineating concrete steps to solve or at least partly improve the issues.

In fact, conscious adoption of a strength approach in these settings should be crucial because adopting a deficit approach risks distracting all parties involved from solution-centered outcomes (Fenton, 2008). Consciously adopting a strength approach comes, however, with unique challenges; most often deficit assumptions and

inclinations are deeply rooted in a culture. Thus, even when invisible to the outsiders, they could still be powerfully felt by the insiders (Valencia, 2010).

With regard to this case, like Payne's (2001) research on academic institutions and negative beliefs, it is apparent that the internal athletic environment at NSU has negative beliefs about location and population that foster mediocrity and negative thinking. A striking pattern across the critical imputations loops back into the location of the institution and the lack of population, yet presumably other peer institutions within the conference face such issues. Thus, additional research may shed further light on how university and college intercollegiate athletic departments create a more receptive climate for cultural shifts in deficit thinking.

A clear justification for deficit thinking in this context centers on the location of the institution, first and foremost. However, many institutions that are more remote, with fewer resources are winning championships and recruiting and retaining high-caliber coaches and student-athletes. How the university and athletic department addresses the limitations connected to location and lack of population will continue to be NSU's biggest justification for deficit thinking; however, for researchers the biggest reform issues revolve around the power and leadership environment. Diversity and inclusion initiatives need to be addressed, such as the lack of female and minority coaches in any sport other than women's golf. NSU needs to start by questioning if ethnic and racial identification is important in its leadership roles for student-athletes.

The first step in combatting anti-oppressive behavior often begins with open and honest communication and shared decision making (Van Wormer & Besthorn, 2017). This can be challenging at mid- to large-size universities where administrators are hired for fundraising efforts over management style preferences. Administrators who adapt to inclusive leadership and management styles may ultimately ignite an opposite trend. Athletic departments fostering diversity in all environments will be a big step toward dynamic thinking in the internal and institutional environments and a symbol of solidarity for the power and leadership and external environments. Despite past examination of leadership roles in athletic department culture, little is known about the collaboration of institutional, internal,

and external components in higher education's deficit mentality (Clotfelter, 2011).

Reframing the defensive rhetoric of "blaming the victim," in any context, does not change behavior. Instead, an examination of employees' perceptions of their academic institutions and the subtle communication exchanges may identify deeply embedded deficit thinking. For some readers, looking at one university's athletic department may appear limited and a random situation. For others, the rich descriptions of deficit thinking in the context of a DI athletic department may be all too familiar. Some researchers have reported in-depth about cultures of athletic departments (Schroeder, 2010; Ridpath, 2008; Trail & Chelladurai, 2002), but few, if any, have penned credible voices of those who live and work within such an organizational context.

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Appendix: Findings

Issue of Imputation: Recruiting Student-Athletes

Recruiting and retaining Division I/FBS caliber student-athletes and staff are major challenges. These are major issues for many universities vying for the same blue-chip recruits and coaching staff. These are the two most critical priorities in improving the competitiveness of athletic programs. Location, low population density, and proximity to a major metropolitan posed a dilemma on enticing competitive athletes to play at NSU. The head women's soccer coach commented, "Considering the closest metropolitan city is two hours away —an athlete drives by several universities to get here—makes it difficult to sign them." Student-athletes want activities to do in their free time. A professor in the business school declared, "There are no upscale shopping centers here, Starbucks is in a grocery store, not a lot of the amenities that might attract some athletes who might be more skilled coming out of high school." The women's golf coach exclaimed, "I've tried to get kids to visit. If they have tournaments close to here I say, 'Hey come on up, it's only two hours.' It's difficult to get them to go out of their way. Peer institutions use our location as a sore spot with recruiting kids!" The deputy AD declared, "We're recruiting against Green State and they make it sound like we're in the boonies. But I think the hard thing is to actually just get them here."

Several coaches schedule on-campus visits for certain months to downplay the long, harsh winters. The head tennis coach stated, "I rarely have any recruits that sign if they haven't come here." A female student-athlete on the track team commented on recruits' perceptions of NSU:

> I think they are shocked when they actually get here. So I guess their perception is small college town in the middle of nowhere. Once they get here, and I think they see how beautiful the area is and how nice the campus is.

Other issues regarding the location and the impact on recruiting included the expense and time of driving two hours to the closest hub airport. The head soccer coach explained,

> We can't simply drive a lot of places. Then on top of that, the hardest thing is how do you retain those student-athletes once they are here? The culture shock sets in. I think we have to figure it out. I mean we've definitely recruited a ton of international athletes because they're just happy to be in the States. Last year we had five Australians and six Canadians on the roster.

The external review committee recommended, "Transporting recruits in limousines, entertaining recruits with video games to divert athlete's attention so the trip didn't seem so long." This was "so they don't sit in a car and stare out the window all the way from the airport and back to the airport," according to the chief financial officer.

Issue of Imputation: Travel Impact on Student-Athletes

Many participants voiced concern over student-athletes' academic performance and how it may be negatively impacted by missed classes due to extensive in-season travel. However, other teams have similar rigorous travel schedules. A participant external to the university asserted, "NSU's conference and non-conference schedule is not constructed so that it minimizes travel time and expenses." NSU is not impacted more than any other conference team, as other schools must travel to NSU as well. Table 1A displays a comparison on mileage, commercial flight, and ground transportation times between NSU and a peer-conference institution for the 2014–15 women's basketball schedule and shows the only difference for travel time and distance is 4 hours round-trip to the airport. This potentially negatively impacts academic performance of student-athletes (too much missed class time), overall costs of team travel, and competitive ability of the team (wear and tear as a result of difficult travel to and from games within the conference). Chartering air transportation is possible. The AD explained travel logistics and future plans:

Table 1A

Distance Comparisons Between NSU Women's Basketball Versus Conference Institutions (to Away Games)

Institution	Miles between institutions	Drive-time between institutions	Commercial flight-time between institutions	Other miles between institutions	Other drive-time between institutions	Other commercial flight-time between institutions
To:						
University 1	791	11 h 27 m	3 h 35 m	921	12h 51m	3h 30m
University 2	686	9h 45 m	3 h 35 m	510	7h 12m	2 h 55m
University 3	1,111	16 h 5 m	3 h 45 m	388	5h 16m	2h 55m
University 4	592	8h 16 m	2h 55m	935	14h 2m	3h 40m
University 5	907	12h 44m	4h 55 m	1, 046	14h 54m	3 h 25 m
University 6	67	1h 12 m	n/a	682	10h 46m	4 h 55m
University 7	1,156	16h 45m	4 h 5 m	766	11h 4m	1 h 40m
University 8	1,184	17 h 2m	4 h 25m	574	7h 58m	1 h 20m
University 9	384	6 h 5 m	1 h 30 m	592	8 h 16 m	2 h 55m

Note. Google Maps used to calculate the distances in 2015.

> We select games that we think will give us a better advantage to charter to. We do occasionally charter flights for men's and women's basketball teams five times a year—on top of championship tournaments. All of our sports, soccer, volleyball, golf, wrestling, ought to be able to charter flights. Unfortunately, the money is not there for such expenditures.

One advantage peer institutions have over NSU is proximity to major airports when flying commercially to away games. NSU adds 4 hours round-trip to travel time for flying commercially. Moreover, the weather at the closest airport also impact the student-athletes. "It's known to get snowed in, and we can't get back" was a criticism of student-athletes losing another day of academic instruction. A senior athletic director added, "Wear and tear physically and mentally of doing that versus being able to fly right back in here, and being home in a few minutes, over the span of a season negatively affects the teams."

The senior women's athletic director stated,

> Student-athletes must have understanding professors, because if we fly commercially they may miss three consecutive days of school. Let's say you have a game on Wednesday, fly out commercially the day before the game, and lose Tuesday. You're going to play on Wednesday night, so you lose a class day on Wednesday. Then, most of your day is getting back on Thursday.

The women's golf coach appreciated the chartered flights for the sake of her players but admitted that chartering flights does not correlate into winning:

> Academically and wear and tear–wise, I think it's better for our players. Now, if you take a look at the tourneys that we win when we charter versus don't charter, I'm not sure you would say that the money is helping obtain [wins]. The wins and losses probably won't tell you that.

Issue of Imputation: Game Attendance

Geography presents some unique challenges not faced by peer institutions within the conference. Travel costs are high, travel logistics difficult, nonconference scheduling extremely challenging…all in a very small (yet loyal) market. This impacts almost every area of the athletics program operations from student-athlete recruitment, to academic performance, staff recruitment and retention, alumni support, ticket sales, and game attendance. Lack of attendance was described as a "worry" and a "source of contention" for senior leadership. The business manager explained,

> Do people go to games? Yeah, but the number one cause of attendance decline here is when hunting seasons opens. So, it's just a complex web of things that happen in the state. That's a higher priority in the state.

Poor attendance disturbs coaches because they expect a strong home presence at games. The tennis coach expressed, "I think it's disappointing. I know that in the '80s and even in the '90s people came from afar. It's disappointing if fans consider themselves passionate, which I think they are, but don't support us by attending events." Poor student attendance baffled the associate director of external affairs: "We have tried so many things with the students. So, why don't they walk 50 yards from the dorms to the games?" Already on the radar, the athletic department began addressing low attendance:

> At times we question if discounting prices will sell tickets. Will that get more people here? You take the risk of reducing the ticket prices and those people who were going to buy anyway are just paying less. So, you're getting less revenue, really shooting yourself in the foot. You're going to get the same people but they're just going to pay less.

Issue of Imputation: Public Access to Facilities

The director of academic compliance, the senior associate athletic director of development, and the assistant athletic director of facility operations had serious concern for the football turf and basketball arena court. All three participants used the word

"acceptance" to explain public access policy. The cost of the football turf was approximately $500,000 and the newly, updated basketball court nearing $1,000,000. Fans have been allowed full access to the sports fields and volleyball and basketball courts after sporting events and during daylight hours. The assistant athletic director of facility operations explained,

> We're very open. So if we wanted to walk out there right now we could. After volleyball games, kids are running around and throwing volleyballs. People are on the court after. We have autograph sessions and things like that, so people are around.

The director of academic compliance perceived the public access as a lack of professionalism and desperation to maintain attendance:

> It's a small town, traditional pastime; it's been this way forever. In my mind though, after a volleyball game, there should not be college kids playing 3-on-3 volleyball while girls are doing interviews and things like that. Get them off the court. This was a college match. It's done. This isn't high school; you do allow spectators to ruin the court with their street shoes! It's just kind of the mindset but it's difficult because our fans think that they own us.

Several participants expressed dissatisfaction with entertainment during games and tournaments, marketing the teams and events, and the branding of its athletic programs—all key parts of recruiting—yet the director of marketing seemed unaware of these issues.

Issue of Imputation: Impact of Recruiting Coaches and Mid-Level Administrators

Given seven members of senior leadership had a combined 70-plus years of working in the athletic department, this comment seemed an outlier. However, athletic department middle management "has been far more nomadic than senior leadership. I can rattle off ten schools our staff has jumped ship for last couple of years; Arizona State, Oklahoma State, Southern Miss, Iowa State," according to the senior AD for external affairs. In addition, he said,

> When I started, people wanted to get a job, establish yourself, you want to be there. Now it's three or four years. They tell themselves "I've got to go, I can't be here any longer than that." I felt hurt. I thought this wasn't a good enough place."

The sports psychologist added,

> Athletic administration recruiting is a challenge as well. NSU is a great place to begin a career, but you don't want to see people stay particularly long. So when you have this consistent turnover of people, that can create a real challenge as well. So I think people can see this spot as an opportunity to prepare for the next step, rather than being the next step itself and that mindset absolutely creates some real challenges.

Capitalizing on successful coaches "at a school like NSU" moved in cycles, according to the sports psychology professor:

> I think men's basketball right now is at a peak of a relatively successful cycle and maybe football is at the opposite end of that. I don't know I mean it's tough to balance 3 and 9 then 8 and 4 then 4 and 8 and then 5 and 7 [win–loss records].

The same participant continued,

> Other sports are the same way. I think what happens so with the university like ours is that our cycle of not performing as well is a longer cycle versus performing well. It takes a special group of student-athletes and coaches to come through and you got that 2-year, 3-year window, maybe, to really take advantage of those people.

The same participant said,

> Someone like "Current Star Player, Jr.," he could have gone to a number of different schools, but we have a coach here that has got a history with his father, senior. He committed. Now, all of a sudden, we can recruit and throw out "you can play with 'Current Star Player, Jr.' and you get this bubble for four years around this one player and one coach. That coach brought that here and allowed for that to happen.

YOU AND THE LAW

What Is a Sports Injury?

Thomas H. Sawyer and Tonya L. Sawyer

Sports injury refers to any type of injury sustained by someone participating in a sporting event. A sports injury can generally be categorized as either those caused by traumatic impact or those caused by the overuse of a particular body part.

Amateur Sports

Amateur sports are organized sports that typically involve participants of a low to medium skill level. Such sports are often sponsored or funded by an organization and sometimes involve compensation between the participants. Amateur sports include team sports such as basketball, baseball, cross country, football, field hockey, ice hockey, lacrosse, sand volleyball, soccer, softball, swimming and diving, track and field, and volleyball. They also include individual sports such as archery, boxing, golf, martial arts, and tennis.

There are a large number of amateur sport injury legal claims annually. These claims originate not only from athletes but also from sport officials and spectators. Most of the claims are based on negligence.

What Are Some Examples of Sports Injuries?

Most sports injury claims consist of a traumatic injury, as opposed to an overuse injury. This is due to the fact that a person cannot expect to hold another person liable for injuries that happen due to

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overexertion over time. However, if a participant causes injury to another participant, this may form the basis of a civil lawsuit. Sports law encompasses legal issues involving both amateur sports and professional sports. Claims often overlap with labor law, contract law, antitrust law, and tort law. Examples of the most common sports injuries include

- broken bones,
- back injuries,
- concussions/head injuries,
- shoulder injuries,
- hand injuries,
- knee injuries,
- ankle injuries, and
- facial/eye injuries.

What Is the Assumption of Risk Doctrine and How Does it Apply to a Sports Injury Situation?

The assumption of risk doctrine asserts that participants who voluntarily participate in a sporting activity cannot hold others liable for their injuries, if those injuries occur during the game or while they participate in the sport. Co-participants cannot be held liable for injury, because when the injured party decides to participate they voluntarily assume the risk of possibility of injury by the other participants.

Assumption of risk is commonly utilized as a defense in most personal injury and negligence lawsuits. If the plaintiff has assumed such a risk, they cannot recover damages for any harm resulting from the defendant's conduct. This is true even if the defendant was negligent or reckless and clearly caused the plaintiff's injuries.

To prove the assumption of risk doctrine, the defendant must show that the plaintiff had actual knowledge of the risk involved in the conduct or activity. In terms of sports injury lawsuits, the defendant needs to show that the injured party is aware of potential injuries associated with the sport they are participating in.

Additionally, the defendant must prove that the plaintiff voluntarily accepted the risk. This either happens through an agreement, such as a consent waiver, or is implied by their words and conduct. It is also typically necessary to prove that the danger was obvious or that the nature of the conduct was inherently dangerous.

What Are Some Exceptions to Assumption of Risk?

Although a person may assume the risk of injury when participating in a sport, there are some exclusions to the assumption of risk doctrine. Application of these legal theories depends on the nature of the sport. Some exclusions to assumption of risk doctrine include the following:

- **Negligence standard:** If a player's negligence causes another player's injury, they may be held liable for damages. Asserting negligence requires proof that the defendant breached the duty of care they owed to the plaintiff and this breach of duty caused the plaintiff's injury. An example of this is a player failing to abide by safety rules of the game.
- **Willful conduct standard:** The contact sports exception states that a defendant is liable only if their conduct was wanton or willful. This means that the defendant acted intentionally in causing the injury; they meant for their actions to result in the injury of another player. The level of force utilized usually exceeds the normal force exerted in the contact sport. An example of this is a player engaging in a fistfight during a football game. A fistfight is not a necessary part of playing football and a person would only enter into a fistfight with the intention of causing harm or injury.
- **Defective or faulty equipment:** If the sports equipment used was somehow faulty or defective and those faults or defects were not anticipated when the player voluntarily played the game, the player could have a claim against the owner of the property or equipment manufacturer. This may only apply when the player is injured as a direct result of the equipment being defective or faulty.

Instructions for Authors
The Physical Educator

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The first page of the manuscript must include the title of the article only. Do not include your name, affiliation, or other identifying information. An abstract must accompany each manuscript.

Label all charts, graphs, and tables and place them on separate pages. Submit all images 300 dpi with appropriate captions. Number the pages beginning with the title page followed by text, references, figure captions, tables, and figures. Figures must be clean and legible. Freehand art or lettering is not acceptable.

Carefully check references to ensure they are correct, included only when they are cited in the text using APA 7th edition style guidelines. Only include references that have been published or accepted for publication.

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