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ADVOCACY

Physical Education Websites and Webpages in the State of Alabama: Are We Painting a Positive Self-Portrait?

Nicholas Washburn and Oleg A. Sinelnikov

Abstract

A well-designed, high quality physical education (PE) website is beneficial for establishing communication, presenting a positive image, encouraging and improving parental involvement, encouraging students to take control of their own health, collaborating with other educational resources, and most important, improving student learning. However, there is a dearth of research in which PE program websites have been examined. We investigated and described the online presence of PE programs by examining the prevalence, content, and design quality of public school PE program websites in the state of Alabama. Data collection included a review of all public school websites (N = 1,280) in Alabama for the presence of webpages and websites dedicated to PE programs. PE program webpages and websites (n = 84) were analyzed according to content, control, consistency, and corroboration features. Findings revealed an exceptionally low prevalence and quality of PE program websites or webpages in Alabama public schools. The results of this study underline the continued need to create and maintain profes-

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sional websites for all PE programs that are educational and can be used as a tool, as a supplement to instruction, and to enhance student learning and teaching effectiveness.

Physical education (PE) has long been marginalized as a profession that lacks seriousness, substance, credibility, and purpose, a discipline, inundated with programs of low quality, which remains at risk for continued inclusion (Griffey, 1987; Siedentop, 1987; Locke, 1992). That is to say that a percentage of PE programs include superficial planning, include little meaningful instruction, yield minimal student learning, devalue assessment, and focus on student enjoyment and keep students engaged in activities that lack educational direction (Placek, 1983, 1984; Hastie & Siedentop, 1999; Hushman, Hushman, & Carbonneau, 2015). Moreover, many individuals, now graduated, possess negative recollections with respect to PE (Sidwell & Walls, 2014) unless they have participated in meaningful and engaging PE programs or practices (Sinelnikov & Hastie, 2010). For the sake of establishing PE as necessary and credible, it is crucial that professionals in the field advocate their charge with a clear, unified vision and market the positive contributions of their programs to the education and lives of children across the United States. In today's technologically advanced society, one of the effective ways of delivering such a message to stakeholders is through creating and maintaining informative, user-friendly, and captivating websites.

To make relevant this point, it is useful to briefly examine some of the literature regarding the effect of maintaining a professional online presence outside the field of education. In the field of business, for instance, website quality has been shown to influence customer satisfaction and purchasing intention (Bai, Law, & Wen, 2008). Moreover, Lee and Kozar (2006) revealed a direct, positive relationship between website quality and business performance. Studies have also demonstrated the significant effect that quality websites can have in the areas of hospitality (Schmidt, Cantallops, & dos Santos, 2008) and fantasy sports (Suh & Pedersen, 2010). Some may argue that the fields of education—specifically PE—and business, hospitality, and fantasy sports are not all that alike, but they all intersect at one crucial point. Positive perception is a prerequisite for success, and Raita and Oulasvirta (2011) empirically established a connection between positive first impressions and user satisfaction.

Research conducted by Google (Tuch, Presslaber, StöCklin, Opwis, & Bargas-Avila, 2012) has revealed that first impressions of a website are established in as little as 17 ms. These crucial first impressions, positive or negative, have been shown to remain relatively stable for an extended time (Staw & Hoang, 1995). When information is sought, impressions are formed based on how readily accurate information is made available. Incomplete, inaccurate websites may foster negative impressions, whereas comprehensive and accurate websites may nurture positive impressions about presented content. In short, having a professional, working website has been shown to be advantageous regardless of the field.

The mere presence of a high quality website does not guarantee that a program is of high quality, nor does absence of a website signal program ineffectiveness. In Rink's (2013) reference to ALT-PE, a quality PE website may be conceptualized as being a "necessary but insufficient" component of a thoroughgoing PE program. Furthermore, we do not dispute the benefits of effective and appropriate PE programs here. Indeed, PE, when delivered by specialists demonstrating effective teaching behaviors (for a review of this literature, refer to Graham & Heimerer, 1981; Silverman, 1991; Mawer, 1996; Siedentop & Tannehill, 1999) and by those who use a range of teaching styles (Mosston & Ashworth, 2008), innovative pedagogical models and practices (e.g., Siedentop, Hastie, & van der Mars, 2011), and culturally relevant content (Ennis, 1999), deserves to hold a position of significance in every student's K–12 experience.

Nevertheless, we contend that a possible avenue of promoting and showcasing an effective PE program, and thus enhancing its status in and beyond a school, may be through the creation of a high quality website. A well-designed, high quality PE website is beneficial in a number of ways. For example, websites have been well documented as a means for establishing communication (Barnd & Yu, 2002), presenting a positive image (Baker, 2001; LeMaster, 2000; Tucker & Hill, 2009), encouraging and improving parental involvement (Wilkinson & Schneck, 2003), encouraging students to take control of their own health (Elliott, Stewart, Stanec, McCollum, & Stanley, 2007), collaborating with other educational resources (Azuma, 1999), and most important, improving student learning (Hill, Tucker, & Hannon, 2010). Additionally, school websites are

used as informational portals to inform communities of programs and events (Elliott et al., 2007). Unfortunately, many PE departments are failing to take advantage of this great resource (Woods, Karp, Hui, & Perlman, 2008).

The benefits of effective websites for PE programs seem to be clear, but there is a dearth of research in which their prevalence and quality have been examined. In fact, the only descriptive study in which this important issue was specifically addressed was by Hill et al. (2010), who examined a sample of 285 school websites from two southern California counties. From this sample, less than one fifth (17.5%) maintained an active PE departmental website. Furthermore, most of the PE websites "were incomplete and lacked important design and content features" (p. 116). Hill et al.'s research was useful in providing an initial descriptive account of the current status quo, but the sample size used in the study was limited to two counties from one state.

Purpose of Study

Given the research on benefits of an effective website for an organization and the unsettling findings from two counties in California (Hill et al., 2010), further investigation of PE websites is warranted to determine if professionals in the field are truly making every effort to legitimize their discipline and elevate its status in schools. Therefore, the purpose of this study was to investigate and describe the online presence of PE programs by examining the prevalence, content, and design quality of PE websites among public schools in the state of Alabama.

The significance of extending Hill et al.'s (2010) research has theoretical and practical implications. First, this is the first descriptive research providing current and complete data relative to PE from all public school websites from one state. Second, the results of this research contribute to the national discussion about discourse of PE and its public image in schools and in society. Third, this research study paves the way for other researchers to examine the current situation in their states, nationally and globally. Finally, practical recommendations of improving the image of PE in public domain for different stakeholders (students, parents, administration, community, public officials) can be made based on the results of this study.

Method

Data Collection and Analysis

Because the data used in this study exist in the public domain and are freely available, no approval by the university institutional review board was warranted. The status of the study was exempt. Data collection and analysis was conducted in three distinct phases. In Phase I, to ensure complete and accurate data collection, a comprehensive database of Alabama public school websites was created. Schools and their websites were identified using the complete school district directory from the Alabama State Department of Education (ALSDE, 2015). Phase I data collection resulted in identification of 1,280 public schools from all Alabama counties. Specifically, 648 elementary, 36 intermediate, 269 middle, 327 high, and 48 K–12 schools were identified. Technical, alternative, and vocational schools were not included in the analysis.

In Phase II, every school website (N = 1,280) was reviewed to determine if it contained a website or a webpage dedicated to PE. The school websites and webpages that included a PE website were cataloged. During this phase, specific staff webpages located in a staff directory and websites or webpages created specifically for the PE program were differentiated. Only webpages and websites that contained additional information about the PE program were included in further analysis. Staff directory webpages that merely contained PE teachers' contact information were excluded. This phase of data collection yielded the identification of 84 schools that contained websites or webpages dedicated to their respective PE programs.

During Phase III, the PE websites and webpages from the identified schools (n = 84) were analyzed for content and design quality. The assessment of the content and design quality of PE websites was based on the work of Barnd and Yu (2002); Miller, Adsit, and Miller (2005); and Tucker and Hill (2009). Hill et al.'s (2010) PE website checklist, in particular, was used to collect data. This checklist outlines the essential elements of a high quality PE website. Specifically, the checklist contains four major categories: content (the actual information and material included), control (the navigational qualities of the website), consistency (the uniformity of content and design), and corroboration (citation information). Each major category con-

tains specific criteria. Websites and webpages identified in Phase II were thus analyzed according to each criterion within the four categories. A form of event recording (Cooper, 1974) was recruited to examine website quality. For this study, an event was not necessarily a demonstrated behavior, but a particular observable element categorized under one of the four categories on Hill et al.'s checklist. If a criterion was met, this event was recorded in a Microsoft Excel 2010 sheet under the appropriate category heading. Upon completion of data collection, frequencies of observed events were tabulated. Subsequently, the quality of the websites was expressed through percentages, calculated under each criterion by dividing the number websites relevant to a given criterion by the number of websites in which the criterion was observed.

Interobserver Agreement and Analysis Credibility

To reduce and eliminate data omissions and inaccuracies, the first author repeated Phases I and II of data collection and analysis. No additional schools and webpages were identified in this process. To calculate interobserver agreement, the second researcher completed Phase III of data analysis by randomly selecting and analyzing 28 of the 84 websites identified during Phase II. Thus, interobserver reliability was calculated on over 33% of the sample size. The interobserver agreement percentage was calculated by dividing the number of criterion agreements by the sum of criteria agreements and disagreements and then multiplying the result by 100. The acceptable criterion for interobserver agreement was set to 85% (Cooper, Heron, & Heward, 2007). Overall, the interobserver agreement was 99.8%, which constituted an acceptable level.

Results

The findings of the study revealed that only 84 (6.5%) of the 1,280 school websites had a website or webpage specifically dedicated to the PE department or program. Because this study is posited as an extension of previous research conducted in California, and in the interest of consistency, the percentages and frequencies for the checklist criteria are presented in the same manner as in Hill et al.'s (2010) study.

The frequencies and percentages of Alabama public school PE websites and webpages containing specific teacher information are

listed in Table 1. As with public school PE websites in California (Hill et al., 2010), teachers' names were the most common content feature among public school PE websites in Alabama (89.2%). In descending order, the remaining teacher information content features were e-mail addresses (69.0%), experience (45.2%), pictures and education (44.0%), phone numbers (40.5%), and hobbies (27.3%).

Table 1
Percentage of Public PE Program Websites and Webpages With Specific PE Teacher Information

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
Names	89.2	75	10.8	9
E-mail address	69.0	58	31.0	26
Experience	45.2	38	54.8	46
Picture	44.0	37	56.0	47
Education	44.0	37	56.0	47
Phone number	40.5	34	59.5	50
Hobbies	27.3	23	72.7	61

The frequencies and percentages of Alabama public school PE websites and webpages containing specific fitness information are listed in Table 2. Only 23.8% of the PE websites or webpages in this study included fitness information. The five components of health-related fitness were the most common fitness content feature (15.4%). Links to health-related sites were the second most common fitness content feature (14.2%). Little information was provided with regard to fitness testing procedures (8.3%), even less was provided about Fitnessgram (4.8%), and no existing website or webpage displayed recent fitness scores or healthy target zones.

Table 2
Percentage of Public PE Program Websites and Webpages With Specific Fitness Information

	Yes		No	
Fitness information	**%**	***N***	**%**	***N***
Fitness information of any type	23.8	20	76.2	64
Five components of health-related fitness	15.4	13	84.6	71
Links to health-related sites	14.2	12	85.8	72
Fitness testing procedures	8.3	7	91.7	77
Fitnessgram information	4.8	4	95.2	80
Recent fitness scores	0	0	100	84

The frequencies and percentages of Alabama public school PE websites and webpages containing specific program content information are listed in Table 3. Most websites or webpages (86.9%) contained the school name, either in the title or elsewhere. Less than half (47.6%) contained a calendar on which to include class activities, upcoming events, or other pertinent information. Only 12.5% of the calendars were kept up to date, and the majority were blank. Department policies were the only other content feature that existed on over one third of the websites or webpages (38.0%). Most of the policies included rules, routines, and expectations for lessons. Fun links to sport/physical activity websites (19.0%) and course descriptions (15.4%) were the only remaining content features present on at least 15% of the examined websites or webpages.

Table 3
Percentage of Public PE Program Websites and Webpages With Specific Program Content Information

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
School name	86.9	73	13.1	11
Calendar of – activities/homework/class	47.6	40	52.4	44
Calendar up to date	12.5	5	87.5	35
Department policies	38.0	32	62.0	52

Table 3 (cont.)

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
Fun links to sport/physical activity websites	19.0	16	81.0	68
Course description	15.4	15	84.6	71
Department philosophy	13.1	11	86.9	73
Department goals (for any year)	13.1	11	86.9	73
Community resources for physical activity	13.1	11	86.9	73
Announcements of upcoming events	13.1	11	86.9	73
PE tip of the day/week/month	12.5	5	87.5	77
Team sports schedules	10.7	9	89.3	75
Motivational quotes	10.7	9	89.3	75
Yearly unit plans	9.5	8	90.5	76
State PE standards/course of study	5.9	5	4.1	79
Fund-raising activities	4.8	4	95.2	80
Parenting information to assist with learning	3.5	3	96.5	81
Search engine for kids	3.5	3	96.5	81
Assessment tools used in grading	3.5	3	96.5	81
Student recognition	2.3	2	97.7	82
Department motto	2.3	2	97.7	82
After school/intramural information	1.2	1	98.8	83
Cues for certain skills (pictures/video clips)	1.2	1	98.8	83
Access to current grades for students	1.2	1	98.8	83
Community resources for health information	1.2	1	98.8	83
Examples of great work or accomplishments	0.0	0	100.0	84

Control features enable visitors to navigate through and read the information presented on websites more efficiently (Barnd & Yu, 2002). The frequencies and percentages of Alabama public school PE

websites and webpages containing specific control features are listed in Table 4. The majority of the websites and webpages were easy to navigate (96.5%) and had fitted dimensions (95.2%), meaning the user did not have to scroll laterally to view all content on a page. Related topics were frequently grouped together (88.0%) in a logical sequence or layout (89.2%). A site map, providing users with a list of links to access specific information, was the next most common control feature (85.5%). A large percentage of the websites or webpages (79.0%) were linked to the school page. However, navigation buttons were absent from all websites, requiring visitors to rely on the back button in the browser to navigate between pages.

Table 4
Percentage of Public PE Program Websites and Webpages With Specific Control Features

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
Easy navigation	96.5	81	3.5	3
Fitted dimensions	95.2	80	4.8	4
Appropriate page layout	89.2	75	10.8	9
Grouped related topics	88.0	74	12.0	10
Linked to school page	78.5	66	21.5	18
Site map	70.2	59	29.8	25
Navigation buttons	0.0	0	100.0	84

As noted by Hill et al. (2010), consistency features improve the readability of websites. The frequencies and percentages of Alabama public school PE websites and webpages containing specific consistency features in descending order are listed in Table 5. All fonts on every page were readable (100.0%). Most site links were accurate and working (94.0%). The appearance and placement of navigational icons across the site pages were consistent in 17 websites (94.4%). The backgrounds of 90.4% of sites and pages were consistent, and 83.3% were overall visually consistent. Almost 73% of the examined PE websites or webpages were error free. Font color (69.0%) and style (58.3%) were consistent in the majority of observed websites and webpages.

Table 5
Percentage of Public PE Program Websites and Webpages With Specific Consistency Features

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
Readable font	100.0	84	0.0	0
Icon location	94.4	17	5.6	1
Accurate working links	94.0	79	6.0	5
Background color	90.4	76	9.6	8
Visual consistency	83.3	70	16.7	14
All underlined words are links	75.0	45	25.0	15
No grammatical/spelling errors	72.6	61	27.4	23
Design matches district site	72.6	61	27.4	23
Font color	69.0	58	31.0	26
Font style	58.3	49	41.7	35
Other site links are blue	44.1	15	55.9	19
More than 50% of page contains content	30.9	26	69.1	58
Visited links change color	9.7	8	10.3	74

The concept of corroboration describes "the elements that support the information on the web page" (Barnd & Yu, 2002, p. 12). The frequencies and percentages of Alabama public school PE websites and webpages containing specific corroboration features are listed in Table 6. Features in this section include, for example, header and footer information, copyright statements, and dates of site publication and updates. With an increasing number of websites on the Internet, headers containing key words that provide a description of a site and that are clear to the reader when the site is searched via a search engine (Yahoo, Google, etc.) are crucial. Most websites or webpages in this study (90.4%) contained key words in the home page header. These key words often included the school and department name. Notwithstanding, 70.2% of the websites or webpages in this study included a footer source and 60.7% included a copyright statement, and some of the corroborative features that should be in-

cluded in a professional footer were absent. For example, dates of site publication and next planned update were not present on any examined website or webpage.

Table 6
Percentage of Public PE Program Websites and Webpages With Specific Referencing Features

	Yes		No	
Specific information	**%**	***N***	**%**	***N***
Key words for search engines	90.4	76	9.6	8
Footer source	70.2	59	29.8	25
Copyright	60.7	51	39.3	33
Footer source phone #	27.3	23	72.7	61
Footer source mail address	27.3	23	72.7	61
Date of site publication	15.4	13	84.6	71
Date of last update	10.7	9	89.3	75
Footer source e-mail	5.9	5	94.1	79
Date of planned next update	0.0	0	100.0	84

Discussion

We investigated and described the online presence of PE programs by examining the prevalence, content, and design quality of PE websites of public schools in the state of Alabama. The most important and ominous finding was the exceptionally low prevalence of PE websites or webpages in public schools. Specifically, only 84 school websites out of 1,280 (6.5%) contained a website or webpage dedicated to the PE department or program. Furthermore, the overall quality of the existing PE websites or webpages was deemed low based on the criteria of content, control, consistency, and corroboration. These results are in line with Hill et al.'s (2010) research. The following discussion is organized according to the aforementioned criteria.

Content

The results of this study revealed the absence or the superficial level of PE content on the examined webpages. Although crucial, less

than 1 out of 10 PE websites provided yearly or unit block plans. To provide perspective, only eight of the 1,280 PE programs in the state of Alabama present any semblance of the scope and sequence of the subject online (.00625%). The most common information found on existing PE websites was related to policies and rules. Although such information may aid in class management, it does not speak to the content taught in PE.

One charge of PE is to educate children and adolescents in leading healthy lives and, in doing so, to lower the rate of childhood obesity in America (McKenzie & Lounsbery, 2013). Given that PE is arguably one of the few classes in a child's curriculum that directly contributes to combating obesity through physical activity, it seems not only appropriate but also necessary to include on a PE department website, at the least, information about physical activity, fitness, and opportunities for engagement in physical activity outside of school. Unfortunately, for most PE websites in Alabama that information was absent. Even health-related fitness components, the foundation of what is needed by students to be physically active, were mostly absent. Few websites or webpages included links to health-related sites or information regarding fitness testing procedures. Moreover, information pertaining to fitness (i.e., the five components of health-related fitness and how their levels affect lifestyle, fitness testing procedures, and how fitness is infused throughout the course curriculum) should be included on PE websites to aid in student learning, act as a resource for parents and family members, and advance the perception of PE in the eyes of administrators and policy makers.

The findings of this study also demonstrated that more than half of analyzed websites failed to include information about teachers' qualifications and their teaching experience. As a result, a public display of credibility of many PE teachers as specialists in their profession may have been compromised.

Control

As with the websites in Hill et al. (2010) with respect to control features, the PE websites in this study were easy to navigate, with related information being grouped together. However, this finding should be interpreted with caution because the ease of navigation for the majority of the websites or webpages was due to a lack of included content rather than to intended design.

Consistency

The percentages of the websites meeting the consistency criteria in this study were higher than those of other categories and lower than those previously reported (Hill et al., 2010). The reader is, again, suggested to consider the incompleteness of the analyzed websites when using the information as the basis for judgment. Withal, over a quarter of the PE websites or webpages contained at least one grammatical or spelling error. Thus, PE teachers are advised to further edit and proofread their website content.

Corroboration

On a positive note, most of the websites or webpages included key words in their headers for search engines, often in the form of the school name and department. The issue of *searchability* is important because it makes the website visible to those searching the Internet. Additionally, most websites or webpages included a footer source, informing the reader of which entity was responsible for the website content. Unfortunately, contact information for the footer source was often nonexistent. Quality webpages need to be current (Barnd & Yu, 2002) and should include a date of publication, most recent update, and next planned update (Everhart, 1997). The findings of this study demonstrated that few websites or webpages provided a date of last update. Worse yet, no websites or webpages listed dates of the next planned update. The ambiguity of the freshness of the content on the websites and webpages is disconcerting, especially given that the few dates of most recent updates occurred several years ago.

Recommendations and Conclusions

The National Standards and Grade-Level Outcomes for K–12 Physical Education (Society of Health and Physical Educators, 2014) describe general principles that include using technology (a) as a tool, (b) as a supplement to instruction, (c) to enhance learning, and (d) to enhance teaching effectiveness. The literature is abundant with research-based and practical suggestions regarding the recruitment of technological applications to further the mission of PE, including heart rate monitors and pedometers (Cuddihy, Pangrazi, & Tomson, 2005; Morgan, Pangrazi, & Beighle, 2003), websites and Web-based portfolios (Erwin & Valley, 2005; Hastie & Sinelnikov, 2007), iPads

(Sinelnikov, 2012), and interactive video games (Schifferle, 2010; Trout & Christie, 2007). The online presence for K–12 PE programs is arguably more important given the reported benefits of maintaining a professional working website (Bai et al., 2008; Hill et al., 2010; Lee & Kozar, 2006; Miller et al., 2005; Schmidt et al., 2008; Suh & Pedersen, 2010). The results of this study underline the continued need for all PE programs to "have a comprehensive, well organized, and user friendly website" that is educational (Hill et al., 2010, p. 9).

We concede that sufficient time and effort are required on the part of PE teachers to create and maintain quality websites dedicated to their programs. However, when websites are created with a purpose and the four general principles of the appropriate technology use are adhered to (Society of Health and Physical Educators, 2014), we contend that these efforts are justified.

In the creation of program websites, we recommend that PE teachers (a) collaborate with information technology (IT) professionals within their districts to establish an online presence that portrays their discipline as credible and beneficial; (b) connect course material with participation opportunities and resource outlets in the community via website links, thus further facilitating student learning; and (c) frequently update their websites for the purposes of providing visitors with current information and communicating an unspoken message that the teachers place value in their work and in their charge. Furthermore, PE as a profession may be well served by PE teacher education programs equipping future teachers with the skills needed to create informative and professional departmental websites.

Future descriptive research is warranted in other states and countries to generate a clearer picture of the online presence of PE in America and globally. Furthermore, the extent to which the quality of a PE program website influences students', teachers', administrators', parents', and policy makers' perceptions of PE needs to be examined.

We concede that a high quality website may not translate to a high quality program. However, a high quality program in the modern era should include a high quality website. Understandably, PE teachers are not expected to be information technology experts and their websites should not be held to the same standard as websites

of major corporations. Nonetheless, PE teachers should consider attempting to promote their discipline as educationally significant and of high quality through the use of a professional website. If the rest of the world is advancing with and using technology to grow and get ahead, so should PE professionals.

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KINESIOLOGY

Starting to Uncover the Mystery of Interdisciplinary Research in Kinesiology

David P. Schary and Bradley J. Cardinal

Abstract

The multidisciplinary nature of kinesiology seems to be an ideal configuration for conducting interdisciplinary research. Proposed as a potential solution to overcome fragmentation, interdisciplinary research has a role within kinesiology that remains unknown. In this study, we explored kinesiologists' perceptions of interdisciplinary research, including perceived benefits and limitations. Kinesiologists (n = 45) from academia, the majority from Europe and North America (76.2%), answered a primarily open-ended, seven-question Internet survey. The overarching themes determined via open coding were Benefits (i.e., the positive aspects to conducting interdisciplinary research) and Limitations (i.e., the challenges to conducting interdisciplinary research), each with eight subthemes. Overall, the participants felt interdisciplinary research was valuable, but each had legitimate reservations, creating a contradictory environment that causes tension between the perceived benefits and limitations. Until the tension can be resolved, interdisciplinary research will continue to remain on the fringes of kinesiology research.

Interdisciplinary research (IDR) is becoming an important and much discussed topic in higher education (Basken, 2012b; Jacobs, 2009; Ruse, 2010). However, IDR is more than scholastic rhetoric;

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it is being adopted and operationalized by funding agencies. For example, the National Science Foundation (Basken, 2012a) and the National Institutes of Health (Freedson, 2009; Giacobbi, Buman, Romney, Klatt, & Stoddard, 2012) strongly encourage an interdisciplinary component in grant proposals.

Despite the growing importance of IDR, the term remains ambiguous and misunderstood. The confusion may stem from the numerous and often competing definitions that abound (Klein, 1990). Amid the ambiguity, several scholars have suggested operationalized "working definitions" by combining characteristics of several theoretical definitions (Aboelela et al., 2007; Lattuca, 2001; National Academy of Science, National Academy of Engineering, & Institute of Medicine, 2005). Although the working definitions vary, they have common characteristics, such as (a) grouping together two or more distinct disciplines for a project, (b) integrating knowledge that is not limited to any one field, (c) and using the perspective and skills of all involved disciplines throughout the research process. In addition, IDR can be conceptualized as a continuum with levels spanning from disciplinary to transdisciplinary (Lattuca, 2001).

Perhaps a more imminent concern for faculty members is the barriers deterring them from pursuing interdisciplinary projects. Carayol and Thi (2005) stated that traditional academic career incentives do not encourage interdisciplinary collaboration. For example, the tension between professional advancement (e.g., tenure, promotion, establishing oneself as an authority in field) and IDR may discourage unestablished junior faculty and graduate students from conducting such projects (Rhoten & Parker, 2004). Likewise, interdisciplinary projects often take longer to complete than do disciplinary-based research projects (Campbell, 2006; Rhoten & Parker, 2004), which can complicate logistics, strain funding, and make such work unattractive to those facing promotion.

Despite its potential barriers, IDR has advantages. Klein (1990) argued that it can produce results that are not possible in a disciplinary framework. Echoing her sentiment, Rhoten and Parker (2004) showed that young academics thought IDR could help science address large societal issues (e.g., obesity, poverty, quality education) more effectively than disciplinary approaches alone. The idea that collaboration may help to solve large and complex problems is re-

flected in the growing support in academia of IDR. In fact, many universities have started interdisciplinary centers through "cluster hiring," or the simultaneous hiring of multiple faculty members from different disciplines, with a goal of collaboratively exploring complex problems (Severin, 2013).

Kinesiology has long had an inherent interdisciplinary nature (Bories & Swanson, 2005). Since Henry's (1964) urgent call for kinesiology (then physical education) to become more "academic," the field has evolved into numerous subdisciplinary areas representing the physical sciences (e.g., biomechanics, physiology), social sciences (psychology, sociology), and humanities (e.g., history, philosophy). With so many academic areas in which physical activity is studied, IDR appears to be a natural fit for the field.

Yet many concerns surround IDR in kinesiology. The benefits of IDR in kinesiology are still unknown, perhaps because of the dearth of research surrounding it in kinesiology. Before the potential of IDR can be determined, kinesiologists' perceptions of IDR, including its perceived importance, barriers, and incentives, must be understood. Therefore, we explored kinesiologists' perceived barriers and incentives to conducting IDR within academia.

Method

Sample

Prior to sampling, we received approval from the institutional review board. The sampling frame (N = 315) was restricted to corresponding authors of research articles randomly selected from 10 kinesiology-focused, peer-reviewed journals published from 2008–2012 (see Table 1). Every author included in the sampling frame was invited via e-mail to take an online survey. The selected participants received up to three e-mails over 2 weeks. In total, 315 initial e-mails were sent, 30 e-mails were returned as undeliverable, 240 authors opted out of participation, 45 authors provided at least one usable answer, and 34 authors answered all questions. The final response rate was 14.29% for at least one usable answer and 10.79% for all questions answered. Information used for selecting and contacting the sample was publicly available.

Table 1
Selected Kinesiology-Focused Journals

Journal	Established	Number of issues per year	2012 impact factor
European Journal of Sport Science	2001	6	1.146
International Journal of Behavioral Nutrition and Physical Activity	2004	12	3.577
International Journal of Sports Medicine	1979	12	2.268
Journal of Physical Activity and Health	2004	8	N/A
Journal of Science and Medicine in Sport	1998	6	2.899
Journal of Sports Sciences	1983	16	2.082
Medicine and Science in Sports and Exercise	1969	12	4.475
Research Quarterly for Exercise and Sport	1930	4	1.108
Scandinavian Journal of Medicine and Science in Sports	1991	6	3.214
The Physical Educator	1940	4	N/A

Survey

Participants completed a seven-question Internet survey, consisting of five open-ended, qualitative questions; one quantitative question; and one quantitative and qualitative question. The survey was developed using Berg and Lune's (2012) recommendations for creating qualitative research questions and Dillman, Smyth, and Christian's (2009) recommendations for Internet surveys. The authors were asked about their research experience and opinion of IDR in kinesiology. Following the seven questions, participants were asked demographic information (i.e., highest degree earned, field of highest degree, year highest degree was awarded, academic rank, length of time at current institution, interdisciplinary training, and gender).

The survey was designed and distributed using the Qualtrics Research Suite (http://www.qualtrics.com). Because participation was completed entirely online, the directions and inclusion criteria were given before the survey. By completing the survey, each participant agreed to the stated terms.

Data Analysis

Following the data collection, themes were uncovered from each open-ended question using an open-coding protocol. The protocol followed Glaser and Strauss' (1967) guidelines: (a) ask a specific and consistent set of questions, (b) analyze the data minutely, (c) frequently interrupt the coding to write a theoretical note, and (d) never assume the analytic relevance of any traditional variable. The lead author then thematically coded the data. To help minimize bias, the second author independently reviewed the coding and suggested revisions. A consensual agreement between the authors produced the final thematic coding.

Following the analyses, all 45 participants were asked to member-check the initial results. Seventeen participants (37.77% response rate) reviewed the results with the understanding that they may include more information than any one individual submitted. There were no reported discrepancies or concerns regarding the results. Of the study participants who member-checked the data, a representative comment was, "the results reflect clearly the ideas written in the survey."

Results

Demographics

The sample demographics are shown in Table 2. Although every participant did not answer every question, enough information was available for an adequate description of the sample. Men composed approximately two thirds of the sample. All participants held a doctoral degree and came from an academic environment. Because the titles associated with academic rank vary by country of employment, the academic titles shown should be interpreted with caution. The majority of participants were from Europe and North America (76.2%). Only a minority of participants self-identified as being a

disciplinary-focused researcher (23.2%). Finally, all of the respondents (n = 42) felt that IDR was important to kinesiology.

Table 2
Demographic Information of Sample

Demographic information	*N* (%)
Gender (n = 42)	
Male	27 (64.3)
Female	15 (35.7)
Highest Degree (n = 39)	
Doctor of Philosophy (PhD)	38 (97.4)
Doctor of Physical Therapy (DPT)	1 (2.6)
Academic Rank (n = 35)	
Graduate Student	7 (20.0)
Post-Doctoral Fellow	2 (5.7)
Lecturer/Senior Lecturer	7 (20.0)
Assistant Professor	8 (22.9)
Associate Professor	9 (25.7)
Professor	2 (5.7)
Region (n = 42)	
Australia/New Zealand	9 (21.4)
Europe	13 (31.0)
North America	19 (45.2)
South America	1 (2.4)
Self-Identified Research Focus (n = 43)	
Disciplinary	3 (6.9)
Mostly Disciplinary	7 (16.3)
Neutral	12 (27.9
Mostly Interdisciplinary	14 (32.6)
Interdisciplinary	7 (16.3)

Themes

As seen in Table 3, sixteen subthemes emerged from the participants' responses, and these were organized under the larger thematic areas of benefits and limitations. Benefits refers to the positive

aspects of IDR, and limitations refers to the difficulties surrounding IDR. Although every participant thought IDR was beneficial and limiting, the responses were slightly skewed toward beneficial. Furthermore, several participants justified a negative statement by stating the limitation was not "major" or "I really don't see any [problems]. Unless. . ." Similar rationalizations were not attached to beneficial comments.

Table 3
Themes and Subthemes From Faculty Perceptions of Interdisciplinary Research in Kinesiology

Theme	Subtheme
Benefits	New Perspectives (*n* = 32)
	Better Results (*n* = 27)
	Collaboration Potential (*n* = 16)
	Funding Potential (*n* = 14)
	Better Methodology (*n* = 11)
	Increased Publication and Application (*n* = 10)
	Movement Is Multidimensional (*n* = 5)
	Benefits the Field (*n* = 5)
Limitations	Collaboration Problems (*n* = 15)
	Challenging Methodology (*n* = 13)
	Limiting Results and Analysis (*n* = 11)
	Logistical Barriers (*n* = 11)
	Increased Financial Cost (*n* = 9)
	Disciplinary Jargon (*n* = 5)
	Hinders Career Advancement (*n* = 5)
	Publishing Difficulties (*n* = 3)

Benefits

New perspectives. Thirty-two participants indicated that incorporating different ideas, theories, and frameworks allows a research team to "study a research question from different angles." This was seen as beneficial to kinesiology research because "each discipline provides only one perspective about human movement and multiple perspectives are likely to provide a better understanding of what

is being observed." In addition, as kinesiologists try to understand complex phenomena, "it is critical to integrate the knowledge of other fields into kinesiology." Thus, IDR provides "increased insight and knowledge generation."

Better results. Twenty-seven participants thought that IDR produced better results than disciplinary-focused research, especially when studying complex phenomena, such as human movement. One participant captured this subdiscipline nicely: "Interdisciplinary research offers both broader and more in-depth outcomes in addressing questions related to human experience." In addition, IDR was seen to create "more insightful answers to research hypotheses" and was thought of as being "less reductionist."

Collaboration potential. Sixteen participants felt that collaborating with other disciplines outside of kinesiology enhanced their research. Seen as an extension of new perspectives, collaborations provided "opportunities to network," allowing them to "work with people who are experts in related fields." These collaborative teams can create new ideas and deepen understanding to complex problems by providing different theoretical viewpoints. Furthermore, several participants indicated that partnering with practitioners and clinicians was beneficial because they have different viewpoints than do academics.

Funding potential. Fourteen participants reported the ability to secure funding as a benefit of IDR. One participant exemplified this:

> I do feel that interdisciplinary involvement makes it easier to get funding from different sources than would be possible with just our own discipline. Some research grants are only available for people who are working with teams of three or more researchers, for example.

Another participant noted, ". . . I find that one of the benefits of IDR is the access to funding sources that I would not have had [had I been] working solely with kinesiologists in a university setting."

Better methodology. Eleven participants mentioned that IDR improved research design by allowing the use of different techniques, measures, and technology. For example, one participant stated, "Having suggestions from many disciplines before I start a

research project can make my research design a lot stronger and also prepare me for the kinds of criticisms that I may receive from people outside my discipline . . ."

Increased publication and application. Ten participants felt that IDR was an effective strategy for publication. IDR not only helps with funding opportunities, but it also increases "the number of publication and presentation" opportunities, especially for "journals that target a broad audience." In addition, there was a mutual feeling that there was a "preference for interdisciplinary research in high standard journals." Finally, research should have application, or a "need to apply results to wider interests." One participant expanded, saying, "Applying the new findings usually needs interdisciplinary-focused research."

Movement is multidimensional. Five participants agreed that human movement was "a function of many inter-related elements including physiological, social, cultural, psychological and other processes." Such a complex phenomenon is best understood through IDR because it "opens avenues to adopt technologies, strategies and knowledge from various fields to sustain positive behaviour change."

Benefits the field. Five participants also thought IDR was beneficial to the field, both externally and internally. Within the broader realm of academia, IDR was described as a way to bring "positive attention to kinesiology." One participant provided a representative explanation: "I think it [IDR] is a way to promote the type of research we lead . . . being able to conduct interdisciplinary research would help the field of kinesiology build a stronger identity."

Limitations

Collaboration problems. Rarely is IDR done independently; it is usually conducted by a team with members from different disciplines. Fifteen participants expressed the sentiments captured by the following comment from one participant: "Such people may not exist within a department or university or these people may not be interested in collaboration. One would most likely have to seek out comrades from other universities." In addition, one participant mentioned "territorialism or turf wars" between supposed collaborators, with certain kinesiologists worried that other disciplines would receive the credit for *their* research. Perhaps more seriously, some participants did not feel respected by potential collaborators:

"The natural science subdisciplines (e.g., physiology, biomechanics) sometimes view the behavioural science subdisciplines (e.g., psychology, sociology) as 'softer' and therefore less scientific. That assumption can make it difficult for the behavioural science groups to participate on equal footing."

Challenging methodology. Thirteen participants mentioned that IDR had an adverse effect on methodology, especially when partnering with other disciplines. IDR "can make quantifying metrics quite challenging, and there will likely be dispute (between disciplines) of varying severity in how best to measure or analyse a given task in the context of a problem of interest."

Limiting results and analysis. Eleven participants expressed concern that IDR was too broad, hindering the depth required for adequate insight. For example, one participant said,

> I think a limitation may be due to the breadth of research involved and exposing the research to potentially a lot more confusing variables in order to address the research problem. I think it may be difficult to analyse a problem with the proper amount of detail in order to address this breadth.

In addition, different disciplines may have "conflicting primary aims" and "different research directions" that dilute results and weaken analyses.

Logistical barriers. According to 11 participants, conducting IDR is logistically demanding, requiring a greater time investment than disciplinary research. It takes longer to collect data, analyze results, and set up meetings. These hurdles are made more difficult by institutions not supporting interdisciplinary collaboration, according to participants. One researcher nicely summarized the general sentiment: "The added time and complexity of these types of studies is too great relative to the time and resources available." Thus, the extra investment deters researchers who are already overcommitted. Finally, two participants specifically mentioned the lack of formal interdisciplinary training, which turns IDR into a process of trial and error.

Increased financial cost. Because of the complex nature of some interdisciplinary studies, nine participants said financial costs were a barrier. For example, one participant said,

> Because human development moderates or mediates relationships in all kinesiology research questions, longitudinal studies accounting for growth and maturation are required for establishing cause and effect relationships. This is costly, time consuming and subject to attrition.

In addition, ambiguity may exist regarding the distribution of grant monies among team members. One participant even posed the questions, "Who gets the indirect funding from grants? How are those roles managed?"

Disciplinary jargon. Five participants thought a particular IDR "challenge is to build a common language and a common object so that it becomes possible and useful to work with colleagues of other disciplines." Each discipline has its own vocabulary, making collaborations challenging. Trying to speak "the same language is difficult at times between interdisciplinary researchers" because many researchers are reluctant to learn the jargon of another discipline.

Hinders career advancement. Five participants worried that pursuing IDR would negatively affect their career advancement (i.e., tenure and promotion). It was seen as more difficult to get promoted "from research that doesn't fit obvious disciplinary categories." One participant expressed, "Interdisciplinary research has hurt me in job-hunting."

Publishing difficulties. Only three participants considered IDR a publishing liability that made it more difficult to publish a manuscript. A "non-interdisciplinary journal may be less interested in a paper that is comprised of an interdisciplinary team of researchers." Worries extended beyond the scope of the journal, and participants expressed that it was "often difficult to publish [IDR] as most reviewers are not interdisciplinary."

Discussion

The primary purpose of this study was to explore kinesiologists' views of IDR. The results revealed an interesting relationship between the perceived benefits and limitations. Prior to exploring that relationship, however, one needs to understand the subtle bias in the results. The participants unanimously agreed that IDR was beneficial to kinesiology, a surprising outcome since 23% self-identified as disciplinary-focused researchers. The unanimous result may be due

to the embrace of interdisciplinarity in academia (Basken, 2012b; Jacobs, 2009; Ruse, 2010), with participants feeling obliged to agree because it is the "right" answer. Regardless of the reason, the results should be interpreted with an understanding of this positive bias.

The results exposed a complex relationship between the participants and IDR. As previously mentioned, each participant thought IDR had positive and negative attributes, organized within two dichotomous themes: Benefits and Limitations. These themes simultaneously push and pull researchers in both directions. For example, collaboration was generally seen as beneficial, yet participants still had reservations that dampened their enthusiasm. The subthemes further illustrate this tension. Both themes had five similar subthemes: results, collaboration, funding, methodology, and publishing. Future research exploring these subthemes could help shed light on this paradoxical situation. Yet it should be noted that all the subthemes are interrelated, with any one subtheme being influenced by the others.

It was not surprising that Results was a controversial topic because significant and meaningful results are necessary for publication. Over twice as many participants thought IDR produced better, more robust results. Participants thought that IDR more fully captured the complexities of human movement because human movement does not occur in a vacuum, but rather it is simultaneously influenced by (and is influencing) physiological, psychological, social, and environmental factors. Yet trying to study too many factors may produce results that lack the depth of knowledge needed to adequately understand anything. Ultimately, the relationship should not be as binary as it appears in this study. The participants shared the extreme views that permeate throughout academia. Instead of viewing results from IDR as either too limited or too broad, researchers should view them on a continuum and try to seek a balance. The underlying assumption being that the knowledge is known and understood within the broader scientific discipline and professions affected by it, akin to Zeigler's (2011) long-standing call for organizational principles for the field.

Finding the proper balance is more of an art than a science because it considers many factors, such as type of research, research goals, variable(s) of interest, and desired degree of sensitivity and specificity. In addition, the results are dependent on available re-

sources (e.g., equipment, facilities, funding). Thus, because of the countless number of considerations and resources, universal recommendations are beyond the scope of this study.

Collaboration is almost always necessary when conducting IDR, and similar to results, collaboration is controversial. Collaborating with people in different disciplines may widen perspective and deepen understanding on a particular topic because it is impossible to know everything about a topic. This expansion of knowledge may mitigate previously held biases and assumptions, helping to improve the quality of a study. In addition, working with nonacademics (e.g., community leaders, industry partners, practitioners) may make the research more applicable and/or contextually relevant.

The biggest challenge to reaping the benefits of collaboration is collaboration itself. From the participants' descriptions, egos and elitism often hinder productive communication. Not respecting the ability of all disciplines to add value to a project undermines IDR, reinforcing biases and assumptions about other disciplines.

Even if everyone's opinions are equally valued, it still takes time to build collaborations. Stemming from the subtheme of Logistical Barriers, the increased complexities of IDR require more time and effort, which is supported in the literature (Campbell, 2006; Rhoten & Parker, 2004). As discussed in greater detail later, young faculty members under the pressure for production to obtain tenure (i.e., the "publish or perish" paradigm) do not always have such luxuries. Additionally, finding a common scientific language amid the jungle of disciplinary jargon is another hurdle often too high to overcome. To collaborate successfully, researchers and the universities that support them must first believe that the potential benefits outweigh the barriers. But belief is not enough; researchers and the universities must also invest in resources (e.g., equipment, facilities, funding, time) to overcome the barriers. Belief without proper investment may result in confusion, frustration, and/or inaction.

Similar to results and collaboration, more participants felt IDR expanded funding opportunities. Participants overwhelmingly noted that obtaining grants alleviated many of the challenges by supplying resources. Grants, however, do not solve all problems. Instead, problems shift to the fair appropriation of the monies. With pressure to bring in external funding to departments, large sums of money

may cause rifts in research teams because dispersion is often complex and political. In addition, funding may not be sufficient to the needs of the team or the department expectations, which may also cause tension among research members. Thus, the emphasis on funding may hinder rather than facilitate IDR. In future research, researchers should examine the role of funding in greater detail.

Because of the importance of methodology in research, it was not surprising to see conflicting opinions about the role of methodology in IDR. Of the five subthemes with reciprocal relationships, methodology was the only subtheme that had more negative than positive comments. The primary challenge was agreeing on the best way to measure and analyze the variables of interest. Other participants, however, felt that working with different disciplines strengthened the methodology because researchers in other disciplines were able to see limitations in any one technique and offer suggestions. Initially, these two viewpoints appear to be opposite, but they are related. Researchers often disagree about the best methodology because they see the strengths of their design and the limitations of the others, as described in the negative connotation. The research teams that can productively collaborate (without egos or elitist attitudes) can find the best methodology (or combination thereof) based on their collective expertise, as described in the positive connotation. The interrelated relationship of these subthemes becomes increasingly important because finding the best methodology through productive collaboration produces the best results.

Publishing is a primary currency that academics collect and for which they are evaluated for career advancement, especially among young academics seeking tenure and promotion. Although more participants felt IDR increased opportunities to publish, the type of publication outlet may be the key to understanding this contradiction. The content of an academic journal is determined by its editor in chief, editorial board, and reviewers, all who are guided by the mission statement and/or purpose of the journal. The content of academic conferences is often premised in a similar manner. However, journals and conferences are different in their level of interdisciplinary focus. In addition, certain subdisciplines and regions (e.g., Asia, Europe, North America) encourage IDR more than others. Thus, the participant's subdiscipline and location may determine the publish-

ing opportunities. In future research, researchers should examine this complex relationship.

Not all of the Benefits subthemes are reciprocal in nature, specifically New Perspectives, Movement Is Multidimensional, and Benefits the Field. These subthemes are focused on the more universal aspects and/or benefits of IDR in kinesiology, illustrating that IDR is beneficial for the field in general. Additionally, having no counterpart to the Limitations subtheme supports the positive bias of the responses. Because there were no negative subthemes, such as Movement Is Disciplinary or Harms the Field, participants felt that at least the idea of IDR was more beneficial than limiting.

Perhaps most enlightening is the comparison of the Benefits subtheme of Benefits the Field with the Limitations subtheme of Hinders Career Advancement. As previously described, Benefits the Field is more universal and idealistic, whereas Hinders Career Advancement is more individualized and realistic. This enigmatic pairing shows the inconsistent expectations of higher education. At the same time universities and departments tout their support of IDR, they often reward disciplinary research. Until these mixed messages stop, researchers will continue to feel the tension between helping the field versus advancing their careers.

Conclusion

Despite the rhetoric, IDR in kinesiology is a controversial topic. The tension between perceived benefits and limitations is obvious. The general consensus is that IDR is beneficial, but many have legitimate hesitations. These stem from an apparent double standard whereby academics and administrators praise the potential of IDR, but reward those following a more disciplinary-oriented research paradigm. Until there is a shift in academic thinking that elevates IDR to the same level of importance and support as disciplinary research, researchers will have to continue to overcome unnecessary barriers. Kinesiologists seem to perceive that IDR holds great promise, but kinesiologists must work together to lower the hurdles to make it a reality.

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METHODOLOGY

Picking Teams: Motivational Effects of Team Selection Strategies in Physical Education

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Abstract

The tacitly sanctioned practice of publicly picking teams in physical education has been categorized as instructionally inappropriate, yet its practice persists. Therefore, the purpose of this two-study article was to examine its effects on achievement goals orientations and motivational profiles of male junior high school physical education students (n = 233). Students were assigned to one of two conditions (publicly picked teams or confidential draft) in four sports and across four trials. Unexpectedly, findings revealed no significant differences between groups across sports or within trials in (a) goals orientation or (b) self-determined motivation. However, follow-up interviews revealed insights into (a) selection motives, (b) differentiation in conceptions of abilities, and (c) a sense of empathy for peers vulnerable to the practice. Despite nonsignificant findings in survey results, the qualitative data revealed nuances associated with this practice that have allowed us to make specific recommendations against the continued use of this practice.

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In 2009, the National Association for Sport and Physical Education (NASPE) published three documents containing some 206 items describing appropriate instructional practices in physical education (AIP-PE). AIP guidelines for elementary (n = 70; NASPE, 2009a), middle school (n = 68; NASPE, 2009c), and high school (n = 68; NASPE, 2009b) constitute a consensus statement intended to inform not only PE teachers and students, but also parents and guardians, school administrators, and policy makers.

The intent of the AIP-PE documents is to ensure that physical education instruction incorporates "the best-known practices derived from both research and teaching experiences, into a pattern . . . that maximizes opportunities for learning and success for all students" (NASPE, 2009c, p. 3). To that end, each document identifies several appropriate and, conversely, inappropriate practices under the categories of learning environment, instruction, curriculum, assessment, and professionalism. Most noteworthy are guidelines that address issues such as dealing with bullying; using exercise as punishment; inclusion; picking of teams; modified games; appropriate focus on competition; and knowledge, skill, and fitness assessment.

In a series of studies to assess the degree to which AIP-PE is understood, accepted, and implemented, Barney and his colleagues polled K–12 students (Barney & Christenson, 2014; Barney, Christenson, & Pleban, 2012), physical education teacher education (PETE) majors (Barney & Christenson, 2013; Barney et al., 2012), administrators (Barney & Prusak, 2014), and parents (Barney & Pleban, 2010). Generally, each group was able to identify each practice correctly as appropriate or inappropriate. However, as a whole, these studies reveal a concerning pattern of mislabeling certain practices. Specifically, eight items were generally mislabeled. Seven *inappropriate* practices mislabeled as appropriate included use of large group activities and competition to identify winners and losers; public picking of captains and teams; fitness testing for public recognition and rewards; use of militaristic calisthenics for fitness purposes; inclusion of dodgeball; skill assessment in nonauthentic or contrived settings; and grading student attitudes based on attendance, wearing gym clothes, and effort (Barney & Christenson, 2013, 2014; Barney et al., 2012; Barney & Pleban, 2010; Barney & Prusak, 2014; Barney & Strand, 2008). One *appropriate* practice was mislabeled as inap-

propriate: required outside-of-class homework and assignments (Barney & Strand, 2008; Barney, Strand, & Prusak, 2013)

Some of these mislabeled practices are more consequential than others, particularly if they exert negative effects on student motivation. For example, the type and frequency of public recognition and rewards have been identified as particularly sensitive in the overtly peer-comparative public school environment. Furthermore, because society places high social value on athletic prowess, comparing favorably in athletic arenas (including physical education) presents a more highly charged potential for negative experiences in physical education. One such frequently misapplied practice that may have serious negative consequences is the public selection of team captains and team members. Indeed, in all five previous studies, a majority of elementary (54%), middle grade (68%), and high school (66%) students, in addition to PETE majors (57%) and parents (74%), apparently saw nothing inappropriate or wrong about this questionable and highly peer-comparative practice.

Motivational Effects of Misuse of AIP-PE

Achievement goal theory (AGT) has been used to examine the dispositional effects that students experience in a variety of achievement settings (Nicholls, 1981, 1984), including PE. AGT posits that the primary goal in any achievement setting (e.g., physical education) is to gain competence (a sense of "I can do this"). It further proposes that competence can be achieved by eliciting either an ego (success is peer-referenced) or a task (success is self-referenced) orientation within the student that matches the setting as constructed by the teacher. Ames and Archer (1988) examined the existence of behavioral strategies (Dweck & Leggett, 1988; Elliott & Dweck, 1988; Todorovich & Curtner-Smith, 2002) that students employ in pervasively ego- and task-oriented physical education classes to achieve a sense of competence. When students are placed within an ego-oriented environment focused on peer comparative activities (e.g., an inappropriately high emphasis on success in competition), they adopt a set of *maladaptive* learning behaviors and strategies including peer-referenced success, low effort, giving up easily, avoidance of optimally challenging tasks, deception and cheating, negative affect, and withdrawal following failure (Solmon, 1996). Conversely, students in a pervasively task-oriented climate employ a set of *adaptive*

learning behaviors and strategies including self-referenced success, increased effort, persistence, seeking optimally challenging tasks, focus on personal improvement, solving a problem, positive affect, and motivation to reengage—even after a lack of success (Solmon, 1996). Ultimately, research shows that students learn more in task climates and have positive attitudes toward the experience (Solmon, 1996). Student dispositions toward task or ego orientations are highly malleable and highly influenced by the nature of the achievement setting to which they are exposed. Essentially, students adopt an orientation that they perceive necessary to achieve a sense of competence based on their perceptions of the achievement setting. Last, task or ego orientations are posited to be orthogonal (Roberts, Treasure, & Kavussan, 1996), or operating independently within individuals. Thus, it is possible for a student to have a high task and a high ego orientation, low on both, or one high and the other low.

TARGET Structures in Physical Education

Ames (1995) employed the useful TARGET (Epstein, 1989) acronym to aid teachers in creating task climates with the intent of eliciting from the students a matching task orientation. Task, Authority, Rewards, Grouping, Evaluation (assessment), and Timing are described in terms of strategies that a teacher can employ to create a decidedly task climate in PE successfully. Of primacy in this study is *G*—grouping strategies—and particularly the practice of picking teams publicly. Grouping students refers to putting students with a partner, in a small group, or on a team for an activity. In 1996, this practice earned a spot in the Physical Education Hall of Shame and was labeled as "psychological warfare" and "torture" (Williams, 1996, p. 47). Indeed, in a recent study, Jensen, Cushing, and Elledge (2014) went as far as to characterize the practice as a form of bullying that may have lasting and detrimental effects on children's motivation toward current and future physical activity patterns.

In addition to AGT, self-determination theory (SDT) of motivation has also provided a useful framework for examining motivational effects in physical education. SDT proposes that as the social needs of competence, autonomy, and relatedness are met, individuals experience increased self-determination as evidenced by positive changes in their behaviors, cognition, and affect. The theory further posits that a person's motivational profile is oriented along

a continuum ranging from amotivation (lacking motivation to act) to extrinsic motivation (acting for reasons outside of self) to intrinsic motivation (acting for reasons that originate from within self). Last, SDT proposes an increasingly stable hierarchical relationship between three levels of generality, namely, situational (the here and now), contextual (domain specific, e.g., physical education), and global (life traits; Vallerand, 2001).

Combined in one examination, the constructs from AGT and SDT allow researchers to examine specific aspects of the learning environment and their motivational effects on students. Because of the shared construct of *competence,* it is possible to manipulate the learning environment—to be either task oriented or ego oriented—and then measure the motivational effects each setting exerts on the students.

Therefore, the purpose of this two-study article was to examine and report the effects of two grouping strategies (ego oriented: picking teams publicly vs. task oriented: confidential draft) on the situational motivation and the task/ego disposition of males in junior high school physical education across two studies and four sport activities. We hypothesized that the decidedly ego-oriented experience of publicly picking captains/teams would (a) elicit a significant shift toward student ego dispositions and (b) result in an overall decrease in situational motivation, and we did not anticipate (c) changes in contextual motivation.

Method

Overview

We conducted two consecutive studies to examine the hypothesized effects of the method of team selection on disposition (task and ego) and motivation (amotivation, external regulation, identified regulation, and intrinsic motivation) of junior high school males in physical education. We made the decision to conduct a second study to confirm or refute the unanticipated results from Study 1. Because of similar methodologies and findings, and particularly to avoid unnecessary repetition, we report both studies together, providing clarification where needed.

We conducted each of the following studies using an intervention in which students in intact classes were assigned to one of

two conditions (public picking of teams vs. confidential drafting of teams) across four sports (Study 1: flag football and soccer; Study 2: volleyball and basketball). Response variables assessed (a) situational motivation and (b) achievement goals orientation (task vs. ego) before and after each sport, in both conditions. For Study 1, we employed a quasi-experimental, 2 (conditions) × 2 (sports: flag football and soccer) × 4 (trials) between and within design with repeated measures analysis of variance (RM ANOVA). For Study 2, we used the same design with the exception of also including a crossover between sports (i.e., students in one condition in volleyball received the opposite condition in basketball). We likewise examined data from Study 2 using RM ANOVA to examine between and within differences. Additionally, we examined descriptive statistics and correlations among variables of interest. We conducted follow-up interviews with a purposeful sampling of students (n = 14) from Study 2, to assess possible long-term adverse effects (Jensen et al., 2014) from method of team selection experienced in physical education.

The purpose of these two studies was to examine the effects of two grouping strategies (picking teams publicly vs. confidential draft) on (a) the situational motivation and (b) the task/ego disposition of males in junior high school physical education. We hypothesized that the decidedly ego-oriented experience of publicly picking captains/teams would (a) elicit a significant shift toward student ego dispositions and (b) result in an overall decrease in situational motivation, and we did not anticipate (c) changes in contextual motivation.

Participants and Setting

One hundred seventeen (Study 1) and 116 (Study 2) male physical education students in Grades 7–9 participated in these studies. The physical education classes at this junior high were gender segregated, all male and all female. Students were enrolled in their physical education class for half of the school year. Participants were students from a junior high school of 1,264 (675 male, 589 female) serving seventh to ninth grade, in a predominantly middle class to middle upper class, primarily Caucasian (88% White, 7% Hispanic, 5% other) community located in the Intermountain West. Participants returned signed letters of informed consent/assent prior to both studies.

Procedures

Study procedures received university institutional review board and district approval. The practice of publicly picking teams was common on the playground or in pickup games, though not a universal occurrence in physical education. Both studies were conducted using a 2 (methods of team selection) × 2 (sports) × 4 (trials) between and within, quasi-experimental design (exception: in Study 2, a crossover design between sports was used). In each study, four intact classes were randomly assigned to one of two methods of team selection (publicly picked teams or confidential draft). In the publicly picked teams condition, captains (selected by the teacher based on athleticism and an outgoing nature or popularity) selected members for six teams in order (Teams 1 to 6) and then reversed order for each successive round. Team members in the draft condition were selected by teacher-chosen captains in a confidential draft (order Team 1 to Team 6 and then reversed the order). Then to ensure the fairest team selection, following the draft, captains were randomly assigned to one of the six teams. This method of choosing teams was explained to class members, and team rosters were posted in the gym the following day. The unit was 2 weeks in length.

In Study 1, students in both conditions participated first in a flag football unit and then in a soccer unit. In Study 2, students in both conditions participated in a volleyball unit, switched conditions, and then participated in a basketball unit. Under the direction of the teacher, participants completed the Perceptions of Self Questionnaire (POSQ; measures task and ego orientations; Roberts, Treasure, & Balague, 1998), the Situational Intrinsic Motivation Scale for PE (SIMS-PE; assesses motivational profiles in the moment; Guay & Vallerand, 2000) twice during each sport unit, and the Sport Motivation Scale (SMS-PE; assesses student motivational profiles toward PE as a context; Pelletier, Rocchi, Vallerand, Deci, & Ryan, 2013) before and after each study. Study 1 occurred in the fall semester and Study 2 in the winter semester.

Data Collection

Motivational questionnaires. Participants completed the 12-item, two-subscale POSQ in each of four trials (twice prior to team selection and twice following team play) in each sport. A modified

stem—"When teams are picked in PE, I feel most successful when:"—preceded the 12 items on the POSQ. Participants responded to statements that assessed the strength of their task and ego orientation on a 5-point Likert-type scale for which 1 was *strongly agree* and 5 was *strongly disagree*. Students responded to statements such as "I am clearly better" (ego involved) and "I reach a target I set for myself" (task involved). The POSQ contains two six-item subscales, each designed to assess the strength of student task and ego orientations, respectively. The POSQ has been demonstrated as valid and reliable for use with this population (Gordon, 2006; Roberts et al., 1998).

Participants also completed the 16-item, four-subscale SIMS-PE in each of four trials (twice following team selection and twice following team play) in each sport. A modified stem—"Why are you currently playing for the team you are on in PE?"—followed by statements such as "Because I don't have a choice" (amotivation) or "By personal decision" (intrinsic motivation). Students rated the degree to which the statement described them on a 7-point Likert-type scale with 1 being *corresponds not at all* and 7 being *corresponds exactly*. The SIMS-PE has been found to be a valid and reliable instrument for use with adolescents (Guay & Vallerand, 2000; Prusak, Treasure, Darst, & Pangrazi, 2004; Standage, Treasure, Duda, & Prusak, 2003; Ward, Wilkinson, Graser, & Prusak, 2008).

Last, in studies for which randomization is not possible, it is often wise to conduct a test for preexisting differences between treatment groups. Therefore, the 28-item, seven-subscale SMS-PE (Pelletier et al., 2013) was administered 1 week before the intervention began to assess differences in contextual (toward PE in general) motivation. Furthermore, to assess possible *changes* in contextual motivation, the SMS-PE was administered 1 week after the completion of the intervention. The SMS-PE stem and items focused participants' responses on perceptions of PE in general with the statement, "Why do I participate in physical education?" The same 7-point scale was used for the SMS-PE as for the SIMS-PE. The items scores for the SMS and the SIMS scales can be reduced to their respective mean subscale scores, but it is often useful to reduce subscale scores even further, yielding a self-determination index (SDI) score—a single score representing a person's motivational position along the self-determination con-

tinuum (Pelletier et al., 1995). An SDI score is particularly useful for assessing preexisting between and within group differences. The SMS-PE has been found to be a valid and reliable instrument for use with adolescents (Pelletier et al., 1995).

Follow-up interviews. To assess possible long-term effects (negative feelings toward PE; Jensen et al., 2014), 1 year after Study 2 was completed, captains and student's beginning of team selection (n = 6), middle selections (n = 2), and students selected near the end of team selection (n = 6) were invited to participate in a 5-min follow-up interview. Questions sought to explore student perceptions of the method of team selection in both conditions. The interview questions were determined by the theories used for this study (task and ego, motivation). For example, some of the questions posed during the interview were as follows: Why do you think other students are picked before other students? Do you remember where you were picked? Are kids picked because they are skilled or popular? In particular, we sought to uncover how the students felt as a result of the order in which they were publicly selected and if there were any lasting negative effects, such as those described by Jensen et al. (2014).

Additional qualitative data resulted from teacher field notes containing personal feelings and impressions as well as from student quotes and spontaneous utterances during the selection process. We also interviewed the teacher to ascertain his perceptions of both methods of team selection.

Data Analysis

Quantitative data analysis. We analyzed data from Study 1 using SPSS (version 20) and data from Study 2 using SAS (version 9.3). We conducted preliminary analysis, checks for missing data, keystroke errors, outliers, and normality on the raw data.

We calculated all subscales scores for the POSQ and the SIMS by averaging the observed scores of associated items. We used subscale means in subsequent analyses. For each study, we calculated group means and standard deviations and bivariate correlations for all subscales for all conditions, sports, and trials, respectively.

Correlation analysis allowed for the testing of the existence of a simplex pattern (i.e., strongest correlations between adjacent subscales) in support of the proposed ordering of the self-determination

continuum (Pelletier et al., 1995). We assessed internal consistency of subscales via Cronbach's alpha. Acceptable reliability scores are generally considered to be ≥ 0.7.

We analyzed mean differences using a between (conditions) and within (trials) RM ANOVA. In Study 2, we further split data into tertiles (based on teacher's assessment of skill level) for an additional between and within RM ANOVA analysis on the lowest and highest ranked students.

Qualitative Data Analysis

Qualitative data generated from 5-min interviews of a purposeful sampling of 14 students (six early-picked captains, two middle-picked, and six last-picked) was audiotaped and, along with researcher field notes, transcribed. We first examined transcribed data using inductive content analysis (Lincoln & Guba, 1985; Sarvela & McDermott, 1993) to identify emerging themes. Next, we employed the constant comparative method (Glasser & Strauss, 1967), first to categorize and then to compare and contrast each unit of information with all other units of information, with the intent of linking those with similar meanings (Patton, 1980).

To ensure trustworthiness, we used several recommended strategies (variety in researcher roles, addressing researcher bias, triangulation, peer debriefer, and an inquiry audit). Two of the researchers assumed an active-member role (close but intermittent association), and the third (PE instructor, conducted all study procedures) assumed a complete-member role (Alder & Alder, 1994). To address and manage researcher bias, the two active-member researchers worked closely with this school and its teachers and students via practicum and student teaching fieldwork. Additionally, the third researcher (enmeshed member) was the teacher of all student participants in this study. The primary researcher has conducted research and has published several articles in the area of AIP-PE (e.g., Barney & Christenson, 2013; Barney et al., 2012; Barney & Prusak, 2014). Of primacy to this study, Barney and Strand (2008) made repeated recommendations against the use of publicly picking teams in PE.

We used three of the four recommended strategies (Denzin & Lincoln, 2000) for triangulation of the data, namely, (a) data triangu-

lation (asking the same questions of all participants), (b) investigator triangulation (including several researchers, each with his own set of field notes and interpretations), and (c) theory triangulation (use of multiple theoretical perspectives to interpret data).

The primary researcher conducted the initial content and comparative analyses, and the second researcher acted as the peer debriefer. A peer debriefer is tasked with challenging initial interpretations and validating that they are true to the data (Hanson & Newburg, 1992), making site observations, taking field notes, and asking questions to see if researcher perceptions and conclusions are accurate (Bogdan & Biklen, 1998).

Last, once the data were analyzed and conclusions written, the third researcher conducted an inquiry audit by reviewing all documents beginning with the transcripts of the raw data and ending with the final written report. The intent of the inquiry audit is to ensure that a "paper trail" supporting the evolving analysis occurred as reported and that the conclusions are a reasonable interpretation of the data.

Results

SMS-PE: All Subjects

No significant between or within differences for contextual motivation toward PE in general were noted in either study. In other words, no preexisting motivational differences needed to be accounted for or controlled in subsequent analyses. Furthermore, as anticipated, no significant pre-to-post changes in contextual motivation occurred as a result of the intervention in either study.

POSQ: All Subjects

Subscale means, standard deviations, effect sizes, and mean alphas for the POSQ are presented in Table 1 and for the SIMS in Table 2. Mean Cronbach's alphas ranged from 0.88 to 0.94, indicating robust internal consistency for the task and ego subscales of the POSQ. Weak bivariate correlations (r = 0.013–0.361) were noted between task and ego subscales in each of the four POSQ trials, supporting the posited orthogonality of the two achievement orientations. Subscale

means on the POSQ indicated that students were consistently *highly task oriented* but *moderately ego oriented,* (a) in both methods of team selection, (b) before team selection, (c) after team play, and (d) across both studies. Unexpectedly, however, no significant between conditions or within trials or across sport differences were noted in either study. In other words, the practice of publicly picking teams had no more of an effect on student task or ego orientation than did a confidential draft. However, a significant Ego-Orientation Trials × Condition Interaction, $\lambda(3, 113) = .875$, $p < .01$, was noted in Study 1. Specifically, the draft group was less ego oriented *following play* in each of the two sports than were those in the publicly picked teams condition. No significant team selection effects on task or ego orientations were noted in Study 2.

SIMS-PE: All Subjects

On the 7-point scale, for which 4 represented a neutral score, a comparison of subscale means on the SIMS-PE from both studies indicated that students generally experienced (a) low to moderately low levels of amotivation (Study 1: $r = 1.41–3.06$; Study 2: $r = 2.70–3.15$) and external regulation (Study 1: $r = 2.90–3.92$; Study 2: $r = 3.04–3.81$) and (b) *neutral* to *moderate* levels of identified regulation (Study 1: $r = 3.14–4.45$; Study 2: $r = 3.54–4.05$) and intrinsic motivation (Study 1: $r = 4.24–5.20$; Study 2: $r = 3.79–4.59$). However, once again, no significant between methods of team selection or between trials (after team selection and following team play) were noted. In other words, in both studies, in both methods of team selection, and across all sports, students (a) were minimally amotivated and had only a slight sense of being externally controlled and (b) reported mostly neutral perceptions of positive motivation (identified regulation and intrinsic motivation).

Table 1
Means, Standard Deviations, Effect Sizes, and Alphas for POSQ Subscale Scores by Questionnaire

	Trials								
	POSQ1		POSQ2		POSQ3		POSQ4		*M*
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	α
				Study 1					
Public Picking of Teams									
Task	1.60	.75	1.69	.89	1.88	1.09	1.83	.96	.93
Ego	2.83	1.16	2.71	1.09	2.82	1.11	2.81	1.14	.94
Confidential Draft									
Task	1.80	.68	1.99	.867	1.84	.78	2.02	.95	.88
Ego	2.80	.95	3.00	.94	2.63	.89	2.70	.99	.91
				Study 2					
Public Picking of Teams									
Task	1.71	.72	1.82	.80	2.00	1.09	1.92	.96	.91
Ego	2.78	.94	2.82	.95	2.91	.95	2.87	1.06	.90
Confidential Draft									
Task	1.69	.65	1.96	.87	1.73	.75	1.99	1.11	.88
Ego	2.64	.99	2.69	.84	2.63	.80	2.74	.96	.89

Note. Responses measured using a 5-point scale for which 1= *strongly agree* and 5 = *strongly disagree.* Therefore, lower scores indicate a stronger task or ego disposition. Mean alphas associated with all POSQ subscales from all four trials demonstrated acceptable levels of internal consistency ($\alpha \geq .7$).

Table 2
Means, Standard Deviations, Effect Sizes, and Alphas for Subscale Scores by Questionnaire

	Trials								
	SIMS1		SIMS2		SIMS3		SIMS4		*M*
Condition	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	α
Study 1									
Public Picking of Teams									
AM	3.06	1.82	2.91	1.54	2.49	1.58	2.84	1.68	.77
ER	3.92	1.95	3.63	1.60	2.90	1.62	3.29	1.70	.70
IR	4.45	1.54	3.82	1.45	4.44	1.23	4.00	1.47	.88
IM	5.01	1.50	4.24	1.43	5.20	1.89	4.68	1.44	.86
Confidential Draft									
AM	2.73	1.48	2.80	1.41	2.99	1.52	2.90	1.48	.77
ER	3.14	1.43	3.26	1.52	3.50	1.40	3.55	1.93	.73
IR	4.15	1.40	3.80	1.82	4.08	1.29	4.02	1.32	.81
IM	4.59	1.31	4.35	1.33	4.47	1.36	4.27	1.25	.86
Study 2									
Public Picking of Teams									
AM	2.70	1.23	3.08	1.51	2.95	1.30	3.15	1.55	.79
ER	3.04	1.57	3.32	1.40	3.25	1.22	3.49	1.47	.80
IR	3.79	1.31	3.97	1.32	4.05	1.24	3.63	1.40	.70
IM	4.33	1.42	4.42	1.22	4.34	1.30	3.79	1.51	.74
Confidential Draft									
AM	2.78	1.32	2.88	1.30	2.74	1.42	2.95	1.47	.81
ER	3.81	1.62	3.57	1.52	3.62	1.51	3.72	1.59	.86
IR	3.54	1.29	3.67	1.32	3.73	1.39	3.84	1.52	.75
IM	3.96	1.34	4.23	1.42	3.89	1.55	4.23	1.75	.83

Note. Responses measured using a 7-point scale for which 1= *corresponds not at all* and 7 = *corresponds exactly.* Mean alphas associated with SIMS subscales from all four trials demonstrated acceptable levels of internal consistency ($\alpha \geq .7$). AM = amotivation; ER = external motivation; IR = identified regulation; IM = intrinsic motivation

Study 2 POSQ and SIMS-PE Results By Skill-level Tertiles

To ascertain if lesser skilled students were adversely affected by the method of team selection, participants in Study 2 were separated for further analysis into tertiles based on teacher rankings for skill level (lowest: $n = 39$; middle: $n = 39$; highest: $n = 39$). Surprisingly, skill level tertiles comparisons on POSQ and SIMS-PE subscale means revealed no significant differences between conditions or within trials for the *least* and *most* skilled tertiles. In other words, those who would likely be most vulnerable to adverse effects of publicly picked teams were no more bothered by the practice than was anyone else in class.

Fixed effects were found to be nonsignificant, but a few notable interaction effects were noted. Specifically, within the high skill level tertile, one method of team selection was by sport interaction, $F(1, 38) = 4.36$, $p < .05$. These students felt more eternally controlled in basketball when drafted than they did in volleyball when picked publicly.

Qualitative Results

In hopes of finding additional understanding to the nonfindings from the survey data, we sought a purposeful sampling of students from Study 2 for follow-up interviews. Analysis revealed three major themes emerging from the data: (a) selection motives, (b) differentiation of conceptions of ability, and (c) empathy.

Selection motives. Students commented on two major reasons why a person may be selected to a team: (a) athleticism or sport skill and (b) friendship or popularity. These motives were nearly equal in their frequency, often mentioned in the same thought. Selection based on athleticism was typified by comments such as "It [team selection] is determined by skill level. If you have a captain that is athletic, he will choose athletic kids to be on his team . . . so they can win!" (Student 7, eighth grade, low pick). When asked why some are picked before others, one student remarked, "Athletic abilities. Because people want to win and have fun. The ones that want to have fun will pick their friends. And the ones that want to win pick the athletic ones" (Student 12, eighth grade, middle pick).

As often, however, students indicated that choosing team members was more about being with their friends: "I was just hoping to

have some of my friends on the team. Some kids may be going for their friends first. Or if they want to win, they will go for the better kids" (Student 6, seventh grade, low pick). When asked if it was important to win, he responded, "Yes. But, it is good to be with friends and be happy" (Student 7, eighth grade, low pick). Others still expressed that being with friends and winning was best of all: "You want someone who is good. It is important to get the best kids on your team or your best friends." Question: "If you can win and have your friends, this is the best of both worlds?" Answer: "Yes" (Student 5, eighth grade, middle pick). Question: "Do you think friends like to hang together?" Answer: "Yes. In my PE class now, all the football players are in one group. Everyone calls them the dream team because they are always together" (Student 8, eighth grade, low pick).

Three of the last-picked students explained that they did not care about the selection process. "Yes [get it over with], I don't care what team I'm on. I just want to play." Question: "Was it important to have good players on your team?" Answer: "No. I just wanted to get playing" (Student 6, seventh grade, low pick). Similarly, Student 10 (seventh grade, low pick) commented, "It's just a game. I just wanted to play the game!" Last, Student 4 (seventh grade, low pick) mentioned, "A lot of kids didn't care. No one was really upset [in what order] they were picked, more where they got picked to."

Also of interest were comments that seemed to indicate that certain students resented the draft method because they were denied input as to who was on their teams: "[When draft teams are posted] on the wall, you put everyone together. But when they pick teams, they want to get to know you" (Student 7, eighth grade, low pick).

Differentiation of conceptions of ability. Whether as a coping mechanism or an evolving sense of ability (Nicholls, 1984), many students admitted to understanding and accepting reasons for the order in which they were picked. Some attributed being a late pick to self-perceptions of lacking skills or athleticism. Question: "If you are not picked first in soccer, how do you feel?" Answer: "It could be upsetting. But I know why. Because I am no good at that. I accept that" (Student 11, eighth grade, high pick). Student 8 (eighth grade, low pick) admitted, "[Not a big deal] because I knew I would be one of the last ones picked. So I really didn't care."

Awareness of sport-specific abilities also came into play: "Depending on the sport, in football [I am picked] toward the front, basketball toward the middle, volleyball toward the middle, and wrestling, the first" (Student 12, eighth grade, middle pick). Knowing their own abilities seemed to provide a buffer of realism for some students. Question: "Do you feel [picking teams] is a big deal?" Answer: "I feel I need to improve in the sport. I was picked toward the end. In soccer, I feel good about myself" (Student 11, eighth grade, captain).

Empathy. Pleasantly surprising were expressions of empathy or sympathy for those who were picked last—even from those who were high picks. Speaking of the public selection process, Student 2 (eighth grade, high pick) explained,

> You can see their expression. If they are picked first, they are glad. If they are picked last, they are like, nobody wanted them on their team . . . because of their ability and how much they were liked. Mostly ability. The kids that were picked last were upset. They know what happened and realized . . . If it was me, I wouldn't be too thrilled.

Likewise, "It can be [a big deal] because it excludes people, if you are the last picked" (Student 3, eighth grade, high pick). Comparing the two methods of team selection, Student 5 (eighth grade, middle pick) commented, "Teams were more fair [when drafted]. Teams were more one-sided when captains did pick." Question: "Do you feel sorry for those students that were picked last?" Answer: "Yes, because I would not want to be in their position. It is not fun being the last one picked. It means you don't have any friends or you are not very good."

Student 11 (eighth grade, high pick) mentioned that he had often witnessed acts of kindness associated with the picking of teams at this school: "At this school, they do that. In [my last school in a different state], they did not do that. They picked on how good you were. Here at this school, they pick on how good you are, being with friends and kindness." Student 1 (eighth grade, high pick) mentioned a way to spare the feelings of a usually last-picked student: "To keep it fair for those that get picked last, pick them third or fourth. You never know. There could be a dark horse."

Discussion

We wish to state at the onset of this section that, despite the findings, or nonsignificant findings, reported herein, we are not inclined to recommend the practice of publicly picking teams in physical education for reasons we will explain. But neither can we ignore these survey outcomes just because they were not what we anticipated. Although it may be unusual, we think it is also necessary to provide additional background to these studies— perhaps as a scholarly cautionary tale.

Following the first study in the fall semester, we concluded that we must have made some fatal error in collecting the data that explained the complete absence of conditional effects. Our theories were solid, our questions pertinent, our design appropriate, and the instruments reliable. So how did the intervention not produce the anticipated results? Researcher or instrument error seemed the only plausible explanation, though we could not find it. In fact, students answered the survey questions repeatedly with remarkable consistency. On the surveys, students were unbothered by the practice of publicly picked teams. Nonetheless, we decided a second study was necessary (with the addition of a crossover design). Surprisingly, those results were nearly identical to those from the first study. No matter how we looked at or analyzed the data, we simply could not reconcile our—dare I say it—*biases* with these nonfindings. Then recently Jensen et al. (2014) equated this practice to a form of bullying, affecting long-term physical activity motivation, which prompted our return to the school to ask the students directly how this practice made them feel. Surely, we thought, we could probe and tease out what we knew to be true: that the public picking of teams had earned its place in the Physical Education Hall of Shame for good reason!

Returning for follow-up interviews helped us to interpret the nonsignificant findings from the survey data *and* to uncover perceptual issues not measured in the survey questions. For example, the interview data indicated that some students seemed to *resent* being placed on drafted teams primarily because they felt they had no say in the matter. They could not, for example, chat among themselves and make group decisions about team members or choose to play with their friends. Prusak and Darst's (2002) students were attracted to activities largely by a strong social component (i.e., being able to

choose with whom they played). In additional studies (Prusak et al., 2004; Ward et al., 2008), the provision of choices made significant positive improvements in secondary physical education students' motivational profiles. Perhaps the lack of autonomous control in the draft method contributed to feeling slightly externally controlled and only marginally motivated in the present studies. Indeed, because publicly selecting teams was commonplace on the playground, in pickup games at lunch, or in games in the neighborhood, many seemed to resent the draft method used only in physical education.

Another recurring theme was that team selection, whatever the method, served only the simple purpose of facilitating game play. Game play was the paramount issue, and how teams were selected was comparatively insignificant. We are reminded of the frequent refrain from our own former students: "Can't we just play?" Of course, we patiently pointed out to our "uneducated" students that to play we had to pursue a list of national objectives, without which they would not be successful nor enjoy themselves. Of course we cannot just "let them play!" It would be irresponsible on our part to do so. Recently, Johnson (2014) revisited this topic (i.e., play as the central purpose of physical education), insisting that the field suffers from a lack of a clearly defined purpose, opting instead for a wish list of perhaps unattainable objectives (Pangrazi, 2010). Johnson provides a compelling argument to reassess how play for play's sake is valued in physical education:

> Physical education, of all subject matters, may have the greatest draw for students because the content is *inherently playful* [emphasis added]—the prospect of play attracts students to physical education. In too many cases, however, we do more to stifle than build student enthusiasm by expecting students to learn content they are not ready to learn, participate in activities unrelated to their interests, and follow unnecessary rules and policies. In other words, *we plug our content into the rigid structure of education with multiple standards, objectives, and time requirements and in too many cases end up robbing the content of its inherent playful nature* [emphasis added] . . . we need to allow the inherent playfulness of our content to have full sway in physical education. As Kretchmar (2006)

> poignantly observed, "If we cannot get more than 80 percent of our students to say that physical education is absolutely the best part of the school day, then we are probably *squandering* [emphasis added] our [content] (p. 7)." (pp. 35–36)

In our well-intentioned efforts to provide a quality physical education, we have possibly, by our rigid *structures* and *strictures,* inadvertently, frequently, and perhaps unnecessarily inserted ourselves into the play equation—certainly something to consider.

We have additional reasons to not recommend the practice of publicly picking teams. Pedagogically speaking, it is a poor use of class time. The 10–15 min it takes to arrange teams could be used for more productive achievement purposes. That being said, we recommend that play be preserved, enriched, and extended by minimizing unnecessary intrusions, whatever their source (e.g., poor management, chasing of unattainable outcomes, overemphasis on skill and drill).

Also, we were surprised that student motivational responses indicated that a confidential draft was no better than publicly picked teams, but we recognize that neither was it any worse. In both conditions, across all sports, and across all trials, students (a) were equally and highly task oriented and moderately ego oriented and (b) experienced low levels of amotivation, were slightly externally regulated, and were only moderately motivated. Keep in mind also that the between conditions comparisons, even within the skill level tertiles, were computed on mean scores. The possibility exists that some students are indeed bothered or perhaps damaged by the practice, but this is masked in the forming of group means. In other words, certain individuals are possibly negatively affected by the practice—if it is only one person in a class, in our opinion, the cost is too high. So if we are to err, let us err on the side of caution, particularly in light of the additional insight gleaned from the interview responses.

Previous anecdotal treatment of this topic relates that publicly picking teams has caused immediate and long-term feelings of "humiliation, embarrassing, degrading, emotionally, scarring, painful and damaging" (Landers, 1991, p. 18). We were pleasantly surprised to note that students from all skill levels exhibited sympathy or empathy for those who may be more vulnerable to the practice. Some

students, maybe most, were able to cope with the possible negative implications of public team selection by coming to a realistic self-assessment of their skills and abilities, but others were not. Most students felt a sense of resilience through acceptance, but others felt it was once more evidenced that they did not fit in. For them, getting "it over with" or "I didn't care" hint very strongly of learned helplessness. It is precisely for those students that we ultimately recommend against this practice. Too many good alternatives are pedagogically and probably emotionally more suitable to producing a more positive play experience for all, certainly, but for the most vulnerable, particularly.

Limitations

A limitation of this study is the inability to generalize these findings to other junior high school students in other parts of the United States. Because of the use of a sample of convenience from one junior high school physical education class, further generalization of this data must be approached cautiously. Further study should be done using multiple junior high school physical education classes at different schools and in different regions of the United States to explore the reproducibility of the process and findings.

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PEDAGOGY

Action Research as an Agent for Enhancing Teaching and Learning in Physical Education: A Physical Education Teacher's Perspective

Rosemary Keegan

Abstract

Introduction: *Action research is a useful method for implementing change through its spiral of plan, act, observe, and reflect, but little research has been published on it in the area of physical education. The purpose of this intervention was to assess the effectiveness of action research as an agent of change and its impact on enhancing my teaching and the learning experience of students in physical education. This was class-based research, which acted as a form of CPD to enhance my classroom practice.* ***Method:*** *I adopted a repeated spiral of plan, act, observe, and reflect to implement incremental changes through critical reflection.* ***Results:*** *Action research was effective in enhancing teaching and the learning of the students.* ***Discussion:*** *It became a collaborative and empowering approach between myself and the students, and it lent itself to creating, sharing, and generating knowledge, thus creating a community of practice between myself and my colleagues.* ***Conclusion:*** *Action research is a useful agent of change because it can be tailored to the needs of the teacher. It should be a compulsory component of teacher education courses, and it should be considered an essential skill for lifelong learning for teachers.*

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The term *action research* was first coined by Lewin (1946). He described it as a spiral of steps, which comprised planning, action, observation, reflection, and fact finding about the results of that action. It was originally designed for investigation of social issues, but educationalists have adapted much from it. It has been found to be particularly useful for teachers completing class-based research. Wood (2009) stated, "Action research allowed anybody interested in improving their educational situations to become a knowledge-creator, thereby generating epistemologies and theories that were more likely to be workable, relevant and contribute to sustainable change than more traditional approaches to research" (p. 116). It has been described as a practical way of looking at your own work to check that it is as you would like it to be and has been described as a form of self-reflective practice (Brydon-Miller & Maguire, 2009; McNiff, 2002). It provides a fertile source of new ideas for practice and praxis (sayings), new ways of doing things (doing), and new relationships between those involved (relating; Kemmis, 2010).

Action Research and Physical Education

Over 20 years ago, Kirk (1995) argued that action research had the potential to bring about educational reform. He believed that physical education was a subject for which action research could be beneficial because it incorporates a concern for more effective teaching and learning, deepening and broadening teachers' understanding of their work, and this may lead to better forms of physical education. Much has been written about the need for physical education teachers to be more reflective about their practice through action research, yet despite this, in Europe less research has been carried out in this area (Casey, Dyson, & Campbell, 2009). Gubacs-Collins (2007) in the United States optimistically found that change was happening and that the emphasis on action research was gradually increasing in physical education.

Basic Principles of Action Research: A Spiral Approach

In adopting action research, initially I was the central focus of my inquiry (Whitehead & McNiff, 2006). To achieve my aim of improving the teaching and learning in my lessons, I needed to reflect on my practice and decide on what was important to me. Action

research is a flexible approach that allows for continual adaptations and incremental changes to be made as an intervention progresses. From researching the literature, I established a process for implementing action research including the following steps:

1. Review current practice (McNiff, 2010; Bassey, 1998; Casbon & Walters, 2004).
2. Identify an area to be improved (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).
3. Imagine a way forward (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).
4. Try it out (Casbon & Walters, 2004; McNiff, 2010).
5. Monitor the action and evaluate its success (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).
6. Continue using the action if it is successful (Bassey, 1998; McNiff, 2010).
7. Try another option if it was not (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).
8. Evaluate the new practice (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).
9. Modify the ideas and practices in light of the evaluation (Bassey, 1998; Casbon & Walters, 2004; McNiff, 2010).

This spiral process of reflection and action is rigorously pursued in all action research projects.

Benefits of Action Research

Three main benefits of using action research were identified in the literature: (a) its contribution to the professional development of the teacher, (b) its capacity to generate knowledge and new practices, and (c) the value of the teacher or researcher being part of the research.

Contribution of Action Research to the Professional Development of the Teacher

Action research can make a significant contribution to the professional development of the teacher or researcher (Jaipal & Figg, 2011; Van Looy & Goegebeur, 2007). This is achieved through the pursuit of knowledge, whether it is improved practice or improved

conceptual understanding (Halton, 2004). The reason being that it augments existing work conditions and appears to support and sustain changes to teaching practice and student learning (Jaipal & Figg, 2011). It achieves this by enabling teachers to tap into their own and colleagues' expertise, strengths, talents, skills, and knowledge and encourages exchanges with other teachers with similar interests and needs (Jaipal & Figg, 2011; Koshy, 2010). Halton (2004) noted, "It is through doing action research, teachers hone their intuitive skills and develop new ones in order to communicate their ideas, concepts and research results in an understandable language and form . . ." (p. 134).

Capacity of action research to generate knowledge and new practices

Advocates of action research have long claimed that it has the capacity to generate knowledge and new practices. It provides insights to educational knowledge that have been generated through practice (Halton, 2004). McNiff (2002) and Whitehead (2009) described this in terms of the creation of living educational theories, which they see as making statements about knowledge and then changing or modifying a practice in light of this new knowledge. In this, it provides opportunities for theories or practices to emerge from the research rather than always following previously formulated theories, and this may lead to open-ended outcomes (Koshy, 2010). From another perspective, it may also give the opportunity to examine the gap between theory and practice, to construct knowledge and demonstrate openness to "new learning" (McDonagh, Roche, Sullivan, & Glenn, 2012). Kemmis (2010) went further and argued that teachers have a collective responsibility to contribute to the development of the professional practice for which they are responsible to protect and strengthen their practices for changing times.

Value of the Teacher or Researcher Being Part of the Research

Action research provides a unique opportunity for the teacher or researcher to be a fundamental part of the research process. This concept has distinct advantages. The teacher or researcher has (a) "insider" opportunities from having a preexisting knowledge and experience about the situation and the people involved, (b) "practi-

tioner" opportunities to reduce substantially the problems of implementing a study from the outside, and (c) "practitioner–researcher" synergy through which their insights and role can help in the design, implementation, and analysis of useful and relevant studies to help contribute to practical issues that teachers face (Robson, 2002). The teacher or researcher is deliberately involved and immersed in the process and not detached from it (Koshy, 2010). Action research supports the development of a self-reflective community committed to the development of educational ideas and practices (Carr & Kemmis, 1986). Similarly, it brings teachers together to discuss, support, and encourage one another, which could have an effect outside the classroom and school on the larger community, by opening up understandings of practice (Rust & Meyers, 2006).

Challenges of Using Action Research

Two main challenges in using action research were also identified in the literature: (a) people's commitment to implementing change and (b) the time commitment nature of implementing change.

People's Commitment to Implementing Change

People need pressure to change, even in the direction that they desire, because they often lack confidence and expertise and they find it difficult to get started, with many being anxious and intimidated especially by using a process, such as action research (Robson, 2002; Rust & Meyers, 2006). Teachers will often only be comfortable and find change effective in "conditions that allow them to react, to form their own position, to interact with other implementers and to obtain technical assistance" (Fullan, 2005, p. 72). They will grow in confidence if they find evidence of improvements in student learning, but also the experience of being able to successfully implement it changes their attitudes and beliefs (Guskey, 2002). Similarly, for change to come about, teachers must be committed, desire change, and fully believe in it for it to be successful (Halton, 2004).

Time Commitment Nature of Implementing Change

Implementing any new pedagogical change, including action research, is time consuming and highly labor intensive (Casey & Dyson, 2009). This is a major concern for teachers and is often cited as a reason for maintaining the status quo (Clayton et al., 2008;

Halton, 2004; Robson, 2002; Rust & Meyers, 2006). Casey and Dyson (2009) noted the same concerns expressed by teachers, related specifically to physical education. Prospective action researchers identified the problem of finding the time to do inquiry due to the pressure of already implementing curricula aimed at raising scores on standardized examinations (Brydon-Miller & Maguire, 2009).

Together with the many benefits of implementing action research, action research does have limitations that need to be mitigated for designing and implementing action research by a teacher or a researcher.

Method

Participants

I instigated this study from my desire to enhance my teaching and the learning experience of my students in physical education. My philosophy and pedagogical approach to teaching have developed over the years from my experience as a physical education teacher in Ireland and the Middle East. I have always viewed continuous professional development (CPD) as an important part of my responsibility as a teacher as I strive to be informed and keep up to date with developments in my field of work. I am currently head of Girls Physical Education in a large coeducational international school in Kuwait offering the English school curriculum, with a student population of 2,200 from kindergarten to Year 13. Seventeen female students between ages 11 and 12 years participated in the study. They were from a variety of nationalities, mainly from across the Middle East. My three colleagues in the Senior Physical Education Department also assisted.

Preintervention

Initially, I wanted to review my current practices to establish if I was happy with my own performance. Over a number of weeks, I wrote out a detailed description of my educational philosophy. I recorded what I wanted my teaching and the learning experience of my students in my lessons to be. I then compared it to my current practice. I reviewed this under the headings of the curriculum and the teaching strategy I adopted. I recorded that I teach using a part–whole approach to skills teaching, I have a direct style of teaching, I

direct the lessons, and I allow little time for discussion. When I compared that to my philosophy, I was surprised that what I was doing in practice was not what I desired in my lessons. In the interviews with the students prior to the lessons, they all stated that they loved physical education, but six of the 17 students were disappointed with their grades. I analyzed possible reasons for this, and I felt this was an area of weakness in my teaching, in providing clear learning intentions and assessment criteria and more detailed feedback. I turned my attention to how I presented new material, how much time the students were physically actively in the lesson (55%), how much time I spent talking (18%), and how I delivered demonstrations. I spent a lot of time giving instructions and talking, I was the object of 65% of the demonstrations, I did not use differentiated questioning, my questions were low cognitive and not challenging, and I allowed 2 min for the plenary. As a result of this reflection, I identified an area to be improved. Without knowing it then, I had started on my first micro spiral of plan, act, observe, and reflect—action research.

Student participation was vital to the success of the intervention because their cooperation and willingness to contribute provided enormous amounts of data. I made a presentation to the students explaining the intervention and inviting them to participate. I advised them that their comments would be appreciated and could be used to enhance the teaching and learning in their lessons.

I researched and analyzed my observations, and I imagined a way forward and how I wanted my teaching to be. I set about planning and implementing my ideas and trying them out to bring about enhancements in my practice. I monitored the actions and evaluated their success (reducing teacher talk time and increasing student physical activity time, planning differentiated questions). In areas that I found I was successful, I continued to use those action; if I felt I was not as successful, I tried out new options. I then evaluated the new actions, and I modified the ideas and practices in light of the evaluation. This became a macro spiral of plan, act, observe, and reflect for the intervention.

Intervention

The physical education program was a modular-based activity program, for which the activity changed every 4 weeks. Over the

course of this 12-week intervention, the students developed their practical skills in athletics (2 weeks), gymnastics (4 weeks), volleyball (4 weeks), and mini-games (2 weeks).

I adopted the strategy of plan, act, observe, and reflect for every lesson. I planned the lesson and implemented it. I made observations during the lesson and recorded these in my field notes. I also used the other data collection tools to help in my reflection after the lesson and noted these in my field notes. This included the objective data from the video recordings, the subjective data from students' weekly log books (SWLB), and my own overall analysis of the lesson. Based on these observations and reflections, I planned the lesson for the following week.

For the SWLB, I requested students to state the focus of the lesson, what they observed/noted that was good about their performance or that of their partner, what suggestions they could make to improve upon that performance, what they found difficult about the lesson, and what they found easy. They also graded their success on a 4-point rubric against the assessment criteria.

Postintervention

The students were interviewed again, and these interviews were again transcribed. These data were used as a comparison to the preintervention data and provided closure to the macro spiral for this process. Students were questioned on the role of taking greater responsibility for their learning and sharing this role with their fellow students. They were asked about how this change in approach helped them to understand more about learning in physical education. They were asked about how physical education is assessed and graded and if they understood the criteria upon which it is based. They were asked if they liked this new approach to teaching in class.

To protect the identities of the students, when I reported on the intervention, each student was assigned a pseudonym. Kemmis (2010) reinforced this collaboration when he stated, "We require practical reasoning to decide what to do, and we require collective practical reasoning among people involved in and affected by practical proposals for action in order to determine what should be done" (p. 423).

Collection and Analysis of Data

Action research is termed *qualitative research.* Koshy (2010) stated that it is where the researcher brings a story to life. The need for the collection of data from a variety of sources was emphasized by Elliot (2007) and Feldman (2007), who added that multiple stories can be told from the data collected and that it is important that the researcher can support and demonstrate why his or her narrative is more truthful than other possible interpretations. I wanted to provide a rich description of the data; in this, I provided a detailed description of the settings, participants, and data collection and analysis procedures to make the account more credible (Carlson, 2010). This all contributed to an audit trail to enhance to reliability and validity of the findings.

I video recorded each of the 12 lessons (340 min), capturing the lessons and comments of the students as they worked. I also used triangulation of data to cross reference findings between my reflections, the video recordings, and the data the students provided. Finally, I used member checks, presenting the students with the data that I wrote up, to check and attest to particular aspects of my interpretation of the data (Carlson, 2010). I also informally established a *community of practice* (CoP) in which I had discussions with my colleagues to arrive at a shared decision. A CoP is a group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly (Wenger, 2006). This helped to develop agreements about the ideas under development so I could arrive at a mutual understanding of what to do (Kemmis, 2010).

Critical reflection is an integral part of the process to help with the development of educational values and theoretical insights (Elliot, 2007; McNiff, 2009). This in-depth reflection contributed to me (the researcher) being aware of my own knowing. This was important to me being aware of how I produced and presented reality—and of how I explicated my personal process of knowing in the text. It also highlighted the importance of being subjective and gave a deeper understanding of the context in which I worked (Heikkinen, Huttunen, & Syrjälä, 2007). I adopted the practice of critical reflection in my work, and in describing my reflections, I endeavored to be inclusive and holistic, wherein I took professional responsibility

for the whole outcome including unwanted or unplanned side effects (Feldman, 2007; Heikkinen et al., 2007).

To assist in the veracity of the data, I looked to Braun and Clarke (2006), who provided a comprehensive guide to the treatment and analysis of qualitative data. See Table 1. They recommended using thematic analysis, which they described as "a method for identifying, analyzing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 82). A theme is "something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set" (Braun & Clarke, 2006, p. 82). Qualitative researchers tend to analyze their data inductively (Bogdan & Bilken, 1998; Braun & Clarke, 2006). This is "a process of coding the data without trying to fit it into a pre-existing coding frame" (Braun & Clarke, 2006, p. 83). I sought to ensure that the study would include a clear and detailed description of how and why data were collected, what counts as data, and how the various accounts were constructed from the data (Feldman, 2007).

Table 1
Phases of Thematic Analysis

Phase	Process	Description
1	Data Familiarization	Transcribing data, reading and re-reading data and noting initial ideas
2	Initial Code Generation	Coding interesting features and collating data
3	Searching for Themes	Collating codes into potential themes
4	Reviewing themes	Checking if themes work, generating a thematic map
5	Defining and naming	Refine the specifics of each theme and the themes overall story, generating clear definitions for themes
6	Producing the report	Final analysis, extract selection related to research questions and literature

Note. Adapted from "Using Thematic Analysis in Psychology," by V. Braun and V. Clarke, 2006, *Qualitative Research in Psychology, 3,* p. 87.

Stages of Data Analysis

Like the spirals of plan, act, observe, and reflect, the analysis of data took place on macro and micro levels. The macro level took place on the intervention as a whole, and the micro level took place at the end of each lesson from the data collection tools.

In Phase 1, I collected the data and familiarized myself with it. I transcribed the data collected from the initial interviews with the students, I read and analyzed the written material from the SWLBs, I reviewed my notes and my observations in my postlesson appraisal, and I studied the comments recorded during the course of each lesson. I reviewed the video recordings of myself and the students. Braun and Clarke (2006) termed this phase "familiarization with the data."

In Phase 2, I systematically coded all the material so I could access it easily and group it accordingly. They termed this "generating initial codes." See Table 2 for a sample. I coded each statement in my field notes, the answers to questions in the SWLBs, the answers to the questions I posed about my own performance from the video recordings, and my observations of the performance of the students in the video recordings. Data were coded by source and subject (e.g., relating to the teacher [T], provided through the video recording [V], related to planning [P]).

In Phase 3, once all pieces of data have been coded, as in Table 2, then the data needs to be analyzed. Data with like coding is then grouped together. The purpose of the analysis of data is to "look for patterns of meaning and issues of potential interest in the data" (Braun & Clarke, 2006, p. 86). I drew diagrams linking the content of the transcripts to the initial themes identified. Braun and Clarke (2006) termed this "searching for themes." They stated that there was a need to search across a data set (all the data collected) and find repeated patterns of meaning. Thematic analysis is a method of identifying, analyzing, and reporting patterns within data (Braun & Clarke, 2006). I needed to account for any other themes that could have emerged as data were coded, rechecked, and cross checked so unexpected outcomes would be identified and presented. I generated initial codes so I could work further with the data.

Table 2
Coding of Data Prior to Analysis

Subject of Data
Teacher = T
Student = S
Source of Data
Video = V
Students Weekly Log Book = SWLB
Field Notes = FN
Preintervention Interviews = PrI
Postintervention Interviews = PoI
Themes and Codes
Greater Details and Enhanced Planning = P
Reflecting on Lessons to Direct Future Learning = R
Data on Feedback = Fb
Data on Observations = O
Data Relating to Focus = F
Shared Responsibility for Learning = SR
Learning Intentions = LI
Shared Learning = SL
Sample
"I need to plan the questions more carefully" = Data
(Subject) Teacher
(Source) Recorded in field notes
Theme = Data Related to Planning
Code (T-FN-P)

In Phase 4, I looked for other themes or patterns that could have emerged from the data and reviewed and cross checked the initial coding and themes to see what else was emerging from the data. Braun and Clarke (2006) termed this "reviewing themes." I reviewed the themes constantly as the action research project evolved.

In Phase 5, I interpreted and made sense of the findings through constant review. Braun and Clarke (2006) termed this "defining and naming themes." Over time, I defined and named various themes from the data.

In Phase 6, I decided which extracts that would be pertinent to the findings of the study, referring back to the aims of the intervention and other issues of note that emerged from the data, to produce the final report. Braun and Clarke (2006) termed this "producing the report." I understood that I needed to live with complete openness and in a state of uncertainty (Attard, 2008), and by consciously moving to this mental state, I allowed myself to "[open] up new possibilities for action" (Elliot, 2007, p. ?; Heikkinen et al., 2007, p. ?). This state of uncertainty is a positive and necessary part of a self-reflective study (Attard, 2008). An important aspect of the study is the interactive dissemination of findings for critical scrutiny and professional debate (Elliot, 2007; Feldman, 2007; Halton, 2004; McNiff, 2010). This shared scrutiny is important to reaching a mutual understanding and unforced consensus (Kemmis, 2010) in the findings. I presented my initial findings to my colleagues for debate and scrutiny before finalizing them. We did this as part of our departmental CPD. This gave me an opportunity to debate the issues that arose and to allow others to give their interpretations of approaches and findings. This is an empowering process, and I grew in confidence as a result and was less intimidated to present and discuss my findings.

These data were then gathered under the various headings and reviewed and reflected upon weekly. Some data were also assigned to two groups if the information affected the development of themes.

Analysis of data was a complex process that blended in with the constant spiral of observing, planning an action, implementing the plan, observing the plan in action, reflecting on the action, and designing the next phase of the plan of action as Koshy (2010) described.

Results

Action research is described as "taking action to improve something in your practice, and also about researching the action, which means investigating what you are doing and offering descriptions and explanations for why you are doing it" (McNiff, 2010, p. 12). My findings from this study reflect the effect of completing an action

research study on my teaching and on the learning experience of my students. I found the spiral nature of action research was effective in making a smooth transition from my direct teaching style to a more democratic approach with a shared responsibility for learning, as the changes that happened were incremental. I found this process was structured and flexible.

As part of the micro spirals, each week many incremental changes were implemented to enhance the teaching and learning experience of the students. See Table 3 for a sample as actions introduced to mitigate against concerns as they were identified. These were tried and analyzed to establish if their effects were positive.

Table 3

Sample of Issues Identified and Addressed

Week	Spiral of critical reflection identified	Incremental change planned, acted, observed, and reflected
0	More student involvement in lessons, less teaching instruction, more engagement	Students to take more responsibility for learning, using discussion and sharing
2	Lesson opener and discussion too long	Enhanced pacing of lesson, more time for physical activity
3	Presentation of writing needs to be enhanced	Prepared learning intentions and assessment criteria in advance and unfolded on flip chart to enhance presentation
4	Too many teaching points for students to remember and recall	Reduce the number of points of focus to 4
5	Time too limited for the student discussion	Allow more time for group discussion to achieve goals between students
8	Students getting bored with writing in SWLB	Change this format of plenary and data collection to videotaped oral questioning
10	Not enough opportunity for students to take lead role in class	Students lead the warm-up and cool-downs and use more students to demonstrate good skills
11	Allow more students to make decisions in class	Allowed more time for students to plan tactics in their games.

As part of the macro spiral of implementing action research over the intervention into my practice, the following findings were significant.

The impact of completing an action research study on myself and the students

There were many benefits to using action research, and I present these in Table 4. These include (a) the role of action research in CPD, (b) the role of the teacher as action researcher, (c) the generation of knowledge and new practices, (d) action research as a collaborative practice, and (e) the long-term effects of using action research.

Role of action research in CPD. I read extensively before starting this intervention to learn as much as I could about action research. In implementing this intervention, I became a more reflective teacher and learned how to collect data, what tools I could use, and how to use these tool effectively to provide information, not only on the students' performance but also about my own. This gave me the confidence to develop my research skills so I could confidently produce and articulate a "rich description" of my findings. The most enlightening data collection tool for me personally was to review my practice critically from the video recordings of my lessons. I had not done this since my teacher training days. I agree with Mills (2011) that action research is about developing the professional disposition of the teacher and encouraging the teacher to be a continuous learner. I recorded in my field notes (Week 12),

> I have worked hard to develop my knowledge and understanding of action research and it has given me the confidence to challenge the way that I teach and it has highlighted for me the impact of using critical reflection to enhance my performance. (T-FN-R)

This renewed confidence in my ability to reflect critically and find solutions was a process of professional engagement and renewal.

Table 4
Results of the Intervention

Themes	Effect on the teacher	Effect on the student
The role of action research in CPD	This interventions has altered my approach to CPD in the following ways: 1. My knowledge and understanding of action research and self-directed learning has increased. 2. I became a more reflective and critical teacher. 3. I became more confident and assured in identifying what I wanted from my teaching. 4. I have developed the skills from action research to plan future contextualized CPD of benefit to my needs and that of my students. 5. It is a flexible approach and introduces incremental changes to an existing environment, lessening the "fear of change." 6. My colleagues benefited by my sharing my knowledge and findings and developing a community of practice.	The students benefited by: 1. Being involved in an intervention, for which they contributed to its design and outcome. 2. The changes in practices that were introduced were directly relevant to their needs, to enhance their learning experience. 3. The changes being introduced were gradual and applicable to their context and environment.

Table 4 (cont.)

Themes	Effect on the teacher	Effect on the student
The role of the teacher as action researcher	I was able to design CPD that: 1. Was relevant to my needs and the needs of my students. 2. Allowed me to use insider information on culture, curriculum, school policy, and student groupings. 3. Allowed me to deal swiftly with any unanticipated events. 4. Allowed me to adopt the role of facilitator of change and not a director of change, making it more acceptable to students.	The students benefited by the teacher: 1. Already being familiar with, and trusting of, the teacher/person initiating and implementing change. 2. Reducing the time at the start of the intervention, when trust is usually built. 3. Being more motivated to participate with a familiar person.
The generation of knowledge and new practices	I developed the confidence and the skill to: 1. Articulate and express the knowledge about what I was doing and why. 2. Identify new practices as a way forward and not as a criticism of past actions. 3. Recognize debate as a positive exchange of views by colleagues and not to be threatened by criticisms.	The students built their confidence and knowledge: 1. Articulating their opinions. 2. Being involved in member checking, for improving validity of findings. 3. By trying new ways of doing things in class.

Table 4 (cont.)

Themes	Effect on the teacher	Effect on the student
Greater detail and enhanced planning	My approach to planning changed. It became far more rigorous. 1. Lessons were more organized. The direction and content was based on the analysis of the previous lesson. 2. The learning intentions and assessment criteria were clearly presented. 3. A teaching strategy was adopted with greater student involvement. 4. Differentiated and inclusive questions were planned.	The students benefited from this in the following ways: 1. Clearer focus for every lesson. 2. Clearer assessment criteria. 3. Open and differentiated questioning to suit all abilities. 4. Stronger link from one lesson to the next.
Observation, reflection, and analysis by the teacher to enhance learning	Using the data collected to build a rich descriptive account of the lessons. 1. Identifying strengths and weaknesses of lessons. 2. Using the data to help direct future learning.	
Improved student focus in lessons using observation and reflection		1. Greater clarity about the learning intentions and assessment criteria. 2. Identify areas in which they are they achieving and in which they have weaknesses. 3. Identifying areas for further improvement.

Table 4 (cont.)

Themes	Effect on the teacher	Effect on the student
Improved focus during the lessons	I achieved this by: 1. Presenting the learning intentions and assessment criteria at the start of every lesson. 2. Encouraging students to use them throughout the lessons to assess one another.	This benefited the students by: 1. Keeping them on task. 2. Encouraging more discussion among the students. 3. Giving them greater ownership of their learning.
Collaborating and sharing the responsibility for learning	Adopting a more inclusive and involved learning strategy ensured that: 1. I developed my listening skills and invited the students to contribute their opinions. 2. My relationship with the students was enhanced as we collaborated on ways to enhance teaching and learning.	The students benefited by: 1. Being more open to change as they felt they had some ownership of the process. 2. Taking a more mature approach to their learning and that of their peers. 3. Developing their confidence to tell their peers how to enhance their performance.
Long-term effect of using action research	1. Confidence increased to carry out action research regularly, to enhance teaching and learning. 2. A useful tool to supporting sustained CPD within the school. 3. Easily adapted across departments and across the school. 4. Recognized the expertise within the school among staff.	1. Enhanced learning experience. 2. Confidence to articulate their opinions. 3. Understanding of the use the cycle of plan act, observe, and reflect to enhance their learning. 4. Better understanding of how they learn. 5. Better understanding of practice and purpose of learning in physical education.

As part of this intervention, I regularly discussed with my colleagues the merits of action research, and we informally developed a CoP when I wanted to test ideas. When the intervention was completed, I delivered a CPD seminar to my colleagues (Halton, 2004; Somekh & Zeichner, 2009), presenting my findings and opening them up to critical scrutiny (McNiff, 2010). It created an interesting and active debate. It has opened up my colleagues' minds to the use of action research to enhance performance and the use of CoPs within our department.

Role of the teacher as action researcher. As Koshy (2010) and Robson (2002) did, I found many advantages to carrying out research in my own environment. I understood the culture, the educational philosophy of the school, and the background of the students. I knew the students individually and was aware of the social groupings within the class. This submersion made it easier for me to introduce new strategies and enhance their confidence in engaging with the process. The students enjoyed the changed nature of the relationship, wherein I became a facilitator of their learning, encouraging them to voice their opinions and giving them an opportunity to discuss ideas to achieve a learning intention. A clear level of trust already existed between the students and me prior to the intervention because I had been their teacher for 5 months prior to this. This increased their motivation to participate in the intervention. Fifteen students stated in the postintervention interview that they enjoyed participating in the intervention and would like to participate in a similar one in the future. Being an insider was also beneficial in noticing cues and interpreting their body language. I was able to react quickly when they had difficulties in sharing or trying to achieve a goal. I recorded in my field notes that the students were having difficulties using shared learning when the activity moved from the gymnastics unit to the volleyball unit (Week 7; S-FN-SL). I observed that a reduced level of communication was occurring among the students. Immediately, I responded by offering feedback, advice, and suggestions. Having this insider knowledge is considered by some as a bias, but it is also beneficial for the smooth implementation of an action research study.

Generation of knowledge and new practices. Using action research allowed me to generate theories particularly related to my

own practice, rather than depend on previously generated theories (Koshy, 2010). After initial reflection and analysis of my practice, I deducted that I needed to adopt a strong *shared responsibility for learning* strategy. I generated knowledge on how to collect rich data in my class, through the use of data collection. I also learned how to use inductive analysis to enhance my teaching. These new practices resulted in enhanced planning and attention to detail, improved student focus in lessons, the reflective teacher, and collaboration and shared responsibility for learning.

Enhanced planning and attention to detail. In my planning, I was no longer focused on summative outcomes but on formative outcomes. I became more conscious of how students learned and on involving them more in the process. Having used Schön's (1983) reflection-on-action, I noticed that this increased level of planning resulted in me establishing a structured and organized program of work, which had a clear focus, teaching methods, and a desired and specific outcome (MacPhail, 2007). After Lesson 8, I recorded in my field notes,

> This study is helping me to make a concerted effort to focus much more on, what I am doing and why I am doing it. I think most of the students are more focused in the lesson with definite and clear objectives to focus on. (T-FN-P)

Improved student focus in lessons. The learning intentions and assessment criteria were shared, discussed, and posted at the start of the lesson and could be referred back to during the lesson for focus and guidance. In my field notes after Lesson 3, I recorded, "The students enjoyed the focus at the start of the lesson. They were eager to engage in answering the questions and taking part in the demonstrations that revealed the learning intentions and the assessment criteria for the lesson" (S-FN-F). Fourteen of the students stated in the postintervention interview that this was a good way to start the lesson (S-PoI-LI/F). Mariam stated, "Writing up the intentions for the lesson was good." She added "We know what to do and what to focus on for the lesson" (S-PoI-LI/F). Muneera said, "It helped by writing the points of the lesson, it made it easier to remember because we talked about it and wrote them up so it was easier to

remember when we went outside" (S-PoI-F). Action research uses a strong emphasis on observation and reflection, and this became part of the student learning. From the SWLB in Week 3, Reem advised her partner "to keep her legs straight" (S-SWLB-O/Fb), and Fatima advised her partner "to hold her balance for 5 seconds" (S-SWLB-O/Fb). Mariam and Zain both stated that they learned from observing the mistakes their partners made and that this helped them to avoid making the same mistakes (S-PoI-R).

Completing the SWLB, the students revisited the learning intentions and assessment criteria at the end of the lesson and graded their performance against them.

The reflective teacher. Action research reflection occurs as Schön (1983) described, "'on-action,' where we reflect on action, thinking back on what we have done in order to discover how our knowing-in-action" (Schön, 1983, p. 26). During the intervention, this reflection occurred "in-action," by allowing us to adjust and reshape things as we worked on them. This would support McNiff's (2002) and Whitehead's (2009) theory that action research is about creating living educational theories, making a claim to knowledge, and modifying a practice in light of this new knowledge. By getting the students to complete the SWLB, I was able to analyze these data to establish "students-learning" in this new approach to teaching. I used the data collected to make changes within my lessons. I recorded after Lesson 4, "I should use no more than 4 points for the assessment criteria as it was too much for students to recall" (T-FN-P). After Lesson 10, I recorded,

> Zain was always outside the line of play and I felt that her body language indicated that she did not want to be involved. I must ensure that in next lesson she gets more involved, even by using rules that more passes are made in a mini-sided game. (T-FN-R)

Collaborating and sharing the responsibility for learning. Action research requires power sharing, between students and teachers and between teachers and academics (Fullan, 2005; Miskovic & Hoop, 2006). This approach required me to shift from my direct teaching style to a more collaborative democratic style. The involvement of

students as collaborators in this study was critical to the implementation of the strategy and the outcome of the study (Brydon-Miller & Maguire, 2009; Cain, 2011). The evidence highlighted this development in the postintervention interview. Dina stated, "I learned teamwork from talking with my partner, she listened to my advice and every time I told her she did it better" (S-PsI-SR), and after Lesson 5, I noted from analyzing the video that Zaina taught Huda to do a "bridge" (a gymnastics element) and they were excited (S-V-SR). The students enjoyed the greater responsibility given to them in their learning, and they were more motivated in class (Gubacs-Collins, 2007). After Lesson 6, I recorded in my field notes,

> I really think that the students are working well, and when kept on track, are continuing to use the new strategy. . . . I think gymnastics is a particularly good activity to see it in action as they sit, discuss and work towards a final product in a routine. (T-FN-C/R)

I also noted that this collaborative practice brought me closer to the students and enhanced my skill of listening to the opinions of my students and acting upon them. The students voluntarily participated in the interviews and regularly shared their ideas and thoughts about the intervention, which I recorded. This developed the students' self-confidence as they realized the value of their role as contributors in a collaborative process.

Collaboration also occurred spontaneously between my colleagues and me as I discussed with them aspects and themes of the study as they emerged. They were eager to engage and offer opinions. Through this process, I established a CoP or "critical friends" (McNiff, 2010).

Challenges in Using Action Research

Two of the major challenges to using action research that I identified from the literature related to (a) people's lack of knowledge of the process and (b) the time commitment of implementing action research.

People's Lack of Knowledge of the Process

This democratizing of teaching requires teachers to relinquish their traditional role within the classroom, to one of shared learning and allowing students have an input into their own learning. (Brydon-Miller & Maguire, 2009). It has been found to be a difficult method to follow, both procedurally and because of the tension between being closely embedded in the context and process of explanation and the research needing to be honest and balanced (Robson, 2002). Many teachers have also stated that they have difficulty determining which tools to use and how to make sense of the data collected. It is not often included as part of teacher education courses, and they are intimidated by the notion of policy recommendations that can emanate from their research (Rust & Meyers, 2006). It is this lack of confidence and expertise that has been at the heart of some teachers' difficulty in getting started, with many being anxious and intimidated by the process of using action research (Rust & Meyers, 2006). To mitigate against this dilemma, establishing a teacher network or CoP would help to give teachers the confidence to engage with action research because they can develop the necessary skills through engaging with the process (Halton, 2004; McPhail, 2007). This process highlights the importance of sharing information, experiences, and thoughts of continuous interaction as well as of participating in joint activities (Wenger, 2006).

Time Commitment of Implementing Action Research

Many researchers have identified the time-consuming and labor-intensive nature of adopting action research as a major cause for concern for teachers (Casey & Dyson, 2009; Clayton et al., 2008; Robson, 2002; Rust & Meyers, 2006). Halton (2004) stated that action research was expensive in terms of time and resources and that teachers needed encouragement to be involved.

I knew from the outset the process would time consuming, and I was prepared to build this into my professional development as being time invested in achieving my goal of professional enhancement. It took months of preparation to plan the intervention, implement it, and analyze the data collected. Planning each lesson took a considerable amount of time because it was dependent on recording and analyzing the data from the previous lesson. If I intended to expand

this approach to all my classes, the time commitment would be unsustainable. The principles of this approach have proved worthwhile, and I value the knowledge and experience I obtained, but I envisage that it is something I would carry out no more than once every 2 years if it is to be done with the same level of intensity. I have no doubt I would become more skillful and efficient in using this technique and that it would become less labor intensive over time. But for my first efforts in using action research, I was determined and motivated to improve my practice and the students' learning experience in my class. I would recommend to potential researchers that before engaging in a research project, they are aware of the time commitment involved in planning, implementing, and analyzing the data from such an intervention. This awareness will help to ensure they reap the maximum benefits from such a project.

Conclusion

Change is a necessary part of the education process. Participation in the change process ensures the commitment of those involved (Farren, Ryan, & Tobin 2006) including colleagues and students. Action research proved to be structured and flexible. I was able to decide on an area of research that was directly relevant to my needs (Brydon-Miller & Maguire, 2009). It gave me new skills to bring about enhancements in my practices. It was an extremely valuable form of CPD.

The use of action research also had a profound effect on the students in relation to their increased focus on reflection and observation. It also enhanced their learning experience and supported their shared responsibility for learning and learning as a collaborative process.

The concept of CoPs (McNiff, 2010; Wenger, 2006) or "teacher networks" (Rust & Meyers, 2006) would be beneficial to support teachers as they build their confidence and share ideas on how best to achieve their aims in developing their techniques to solve individual issues and problems or indeed to enhance normal practice in their workplace and influence educational reform and policy making (Rust & Meyers, 2006). CoPs take time to develop, the use of authentic interaction, and discussion supported by teachers who are willing to make changes to develop their skills and implement pedagogical change (Goodyear & Casey, 2013). Action research should

become a compulsory aspect of teacher education colleges because it is a skill for lifelong learning and because of its potential importance for CPD. As Casey (2013) advocated, action research is a means for supporting sustained change and enhancing normal practices that occur in the name of physical education. Though we did not alter our curriculum as a result of this intervention, it certainly changed the way we critically analyze our performance during and at the end of each year. Action research can have an enormous effect on how educational change is delivered that can be felt in classrooms, gymnasiums, playing fields, and beyond.

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PEDAGOGY

Differences Between Student Teachers' Implementation and Perceptions of Teaching Styles

Howard Z. Zeng

Abstract

Research studies on Spectrum of Teaching Styles (STS) theories have verified that mastering and implementing various teaching styles is the ideal way to match up the needs of diverse learners, the variety of content knowledge, and educational goals; however, little is known about how student teachers use and perceive various STS. The purpose of this study, therefore, was to explore student teachers' self-report of how they use and perceive teaching styles from a physical education teacher education (PETE) program. Participants were 142 student teachers (96 male, 46 female; 84 undergraduate, 58 graduate) from a Spectrum of Teaching Styles–based (STS) teaching strategies course. The tool used to investigate this was the STS Inventory$^{\text{-adapted version}}$ (STSI$^{\text{-AV}}$; Zeng, 2012). The participants expressed that they often use command, practice, reciprocal, and inclusion styles to teach PE lessons; among the nine styles in the STS, they believed that using command, practice, reciprocal, inclusion, guided discovery, convergent discovery, and divergent discovery styles in their teaching helps their students learn skills/activities better. The student teachers also expressed that implementing command, practice, reciprocal, inclusion, convergent discovery, and divergent discovery styles would motivate their students

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to learn better. No significant differences were found between male and female student teachers regarding how they use and perceive the STS. Student teachers from different education levels, however, implement and perceive the STS differently. This study provides quantitative data and fresh insights into how student teachers implement and perceive the STS.

Throughout the years, numerous advances have occurred in the ways of teaching physical skills and activities in schools; however, the most significant advance was Mosston's Spectrum of Teaching Styles (STS). The appeal of the STS framework is that it offers different teaching and learning options that help teachers reach their educational goals and the needs of learners. In other words, the STS can better match up both the needs of the learners and the objectives of the educator. Additionally, the STS framework offers instructors opportunities to modify their curricula to align with educational goals.

Since the STS was introduced to the field of teaching physical education (TPE), it has been recognized by educators in many countries around the world and widely applied to their physical education teacher education (PETE) programs (Byra, 1999, 2002; Cothran & Kulinna, 2008; Doherty, 2010; Mellor, 1992; Metzler, 2000; Mosston & Ashworth, 1994, 2008; Sicilia-Camacho & Brown, 2008). Conceptually, the STS has continually been refined since the first edition in 1966 (Ashworth, 2008; Boschee, 1972; Byra & Marks, 1993; Ernst & Byra, 1998; McCullick & Byra, 2002; Goldberger, Ashworth, & Byra, 2012).

Because there is no single perfect style of teaching that could be used within the field of TPE, verifying the effects of the STS has always been an interesting topic in the research of pedagogical inquiry (Byra & Jenkins, 2000; Gerney & Dort, 1992; McCullick & Byra, 2002; Mosston & Ashworth, 2008; Zeng et al., 2009). As a result, scholars in the field of TPE have applied the STS as a framework for delivering instruction and conducting research at various school levels (Byra & Jenkins, 2000; Gerney & Dort, 1992; Greenspan, 1992; Kirby, Byra, Wallhead, & Readdy, 2013; Mellor, 1992; Metzler, 2000; Zeng, Leung, Liu, & Bian, 2009). The findings of those pedagogical studies provide valuable information that enables teachers to prepare and implement their teaching purposefully in various curricula

and classes as well as to match up the characteristics of diverse learners (Byra & Jenkins, 2000; Greenspan, 1992; Metzler, 2000; Sicilia-Camacho & Brown, 2008; Zeng, 2015; Zeng et al., 2009).

Mosston's STS is based on the notion that "teaching behavior is a chain of decision making" (Spectrum of Teaching Styles, 2012, The Axiom section, para. 1) from teachers and learners; those specific decisions produced the STS, a spectrum of various landmark teaching–learning styles, of which each embraces different and specific learning objectives. The STS allows every teaching episode to provide the learner an opportunity to focus on attributes along each of the five implemental channels: cognitive, social, emotional, physical, and moral/ethical (Ashworth, 2008). Garn and Byra (2002) illustrated that implementing the STS is framed around the idea that learners can reproduce (mirror or replicate) and produce (discover or create) movements and knowledge. Moreover, the STS offers choices to teachers, to match up their students' learning styles and to meet the objectives of any teaching episode accurately (Mosston & Ashworth, 2008).

With regard to the above concern, Doherty (2010) stated that the STS can provide a sound basis for analysis of a teacher's teaching preference and the effectiveness of the style selected to meet a particular teaching objective. Specifically, the STS emphasizes the relationships between the styles rather than their differences; these relationships follow that effective instruction in PE considers the variety in teaching styles and the ability to use a style that best fits the situation or educational environment (Doherty, 2010). Furthermore, the STS permits freedom and celebrates the creativity of the individual teacher by encouraging deliberate decision-making canopy designs and combinations of styles in the STS; within this framework, teaching has become an art and a science (Doherty, 2010). In fact, all teaching methods attempt to support an educational intent that benefits students' learning. Specifically, one of the most unique characteristics in the STS is that it emphasizes the idea of a *non-versus approach,* meaning no teaching style is valued more than another teaching style. This approach honors and accepts all educational ideas.

Over the years, the STS has provided physical educators with alternative instructional styles, a widely accepted and understood lan-

guage for teaching, and potential resources for conducting research studies in the TPE settings (e.g., Beckett, 1991; Byra & Jenkins, 2000; Ernst & Byra, 1998; McCullick & Byra, 2002; Metzler, 1983, 2000; Salvara & Bironé, 2002; Zeng, 2015; Zeng et al., 2009). Goldberger (2008) defined the STS as a unified theory of teaching and illustrated that "any pedagogical theory attempts to explain a phenomenon based on a set of principles; in this case, the phenomenon is teaching, and the organizing principle is that teaching can be defined in terms of decision-making" (p. 10). More recently, Goldberger et al. (2012) illustrated, "We like to use the adjective 'elegant' because the Spectrum is, at the same time, deceptively simple, logical, and straightforward, and yet complex, elusive, and knotty" (p. 269). Goldberger et al. continued,

> For us, the Spectrum has provided an entrée into an anchorage within the fascinating world of teaching and learning. It provides this entrée by offering a common perspective, a number of undergirding concepts, and a functional language we can all use. (p. 269)

On the other hand, to sport pedagogy scholars, the instructional theoretical framework of the STS has played dual roles as an organized repository for exploring new knowledge about coaching and as a catalyst for generating new research questions in sport pedagogy (Goldberger et al., 2012). Although the STS cannot solve all the problems in teaching and coaching, I believe that it can help preservice professionals develop the skills and knowledge they need by providing a common perspective, language, and repository (Goldberger et al., 2012).

Since the 1980s, researchers and scholars in the field of TPE have used the STS theoretical framework, various teaching styles, widely accepted and understood terminologies, and possible resources to conduct research studies (e.g., Abdurrahman & Nilüfer, 2012; Beckett, 1991; Byra & Jenkins, 2000; Ernst & Byra, 1998; Griffey, 1981; Hurwitz, 1985; Kulinna & Cothran, 2003; McCullick & Byra, 2002; Metzler, 2000; Zeng, 2014). The following are a few examples: Abdurrahman and Nilüfer (2012) examined 66 in-service Turkish PE teachers' perceptions and preferences about the STS using a 36-item

questionnaire. Their results showed that (1) when asked, "Which teaching style do you think you have the best result?" 43.8% of male participants selected practice style and 29.4% of female participants selected command style, and 35.3% of female participants and 31.3% of male participants reported that they used command style in their classroom frequently; (2) when asked, "Which teaching styles do you prefer?" 64.7% of female participants and 34.4% of male participants reported that they preferred the first cluster (i.e., Styles A–E) with clear expository teaching strategies instead of teaching strategies that involve heavy cognitive thinking (i.e., Styles F–K).

Kulinna and Cothran (2003) investigated 212 American in-service PE teachers on how they used and perceived the 11 styles of the STS in their regular classes, and their findings included that the in-service teachers used many of the styles in their classes, but they preferred to use the styles from the reproductive cluster (Styles A, B, C, D, and E) and were not in favor of using the styles from the productive cluster (Styles F, G, H, I, J, and K); the divergent production style (Style H) was the only exception. Overall, Kulinna and Cothran found that the in-service teachers' uses and perceptions on the STS were varied or depended on factors such as "effectiveness," "fun," and "motivation" as well as on "their experience with the styles" (p. 607).

Cothran et al. (2005) in their survey project found that the use of teaching styles varied across countries. The main styles for teachers in all countries were teacher centered (i.e., Styles A–E). However, studies and information related to how the student teachers or preservice teachers in PETE programs perceive and implement the STS are still rarely covered. From this perspective, I would like to explore such concern; hence, the purposes of this study were to (a) investigate how the undergraduate and graduate student teachers perceive and implement Mosston's STS; (b) compare the differences in how the STS is perceived and implemented between undergraduates and graduates as well as male and female student teachers; (c) summarize and discover meaningful information on how the STS works among the two levels of student teachers; (d) provide suggestions or recommendations for PETE professionals so they can better understand how the STS works for each student teacher and can better prepare their student teachers to become more skillful teachers.

Method

Participants

The participants were 142 PETE major student teachers; 84 were undergraduates (aged 20–22) and 58 were graduates (aged 22–29), with 96 male and 46 female student teachers. These participants were enrolled in an STS-based teaching strategies course in an urban university located in northeastern United States. Student teachers ($N = 157$) in the PETE program (during two academic years, or four regular semesters) were invited to participate in a self-report survey using the Spectrum of Teaching Styles Inventory$^{\text{-adapted version}}$ (STSI$^{\text{-AV}}$; Zeng, 2012). As a result, 142 student teachers completed the survey (return rate of 90.5%). The time at which the survey was conducted was when they completed all the coursework and teaching training programs within their specific semester. Participants provided informed consent and were assured anonymity through the use of a given number.

Instrumentation

The instrument used in this study was the STSI$^{\text{-AV}}$ (Zeng, 2012; details can be found in the Appendix). The STSI$^{\text{-AV}}$ was used for a pilot study because there was no existing questionnaire to fulfill the purpose of investigating how student teachers perceive and use Mosston's STS. I adapted the STS descriptions inventory originally created by Ashworth (2008) into the STSI$^{\text{-AV}}$. Ashworth (2008) explained that Style J "is only for the individual who approaches the teacher to request this experience; it is not a whole class experience" ("Part 2," Learner-Initiated Style J, para. 2) and that Style K "is outside the realm of the classroom environment" ("Part 2," Self-Teaching Style K, para. 2); therefore, I only adopted to the STSI$^{\text{-AV}}$ Styles A–I, a total of nine teaching styles. In the STSI$^{\text{-AV}}$ (Zeng, 2012), each style has a name, classroom description, what one should expect to happen in the classroom, and who does what and when. The following three statements were added: (1) "I have used this style to teach physical education lessons," (2) "I think this style of teaching would help students learn skills/activities," and (3) "I think this style of teaching would motivate students to learn." Participants responded to the statements by choosing one of the following five op-

tions on a Likert scale: *never use/strongly disagree* (score = 1), *seldom use/somewhat disagree* (score = 2), s*ometimes use/okay* (score = 3), *often use/agree* (score = 4), or *always use/strongly agree* (score = 5). During the pilot study, a self-report survey using the STSI-AV (Zeng, 2012) was administered twice to the participants (a convenience sample of 65 preservice teachers (undergraduate = 34, graduate = 31; male = 38, female = 27) within 2 weeks after the coursework and training programs were completed. The scores from the first survey and the second survey were analyzed using correlation coefficients from the STS. As a result, the test–retest correlation coefficient between undergraduates and graduates was .88 and between males and females was .82. According to Zhu (2012), the correlation values can be interpreted as follows: .40 to .59 as moderately reliable, .61 to .79 as moderately high reliable, and .80 to 1.00 as pretty high reliable. The instrument is presented in the Appendix.

Coursework and Teaching Training Programs

The coursework and training programs implemented in this study included the following:

(a) Lectures. Nine weeks of lectures that covered the following chapters in *Teaching Physical Education* (Mosston & Ashworth, 2008): Chapter 2: An Overview, Chapter 3: The Anatomy of Any Teaching Style, Chapter 6: The Command Style, Chapter 7: The Practice Style, Chapter 8: The Reciprocal Style, Chapter 9: The Self-Check Style, Chapter 10: The Inclusion Style, Chapter 11: Issues Common to All Teaching Styles, Chapter 12: The Guided Discovery Style, Chapter 13: The Convergent Discovery Style, Chapter 14: The Divergent Discovery Style, and Chapter 15: The Learner-Designed Individual Program Style.

(b) Teaching episodes and lessons workshop. (1) During the workshop, the participants were provided with various teaching episodes and lesson plans using the teaching styles they learned from the lectures (Styles A–I); (2) the participants had time and opportunities to discuss what they learned from the examples and what they planned to implement for the incoming teaching.

(c) Teaching episodes assignments. The participants were requested to develop at least one teaching episode for each

style learned by using their favorite sport skill or physical activity, but they were required to submit three teaching episodes only, two using Styles A–E and one using Styles F–H.

(d) Any question they may have for the workshop and the assignments.

(e) A 6-week teaching training. Each participant was given a chance to teach an STS mini-lesson in an educational laboratory. The STS lesson required each participant to develop an STS lesson plan containing a minimum of four teaching styles within a 40-min timeframe.

(f) After the student teachers completed each lesson, a 5-min after-teaching conference was given by the instructor to provide feedback, comments, and/or suggestions to the student teachers (focus on how well the lesson was done, which areas can be improved, etc.).

Data Analyses

The goal for the data analyses was to look for effects of two independent variables (with nine styles and three statements for each) on two dependent variables—Education (undergraduate and graduate[1]) × Gender (male and female)—at the same time; therefore, a 2 (gender) × 2 (education) multivariate analysis of variance (MANOVA) and a follow-up one-way MANOVA were employed for data analyses. Descriptive statistics were used to reflect the general status of how the student teachers perceived and implemented the STS. The statistical program used for the data analyses SPSS (version 22). The STS descriptions and scenarios in TPE classes are presented in Table 1.

[1] 95% of the graduate student teachers did not have a chance to take the STS-based teaching strategies course during their undergraduate years.

Table 1
The Spectrum of Teaching Styles Descriptions and Scenarios

Style name & letter representing it		Descriptions and scenarios of the teaching styles
Command Style	A	The teacher selects the task that the students perform in unison and choreographed or precision performance image following the exact pacing and rhythm (cues) set by the teacher.
Practice Style	B	The teacher selects the subject matter tasks, the quantity, and the time limits so that students can practice individually and privately. The teacher circulates among all students and offers private feedback.
Reciprocal Style	C	The teacher selects the subject matter tasks and presents the expectations for students to work with a partner. One student (the doer) practices the task, while the other student (the observer) uses a teacher prepared criteria (checklist) to offer immediate feedback focusing on performance clarification to the doer. When the first set of tasks is finished, the students switch roles and continue to the second set of tasks. This experience offers practice in giving and receiving immediate feedback about the task and practice in developing comparing, contrasting, communicating, and social skills.
Self-Check Style	D	The teacher selects the subject matter tasks and designs the criteria sheet (performance checklist) for the students. Students individually practice the tasks and check their own performance using the checklist. The teacher privately communicates with students to listen to their self-assessment comments and either reinforces the learner's use of the criteria or redirects the learner's focus to specific performance details on the criteria.

Table 1 (cont.)

Style name & letter representing it		Descriptions and scenarios of the teaching styles
Inclusion Style	E	The teacher selects the subject matter skill and designs multiple levels of difficulty for each skill. Students select the level of difficulty that is appropriate to their performance. If inappropriate level decisions are made, the student may change the level choice. Students check their performance using the teacher prepared performance checklist (criteria sheet). The teacher circulates to acknowledge the choices the students have made (the teacher does not evaluate, assess, or suggest level changes) and to ask questions for clarification to affirm the accuracy of the students' assessment process. Generally performance standards suitable.
Guided Discovery Style	F	The teacher asks one student a series of specific questions*; each question has only one correct answer. The questions are logically sequenced so that each answer leads the student step by step to discover the answer—the idea, concept or solution—that is anticipated. (*Content appropriate for Guided Discovery includes principles, rules, concepts, and relationships. Non-examples of discovery content include isolated facts, skills, dates, names or events. These content examples cannot be discovered.)
Convergent Discovery Style	G	The teacher designs a situation or question that has one specific correct response—the situation or question is new and the response is not previously known to the students. The learners are given individual and private time to use their thinking and questioning skills, reasoning, and logic to discover the anticipated answering.

Table 1 (cont.)

Style name & letter representing it		Descriptions and scenarios of the teaching styles
Divergent Production Style	H	The teacher designs a single or series of problems, situations or questions that seek multiple solutions to the same problem. The task is new to the students; therefore, each student is invited to discover new possibilities, as they produce multiple (divergent) responses to the specific problem.
Learner Designed-Individual Program Style	I	The teacher designates a broad subject matter/topic. Within that topic each student is responsible for producing an individual learning program that includes setting goals and the process for accomplishing the goals. The learners design, implement, refine the program, and create performance criteria for their individual learning programs.

Note. From "Descriptions of Landmark Teaching Styles: A Spectrum Inventory," by S. Ashworth, 2008 (http://www.spectrumofteachingstyles.org/pdfs/literature/Ashworth2008_Descriptions_of_landmark.pdf).

Results

The descriptive statistics are presented in Table 2. The descriptive statistics reflect the status of how these student teachers use and perceive the STS; some of the unique features should be interpreted as follows: (a) on Statement 1 ("I have used this style to teach physical education lessons"), the participants (N = 142) reported that they had used command, practice, reciprocal, and inclusion styles to teach PE classes (order by score); on Statement 2, the participants reported that they believe using command, practice, reciprocal, and inclusion styles (order by score) helps students learn skills/activities; on Statement 3 ("I think this style of teaching would motivate students to learn"), the participants indicated that inclusion, practice, reciprocal, and command styles (order by score) would motivate students to learn. (b) For mean score by gender, on command style Statement 2 ("I think this style of teaching would help students learn skills/activities"), the males' highest score was 4.24 (means more

than *agree*) and the females' highest score was 4.50 (between *agree* to *strongly agree*). On Statement 1 ("I have used this style to teach physical education lessons"), males' lowest score (means *seldom* use this style) was in the convergent style. Females' lowest score (means *seldom* use this style), however, was in the learner-designed individual program style Statement 1. (c) For education level mean score, undergraduates' highest score was 4.35 (means more than *agree*) in command style Statement 2 ("I think this style of teaching would help students learn skills/activities"), but graduates' highest score was 4.58 (between *agree* to *strongly agree*) in practice style Statement 2. Moreover, on Statement 1 ("I have used this style to teach physical education"), undergraduates' lowest score was 1.83 (means *almost never* use this style) in the command style, but the graduates' lowest score was 2.31 (means *once in a while* use this style) in the convergent style.

Additionally, the student teachers reported that they *seldom use* or *once in a while* use the following teaching styles during their teaching assignment or activities: self-check (male = 2.45, female = 2.32; graduate = 2.47, undergraduate = 2.32), guide discovery (male = 2.47, female = 2.28; graduate = 2.08, undergraduate = 2.82), convergent discovery (male = 2.19, female = 2.17; graduate = 2.11, undergraduate = 2.31), divergent discovery (male = 2.48, female = 2.30; graduate = 2.20, undergraduate = 2.74), and learner-designed - individual program (male = 2.25, female = 1.82; graduate = 1.83, undergraduate = 2.51). Details are presented in Table 2.

Table 2

Descriptive Statistics on Student Teachers' Perceptions and Implementation of Mosston's Spectrum of Teaching Styles

		Gender		Level	
Style and stament	***N*** ***M* (*SD*)[a]**	**Males** ***M* (*SD*)[b]**	**Females** ***M* (*SD*)[c]**	**Under-graduate** ***M* (*SD*)[d]**	**Graduate** ***M* (*SD*)[e]**
Command					
Statement 1	3.88 (.96)	3.84 (1.05)	3.95 (.75)	4.02 (.99)	3.95 (.75)*
Statement 2	4.32 (.85)	4.24 (.90)	4.50 (.72)	4.35 (.87)	4.27 (.83)
Statement 3	3.95 (.96)	3.90 (.95)	4.04 (.98)	4.10 (.87)	3.72 (1.03)*

Table 2 (cont.)

Style and statement	*N* *M* (*SD*)[a]	Gender		Level	
		Males *M* (*SD*)[b]	Females *M* (*SD*)[c]	Under-graduate *M* (*SD*)[d]	Graduate *M* (*SD*)[e]
Practice					
Statement 1	3.83 (.89)	3.87 (.92)	3.74 (.83)	4.05 (.80)	3.52 (.92)*
Statement 2	4.20 (.80)	4.17 (.81)	4.26 (.80)	4.13 (.87)	4.58 (.68)
Statement 3	4.08 (1.00)	4.23 (.72)	4.08 (1.01)	4.19 (.84)	4.17 (.79)
Reciprocal					
Statement 1	3.36 (1.00)	3.42 (1.03)	3.24 (.94)	3.62 (.93)	3.00 (1.01)*
Statement 2	3.92 (.93)	3.88 (.89)	4.00 (1.01)	3.82 (.94)	4.07 (.89)
Statement 3	3.97 (.90)	3.96 (.85)	4.00 (1.01)	.91 (.96)	4.07 (.81)
Self-Check					
Statement 1	2.41 (.92)	2.45 (.92)	2.32 (.92)	2.47 (.72)	2.32 (.92)
Statement 2	3.34 (.89)	3.29 (.94)	3.45 (.78)	3.27 (.85)	3.44 (.94)
Statement 3	3.55 (1.00)	3.46 (.96)	3.71 (1.06)	3.51 (.95)	3.60 (1.07)
Inclusion					
Statement 1	3.36 (1.06)	3.85 (.98)	3.47 (1.09)	3.34 (.93)	3.39 (1.22)
Statement 2	3.90 (.98)	3.85 (.98)	4.00 (.98)	3.69 (.93)	4.20 (.81)*
Statement 3	4.18 (.82)	4.13 (.82)	4.28 (.81)	3.98 (.82)	4.46 (.73)*
Guide-Disc.					
Statement 1	2.38 (.89)	2.47 (.97)	2.28 (.72)	2.08 (.64)	2.82 (1.03)*
Statement 2	3.59 (.94)	3.50 (.93)	3.78 (.96)	3.42 (.94)	3.82 (.90)*
Statement 3	3.25 (1.05)	3.40 (1.04)	2.93 (1.30)	2.84 (1.12)	3.84 (.91)*
Convergent					
Statement 1	2.17 (.82)	2.19 (.61)	2.17 (.82)	2.11 (.64)	2.31 (.73)
Statement 2	3.49 (.95)	3.45 (.95)	3.56 (.95)	3.25 (.90)	3.84 (.91)*
Statement 3	3.47 (.93)	3.17 (1.02)	4.11 (1.15)	3.19 (1.45)	3.89 (.85)*
Divergent					
Statement 1	2.42 (.87)	2.48 (.80)	2.30 (1.00)	2.20 (.76)	2.74 (.94)*
Statement 2	3.48 (.88)	3.40 (.85)	3.65 (.94)	3.23 (.84)	3.84 (.83)*
Statement 3	3.56 (.92)	3.42 (.89)	3.84 (.94)	3.32 (.89)	3.91 (.86)*

Table 2 (cont.)

Style and statement	*N* *M* (*SD*)[a]	Gender		Level	
		Males *M* (*SD*)[b]	Females *M* (*SD*)[c]	Under-graduate *M* (*SD*)[d]	Graduate *M* (*SD*)[e]
Learner D-IP					
Statement 1	2.11 (.85)	2.25 (.83)	1.82 (.85)	1.83 (.78)	2.51 (.80)*
Statement 2	3.33 (.96)	3.21 (.97)	3.58 (.91)	3.02 (.99)	3.77 (.72)*
Statement 3	3.41 (.94)	3.30 (.99)	3.63 (.79)	3.12 (.95)	3.84 (.83)*

Note. Guide-Disc. = guided discovery style; Learner D-IP = learner-designed - individual program style. Statement 1: "I have used this style to teach physical education lessons"; Statement 2: "I think this style of teaching would help students learn skills/activities"; Statement 3: "I think this style of teaching would motivate students to learn."

[a]$N = 142$. [b]$n = 96$. [c]$n = 46$. [d]$n = 84$. [e]$n = 58$.

*$p < .05$.

The results of the 2 (gender) × 2 (education levels) MANOVA determined if there were differences between the male and female as well as undergraduate and graduate student teachers in their perceptions and implementation of the STS. The results showed no significant difference in gender, $p > .05$, $\Lambda = .145$, $F = 1.343$; however, significant differences were found for education level, $p < .05$, $\Lambda = .000$, $F = 7.732$. According to the research design, a follow-up test—a one-way MANOVA—for comparing the differences between the two education levels (undergraduate and graduate) on their perceptions and implementation of Mosston's STS was executed. The findings are presented in Table 3.

Table 3

A Follow-Up Test: One-Way MANOVA for Comparing the Differences Between the Two Levels (Undergraduate = 84, Graduate = 58) on Their Perceptions and Implementation of Mosston's Spectrum of Teaching Styles

Dependent variable	*df*	*MS*	*F*	*p*[a]
Command				
Statement 1	1	4.237	4.680	.032
Statement 2	1	.227	.308	.580
Statement 3	1	5.033	5.609	.019
Practice				
Statement 1	1	9.651	13.209	.000
Statement 2	1	1.104	1.718	.192
Statement 3	1	.011	.016	.898
Reciprocal				
Statement 1	1	13.148	14.180	.000
Statement 2	1	2.102	2.452	.120
Statement 3	1	.796	.976	.325
Self-Check				
Statement 1	1	.758	.886	.348
Statement 2	1	1.044	1.317	.253
Statement 3	1	.288	.286	.594
Inclusion				
Statement 1	1	.090	.080	.778
Statement 2	1	9.150	10.050	.002
Statement 3	1	7.820	12.524	.001
Guide-Disc.				
Statement 1	1	18.134	26.632	.000
Statement 2	1	5.463	6.328	.013
Statement 3	1	34.282	31.453	.000
Convergent				
Statement 1	1	1.417	3.077	.082
Statement 2	1	12.140	14.733	.000
Statement 3	1	17.105	4.304	.040

Table 3 (cont.)

Dependent variable	*df*	*MS*	*F*	*p*[a]
Divergent				
Statement 1	1	9.968	14.141	.000
Statement 2	1	12.630	17.890	.000
Statement 3	1	12.039	15.479	.000
Learner D-IP				
Statement 1	1	16.048	25.487	.000
Statement 2	1	19.405	24.248	.000
Statement 3	1	17.224	22.106	.000

Note. Guide-Disc. = guided discovery style; Learner D-IP = learner-designed - individual program style. $N = 142$.

[a]17 out of 27 comparisons significantly different at $p < .05$ level; also see Table 2.

Among the comparisons in the two education levels, 17 out of 27 were found significantly different at $p < .05$ level. Specifically, the following comparisons were significantly different between the two levels of student teachers. Undergraduates used command style more often than did the graduates (4.02 vs. 3.95), and undergraduates had a stronger belief that the command style would help students learn skills/activities than did graduates (4.10 vs. 3.72); undergraduates used practice style more often than did graduates (4.05 vs. 3.52), and undergraduates used reciprocal style more often than did graduates (3.62 vs. 3.00). Compared to the undergraduates, graduates had a stronger belief that inclusion style would help students learn skills/activities and would motivate students to learn (4.20 vs. 3.69 and 4.46 vs. 3.98, respectively). Furthermore, with regard to the use and perception of the four production styles (Styles F–I), a consistent finding was that the graduates used the four styles significantly more often and strongly believed that those styles would help students learn skills/activities and would motivate others more than did the undergraduates (with only one exception, which is that there was no significant differences between the two levels on the use of the convergent style).

Discussion

I investigated the status of student teachers' use and perceptions of the STS in a PETE program at an urban university. The following two main hypotheses guided this study: (1) no significant differences of the use and perceptions of the STS between male and female student teachers and (2) no significant differences of the use and perceptions of the STS between undergraduate and graduate student teachers.

The self-report details for how the participants implement and perceive the STS are presented in Table 2 and in the Results section. Findings were consistent with or similar to those of previous studies by Abdurrahman and Nilüfer (2012), Jaakkola and Watt (2011), Kulinna and Cothran (2003), and Cothran et al. (2005). Abdurrahman and Nilüfer found that 64.7% of female PE teachers and 34.4% of male PE teachers preferred the first cluster with clear expository teaching styles (Styles A–E) instead of teaching styles that required intense thinking (Styles F–K). Jaakkola and Watt in their survey of teaching styles that PE teachers use and of benefits to their students found that the PE teachers used command and practice styles the most, but self-teaching, self-check, and convergent discovery styles were almost never used; their students felt that they benefited from the teacher-centered styles (Styles A–E) rather than the student-centered styles (Styles F–K).

Similar findings were revealed by Kulinna and Cothran (2003) as well. They found that the styles from the reproduction cluster (Styles A–E) were used by the PE teachers in their teaching frequently; the styles from the production cluster (Styles F–K) were rarely used, with Style H (divergent discovery style) as an exception. Cothran et al. (2005) also reported that the use of different styles varied in different countries; however, the main styles for teachers to implement in their daily teaching were teacher centered (Styles A–E).

Again, the present findings were consistent with or similar to those in previous studies. For the two main hypotheses, the first was true; that is, there was no significant difference regarding the use and perceptions of the STS between male and female student teachers. The reasons behind that may be strongly correlated to all student teachers receiving the same course requirements, teaching

training programs, and lectures. (Refer to Coursework and Teaching Training Programs in the Method section.) The second hypothesis, significant differences with regard to the use and perceptions of the STS between the undergraduates and graduates student teachers, was found not true.

The findings from this study should not be a surprise, because the participants came from different education levels (graduate and undergraduate); other than that, the following could be the reasons behind those differences: (a) The first reason is age; there was 2–9 years of age difference between the undergraduates (20–22 years old) and the graduates (22–29 years old); with these differences, they differ not only in education level but also in life experiences. (b) The second is experience. The graduate student teachers had 1–6 years of working experience; the working experience may have caused them to perceive, react to, and execute things differently. (c) The third reason is a comprehensive factor that combines gender, age, and education level. This comprehensive factor relates to a teacher's cognition, attitude toward, and motivation levels on his or her teaching works. In short, this is an unclear reason; more studies are needed for this concern.

Because there was no previous study using the STS as framework and student teachers as participants in the research literature, comparisons of the differences and similarities on how student teachers use and perceive the STS in their teaching are not available. Over the years, however, researchers and scholars have investigated how in-service PE teachers perceive and implement the STS in their regular teaching. Cothran et al. (2005) conducted a typical investigation. Their findings are meaningful and, for future research in the same area, has instructive meaning: (a) The PE teachers generally believed in the benefits of the STS and became more confident in implementing a variety of teaching styles in their classes; (b) a common theme to note is that the reproduction styles (Styles A–E) were more commonly used and viewed more positively than were the production styles (Styles F–K) by the in-service PE teachers.

Nevertheless, one might wonder, what factors could account for in-service PE teachers who believe this trend? One possible explanation is related to the subject matter of physical skills/activities that are well defined by the teaching styles from the reproduction

cluster (Styles A–E). In the field of TPE, Styles A–E are also called direct instruction models. The second possibility is that PE teachers respond to their students' preferences; Cothran, Kulinna, and Ward (2000) found that many students in the United States preferred reproduction teaching styles. Another possibility is that PE teachers lacked experience with understanding and implementing the styles from the production cluster (Styles F–K); that is, the participants in the survey conducted by Cothran et al. (2000) did not receive any instruction and examples in using the production styles when they were student teachers in their PETE programs (Byra, 1999). This lack of experience and instruction (with certain examples and opportunities to implement) affected their confidence in using styles in the STS.

The following limitations were considered when interpreting the results of this study: the unequal number of participants (undergraduate and graduate or male and female student teachers); education levels and life experience differences among the participants; and participants were not randomly selected, they were chosen because they were enrolled in the course. Further study in this topic needs to avoid these limitations and select participants who possess similar conditions.

In conclusion, the student teachers in this study expressed they often used command, practice, reciprocal, and inclusion styles to teach physical education lessons; among the nine teaching styles, they believed that using the command, practice, reciprocal, inclusion, guided discovery, convergent discovery, and divergent discovery styles in their teaching helps their students learn skills/activities better. The participants also expressed that implementing the command, practice, reciprocal, inclusion, convergent discovery, and divergent discovery styles would motivate their students to learn better. No significant difference were found between male and female student teachers regarding their use and perceptions of the STS to teach PE classes; student teachers from different education levels, however, implement and perceive the STS differently.

What Does This Article Add?

Researchers have suggested that future research is needed to explore the effects of how teachers learn about different styles, whether through teacher education or professional development programs

(Byra, 1999; Cothran et al., 2000) and to clarify why teachers did not implement the styles in the production cluster (Styles F–K) even though they had positive perceptions on some of the styles in the cluster. Their findings suggest that teacher preparation and professional development programs should provide opportunities for teachers to learn and practice multiple teaching styles in various class settings (Cothran et al., 2005). The findings of this study extend the previous studies related to how PE teachers perceive and implement the STS. It also marks the first attempt to explore how student teachers perceive and implement the STS in a PETE program. Although the design has its shortcomings, the results of this initial attempt provide insights into the status of how student teachers perceive and implement the STS and why student teachers at different education levels perceive and implement the STS differently. Hopefully, this initial study serves as a prompt for further investigation by more scholars in a collaborative way to discover which factors truly affect how student teachers in PETE programs perceive and implement the STS. Additionally, future studies also need to confirm that there are no significant differences between male and female teachers in their use and perceptions of the STS. What key factors will affect student teachers' use and perceptions of the STS? Doing so will allow professionals in PETE programs to improve their instruction and training using the STS to foster future PE teachers who become more skillful educators; that is, in Ashworth's (2009) words, our future depends on our ability to lead and develop our students and to provide them with a stronger professional foundation that supports learning opportunities from Command to Discovery.

Recommendations

Professionals in PETE programs should equip and prepare themselves with various pedagogy theories and skills that will enable them to provide complete and solid pedagogical information and knowledge to their teacher candidates. They should not only provide a series of lectures and teaching training programs, but also make sure that the course requirements are specific, detailed, and align with the professional standards (e.g., in the United States, the standards of the National Council for Accreditation of Teacher Education). With those characteristics in the course requirements, teacher candidates will obtain more opportunities to learn and practice multiple teach-

ing styles and methods in various class settings that will change "a common phenomenon physical education teachers worldwide were in favor of implementing: reproduction teaching styles" described by Cothran et al. (2005).

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Appendix[1]

Spectrum of Teaching Styles Inventory-adapted version

Demographic

DIRECTIONS: Please mark the response pertaining to you:

1. What is your gender? ☐ Male ☐ Female
2. Are you in the ☐ Undergraduate program or the ☐ Graduate program?

Self-Report Use and Beliefs About the Spectrum of Teaching Styles (STS)

DIRECTIONS: This survey is about the ways you perceive and your experiences in the STS in physical education class settings. There are no right or wrong answers; we just want to know your opinions about the following statements. Circle your answer that fits most in your experiences or situations.

You can choose from: *never/strongly disagree, seldom/somewhat disagree, sometimes/okay, often/somewhat agree,* and *always/ strongly agree.*

Sources

1. Ashworth, S. (2008). *Descriptions of landmark teaching styles: A spectrum inventory.* Retrieved from Spectrum of Teaching Styles website: http://www.spectrumofteachingstyles.org/pdfs/literature/Ashworth2008_Descriptions_of_landmark.pdf
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[1]Original inventory from *Descriptions of Landmark Teaching Styles: A Spectrum Inventory,* by S. Ashworth, 2008 (http://www.spectrumofteachingstyles.org/pdfs/literature/Ashworth2008_Descriptions_of_landmark.pdf). Inventory adapted in *PETE Students' Perceptions About Mosston's Spectrum of Teaching Styles: A Polite Study,* by Z. H. Zeng, 2012, paper presented at 2012 American Association for Health, Physical Education, Recreation, and Dance (AAHPERD) National Convention and Exposition, Boston, MA.

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The following descriptions offer images of the classroom that represent different landmark teaching–learning expectations, and each expectation inherently promotes a set of decisions and different sets of learning objectives in content and human behavior. Thus, each description represents a different teaching–learning style (O-T-L-O).

Command Style/Style A

In this style, the teacher selects the task that the students perform in a unison, choreographed or precision performance image following the exact pacing and rhythm (cues) set by the teacher.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Practice Style/Style B

In this style, the teacher selects the subject matter tasks, the quantity, and the time limits so students can practice individually and privately. The teacher circulates among all students and offers private feedback.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Reciprocal Style/Style C

In this style, the teacher selects the subject matter tasks and presents the expectations for students to work with a partner. One student (the doer) practices the task, while the other student (the observer) uses a teacher prepared criteria (checklist) to offer immediate feedback focusing on performance clarification to the doer. When the first set of tasks are finished, the students switch roles and continue to the second set of tasks.

This experience offers practice in giving and receiving immediate feedback about the task and practice in developing comparing, contrasting, communicating, and social skills.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/ activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Self-Check Style/Style D

In this style, the teacher selects the subject matter tasks and designs the criteria sheet (performance checklist) for the students. Students individually practice the tasks and check their own performance using the checklist. The teacher privately communicates with students to listen to their self-assessment comments and either reinforces the learner's use of the criteria or redirects the learner's focus to specific performance details on the criteria.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/ activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Inclusion Style/Style E

In this style, the teacher selects the subject matter skill and designs multiple levels of difficulty for each skill. Students select the level of difficulty that is appropriate to their performance. If inappropriate level decisions are made, the student may change the level choice. Students check their performance using the teacher prepared performance checklist (criteria sheet). The teacher circulates to acknowledge the choices the students have made (the teacher does not evaluate, assess, or suggest level changes) and to ask questions for clarification to affirm the accuracy of the students' assessment process. Generally, performance standards.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/ activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

The next four teaching–learning styles promote different discovery cognitive operations while engaged in the task. The content in these styles is new and not known in advance of the experience to the learner.

Guided Discovery Style/Style F

In this style, the teacher asks one student a series of specific questions*; each question has only one correct answer. The questions are logically sequenced so that each answer leads the student step by step to discover the answer—the idea, concept, or solution—that is anticipated.

(Content appropriate for Guided Discovery includes principles, rules, concepts, and relationships. Non-examples of discovery content include isolated facts, skills, dates, names, or events. These content examples cannot be discovered.)

**Note: There are cognitive liabilities when this style is used in a large group. The discovery process is interrupted per student in a group setting; therefore, the content acquisition cannot be guaranteed for each student.*

1. I have used this style to teach physical education

Never *Seldom* *Sometimes* *Often* *Always*

2. I think this style of teaching would help students learn skills/activities.

Strongly disagree *Somewhat disagree* *Okay* *Somewhat agree* *Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree *Somewhat disagree* *Okay* *Somewhat agree* *Strongly agree*

Convergent Discovery Style/Style G

In this style, the teacher designs a situation or question that has one specific correct response—the situation or question is new and the response is not previously known to the students. The learners are given individual and private time to use their thinking and questioning skills, reasoning, and logic to discover the anticipated answering.

1. I have used this style to teach physical education

Never *Seldom* *Sometimes* *Often* *Always*

2. I think this style of teaching would help students learn skills/activities.

Strongly disagree *Somewhat disagree* *Okay* *Somewhat agree* *Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree *Somewhat disagree* *Okay* *Somewhat agree* *Strongly agree*

Divergent Production Style/Style H

In this style, the teacher designs a single problem or series of problems, situations, or questions that seek multiple solutions to the same problem. The task is new to the students; therefore, each student is invited to discover new possibilities, as they produce multiple (divergent) responses to the specific problem.

1. I have used this style to teach physical education

Never *Seldom* *Sometimes* *Often* *Always*

2. I think this style of teaching would help students learn skills/activities.

Strongly disagree *Somewhat disagree* *Okay* *Somewhat agree* *Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Learner Designed - Individual Program Style/Style I

In this style, the teacher designates a broad subject matter/topic. Within that topic each student is responsible for producing an individual learning program that includes setting goals and the process for accomplishing the goals. The learners design, implement, refine the program, and create performance criteria for their individual learning programs.

1. I have used this style to teach physical education

Never	*Seldom*	*Sometimes*	*Often*	*Always*

2. I think this style of teaching would help students learn skills/ activities.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

3. I think this style of teaching would motivate students to learn.

Strongly disagree	*Somewhat disagree*	*Okay*	*Somewhat agree*	*Strongly agree*

Because Style J and Style K are outside the realm of the classroom environment, so, this survey was not including them.

Note. The score scales are *never use/strongly disagree* (1), s*eldom use/somewhat disagree* (2), *sometimes use/okay* (3), *often use/somewhat agree* (4), *always use/strongly agree* (5).

THANK YOU FOR YOUR PARTICIPATION!
The P. I. Howard Z. Zeng (D. P. E.)

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PEDAGOGY

PETE Faculty Beliefs Concerning the Preparation of Preservice Teachers for CSPAP Roles: An Exploratory Study

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Abstract

The purpose of this study was to examine the perceived effectiveness and attitudes of physical education teacher education (PETE) faculty concerning the preparation of preservice teachers for Comprehensive School Physical Activity Program (CSPAP) roles. Faculty (N = 175) responded to an electronic survey assessing perceived effectiveness and attitudes related to preparing undergraduate majors and nonmajors for CSPAP roles. Factor analysis of the survey items resulted in a four factor solution: (a) Effectiveness in Preparing Program Majors for Quality Physical Education, (b) Effectiveness in Preparing Program Majors for Other CSPAP Roles, (c) Effectiveness in Preparing Nonmajors for CSPAP Roles, and (d) Attitude Toward Preparing Program Majors for Other CSPAP Roles. Faculty agreed the most that their programs were

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effectively preparing majors for roles within quality physical education and agreed the least that their programs should be preparing majors for leadership roles with respect to school employee wellness and involvement in physical activity promotion. This study reveals a glimpse of current commitment in PETE programs to public health–related goals and informs CSPAP preparation in preservice education.

The Comprehensive School Physical Activity Program (CSPAP) was conceptualized as a coordinated, multicomponent approach for promoting physical activity (PA) in and around schools (Centers for Disease Control and Prevention [CDC], 2013; National Association for Sport and Physical Education [NASPE], 2008a). It encompasses numerous evidence-based strategies (Erwin, Beighle, Carson, & Castelli, 2013; Ward, 2011) for increasing PA through five key components: (a) quality physical education, (b) PA during school, (c) PA before and after school, (d) staff involvement, and (e) family and community engagement (CDC, 2013; NASPE, 2008a).

A quality physical education program is viewed as the cornerstone of a CSPAP. Its primary purpose is instructional in nature (Institute of Medicine [IOM], 2013), and it should be designed to align with content standards (SHAPE America & Human Kinetics, 2014) to help children and adolescents learn the knowledge, skills, and values for leading a physically active life. The other CSPAP components target behavioral, as opposed to instructional, outcomes (IOM, 2013). The purpose of these components is primarily to influence the daily behaviors of youth and others in the school community. PA during school includes opportunities at recess, during drop-in events (e.g., during lunch), and in the general education classroom (i.e., movement breaks and PA integrated with academic lessons). PA before and after school includes opportunities such as active commuting programs, PA clubs and intramurals, and interscholastic sports. Staff involvement is focused on staff wellness initiatives aimed at improving the health of school staff (e.g., teachers and administrators) and gaining support from school staff for PA promotion. Family and community involvement is focused on the roles of parents and community organizations in supporting school-based efforts to promote youth PA (e.g., family participation in evening and weekend special events, joint-use agreements between schools and community organizations; IOM, 2013; NASPE, 2008a).

The CSPAP is identified in the National Physical Activity Plan as one of seven strategies to promote PA in the education sector (National Physical Activity Plan Alliance, 2011). One recommended tactic for pursuing this strategy is to "require pre-service and continuing education for physical education and elementary classroom teachers to deliver high-quality physical education and physical activity programs" (National Physical Activity Plan Alliance, 2011, Tactics section, para. 3). This emphasis on physical education teachers (K–12) and elementary classroom teachers is reinforced in recommendations by physical education scholars (e.g., Beighle, Erwin, Castelli, & Ernst, 2009; Beighle & Moore, 2012; Carson, 2012; Castelli & Ward, 2012; Cipriani, Richardson, & Roberts, 2012; Hall, Little, & Heidorn, 2011; Heidorn & Centeio, 2012; Webster, 2011; Webster, Erwin, & Parks, 2013; Webster, Monsma, & Erwin, 2010).

Specific to preservice preparation, a number of authors have provided guidelines for teacher education programs to integrate learning experiences designed to provide teacher candidates with the skills, knowledge, and values deemed necessary to promote PA in school communities effectively (Webster, Webster, et al., 2015). The focus of most of these guidelines is on what physical education teacher education (PETE) programs can do to prepare preservice physical education teachers for PA promotion in schools (e.g., Beighle et al., 2009; Bulger & Housner, 2009; Bulger, Housner, & Lee, 2009; Corbin & McKenzie, 2008; McKenzie, 2007). For example, several authors have recommended PETE program curricula be restructured to provide learning experiences that build teaching candidates' PA promotion knowledge and skills (e.g., Beighle et al., 2009; Corbin & McKenzie, 2008; McKenzie, 2007). However, other authors have also focused on what PETE should do to prepare preservice classroom teachers for PA promotion (Hall et al., 2011; Webster, 2011; Webster et al., 2013; Webster et al., 2010), such as reconceptualizing coursework for classroom majors that has traditionally been focused on physical education teaching so that other learning experiences (e.g., developing strategies for increasing PA at recess and in the classroom) can be integrated.

Despite these recommendations, little is known about the extent to which PETE programs are effectively preparing preservice physical education or classroom teachers for CSPAP roles. Teacher socialization studies demonstrate that evoking desired changes in pre-

service teachers' teaching beliefs and practices may be challenging (Curtner-Smith, 1999; Lortie, 1975). However, faculty beliefs and attitudes may play an important role in facilitating adaptive changes in teacher candidates' beliefs (Kagan, 1992; Tatto, 1998). From this perspective, preservice preparation for CSPAP may benefit from an initial examination of PETE faculty beliefs because such beliefs may provide a meaningful metric of potential program effectiveness. Therefore, the purpose of this study was to explore the perceived effectiveness and attitudes of PETE faculty concerning the preparation of undergraduate preservice teachers (including physical education majors and elementary classroom majors) for CSPAP roles. The following research questions were addressed:

1. Do PETE faculty agree that their undergraduate programs are effectively preparing preservice physical education (K–12) teachers and preservice elementary classroom teachers for CSPAP roles?
2. Do PETE faculty agree that their undergraduate programs should prepare preservice physical education teachers for CSPAP roles beyond quality physical education?

Method

Participants

Participants in this study were PETE faculty members ($N = 175$) who responded to an electronic survey (see Procedures and Instrumentation section). We sent the survey to 567 faculty members representing 539 undergraduate PETE programs across the United States in spring 2013. The intent was to send the survey to undergraduate program directors; however, it was not always clear from program websites who currently held this position. Therefore, for several programs, we sent the survey to more than one PETE faculty member.

The overall response rate (31%) is similar to the mean reported response rate for other online surveys, according to the results of a meta-analysis (Cook, Heath, & Thompson, 2000). However, it is not as high as previous survey studies with PETE faculty. Metzler and Freedman (1985) reported a response rate of 46% using a mail-back survey, and Graber, Erwin, Woods, Rhoades, and Zhu (2011) reported a response rate of 48.4% using an online survey.

Some of the respondents did not complete all of the items on the survey; in most cases, incomplete items were from the demographic questionnaire included at the end of the survey. For demographic items, 146 respondents reported their age (M = 51.54, SD = 9.05), 157 reported their biological gender (about 43% male, 57% female), and 155 reported their college/university affiliation (each participant was from a different college/university). PETE programs from 43 states were represented among participants. Further descriptive information about the participants and their programs is presented in Table 1.

Procedure and Instrumentation

We obtained approval to conduct this study from the university institutional review board prior to data collection. We developed an electronic survey for the study using Survey Monkey. We wrote and organized items using the five-component CSPAP framework (CDC, 2013; NASPE, 2008a) and recommendations (e.g., Carson, 2012; Castelli & Ward, 2012; Cipriani et al., 2012; Hall et al., 2011; Heidorn & Centeio, 2012). We made minor changes to the framework to draw clearer distinctions between and within CSPAP components for participants. Specifically, we divided one of the components—staff involvement—into two components to distinguish better between staff wellness and staff promotion. In addition, we modified PA during school to give particular emphasis to the role of elementary classroom teachers in promoting PA at recess and in the general education classroom.

The survey consisted of eight sections, which were preceded by an informed consent form with the stated purpose of the study, and the directions with definitions of key terms. The definition provided for a *preservice physical education teacher* was "an undergraduate student majoring in physical education who aspires to work professionally as a school physical education teacher." The definition provided for a *preservice classroom teacher* was "an undergraduate student majoring in elementary or early childhood education who aspires to work professionally as a school generalist classroom teacher." The definition provided for *effectively* was "at a level commensurate with current professional standards and guidelines."

Table 1
Descriptive Information About Participants (N = 175) and Their Programs

Years of experience in PETE (*n* = 157) *M* (*SD*)	Academic rank (*n* = 157) %	Academic status (*n* = 157) %	Program Respon-sibilities (*n* = 157) %	Number of full-time program faculty (*n* = 157) *M* (*SD*)	Number of part-time/ adjunct program faculty (*n* = 157) *M* (*SD*)	Number of graduate teaching assistants (*n* = 156) *M* (*SD*)
18.34 (10.43)	Instructor = 5 Assistant Professor = 20 Associate Professor = 35 Full Professor = 36 Other = 8	Clinical/Nontenure Track = 10 Tenure Track = 22 Tenured = 62 Other = 6	A = 76 B = 51 C = 54 D = 64 E = 22 F = 49 G = 56 H = 27 I = 33 J = 24	3.94 (2.96)	3.04 (4.25)	.52 (1.55)

Note. There were 175 total respondents, but several respondents did not complete all items for the demographic questionnaire at the end of the survey. A = direct undergraduate PETE program; B = teach elementary methods class; C = teach secondary methods course; D = teach curriculum course; E = teach kinesiology course; F = teach content/skills course; G = supervise student teachers; H = direct student teaching; I = teach classroom teachers course; J = other.

The first five sections of the survey used the stem "My undergraduate PETE program prepares preservice physical education teachers to effectively . . ." For each section, this stem was followed by a set of items related to one of the CSPAP components. Section 1 consisted of seven items with a focus on quality physical education (e.g., "Align assessment with instruction in physical education"). Section 2 consisted of six items with a focus on before- and after-school PA (e.g., "Organize physical activity clubs for students"). Section 3 consisted of four items with a focus on staff wellness (e.g., "Organize wellness events for school employees"). Section 4 consisted of five items with a focus on staff involvement (e.g., "Help classroom teachers learn to increase students' physical activity in their classrooms"). Section 5 consisted of six items with a focus on family and community engagement (e.g., "Collaborate with community organizations to increase students' use of community facilities to be physically active outside of school").

Section 6 used the stem "My undergraduate PETE program prepares preservice classroom teachers to effectively . . ." which was followed by five items (e.g., "Integrate physical activity into academic lessons [e.g., math, science, language arts]"). In Section 7, participants were asked about their level of agreement with respect to preparing undergraduate physical education majors for CSPAP roles. This section used the stem "PETE programs should prepare physical education teachers for a leadership role at schools with respect to . . ." and was followed by seven items, one for each CSPAP component assessed on the survey (e.g., Quality physical education, before- and after-school PA programs).

Section 8 consisted of items pertaining to demographic/background information (e.g., gender, academic rank, professional responsibilities) and program information (i.e., number of full- and part-time faculty in the program, number of graduate student instructors in the program). For all sections of the survey, a 4-point Likert-type scale was used with the response options 1 = *strongly disagree,* 2 = *disagree,* 3 = *agree,* and 4 = *strongly agree.* Sections 1–6 also included a fifth option: *don't know.* A full copy of the survey can be obtained from the first author.

A preliminary version of the survey was reviewed for content validity by three noted experts in schoolwide PA promotion, all of

whom have published research and/or recommendations related to the CSPAP. Based on their feedback, several questions were added to reflect the CSPAP information and recommendations available from additional sources, such as the PELINKS4U website (e.g., Beets, n.d.; Erwin, n.d.), and the School Physical Activity Policy Assessment (S-PAPA) instrument (Lounsberry, McKenzie, Morrow, & Holt, 2011). Furthermore, response options were added for faculty responsibilities in Section 8 of the survey. The revised survey was then pilot tested with two PETE faculty members for clarity, readability, and feasibility of implementation. Based on their feedback, several questions were rewritten in a more straightforward manner, two sections were reordered to improve the logical flow of the items, and the directions at the beginning of the instrument were revised in accordance with the other changes.

A working list of undergraduate PETE programs in the United States was obtained from colleagues who were in the process of updating information from an outdated directory of programs (Ayers, Housner, & Kim, 2004). An Internet search was used to verify the identified programs, program directors, and contact information on the list. Programs identified in the search that were not on the original list were added and programs that could not be verified on the original list were deleted. The final list included 539 programs. Contacts on the list were e-mailed an invitation to participate in the study with a link to the survey and an opt-out link. The e-mail contained the purpose of the study and the reason the individual had received an invitation to participate (i.e., because they were identified as an undergraduate PETE program director or teacher educator). Additionally, e-mail recipients were asked to e-mail the principal investigator with e-mail contacts for anyone in their program they thought would be better suited to complete the survey and/or should also take the survey. The survey was sent again via three follow-up e-mails over 4 weeks to maximize participant response.

Data Analysis

Exploratory factor analysis with maximum likelihood extraction and direct oblimin rotation with Kaiser normalization was used to explore the latent factor structure of the observed items on the survey (Costello & Osborne, 2005). Coefficients with values below .4 were suppressed (Tabachnick & Fidell, 2001). Scree plots and

item loadings were examined to determine the best fitting solution among four to eight fixed factors. Cronbach's alpha was used to test the internal consistency of the items for each factor in the final solution. Response frequencies, means, and standard deviations were calculated for all items by factor. Statistical analyses were computed using SPSS (version 21.0).

Results

Survey: Perceived Effectiveness and Attitudes Related to CSPAP Preparation

A four-factor solution was selected based on the results of the factor analysis (see Table 2). The factors were labeled (a) Effectiveness in Preparing Program Majors for Quality Physical Education, (b) Effectiveness in Preparing Program Majors for Other CSPAP Roles, (c) Effectiveness in Preparing Nonmajors for CSPAP Roles, and (d) Attitude Toward Preparing Program Majors for Other CSPAP Roles. The first factor included Items 1–6 from Section 1 of the survey. The second factor included all 21 items from Sections 2–5 of the survey. The third factor included all five items from Section 6 of the survey. The fourth factor included Items 2–7 from Section 7 of the survey. In all, two items were removed because their loadings were below .4. These included Item 7 from Section 1 ("My Undergraduate PETE program prepares preservice physical education teachers to effectively teach simple games students can play to be active during recess/lunch/free periods") and Item 1 from Section 7 ("PETE programs should prepare preservice physical education teachers for a leadership role at schools with respect to quality physical education"). Internal consistencies for each factor in the final model were good to excellent (.87–.96).

Table 2
Final Factor Model and Descriptive Statistics

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
Effectiveness in Preparing Program Majors for Quality Physical Education						7.35	3.63 (.49)	.87
1. Teach toward all six national standards for K–12 physical education.	.853	175	3.74	.60	97.2			
2. Maximize students' practice time during physical education lessons.	.807	175	3.70	.63	97.1			
3. Draw on theory/research to promote students' physical activity.	.741	175	3.34	.69	93.7			
4. Provide personally meaningful learning experiences for students during physical education lessons.	.731	175	3.67	.66	97.1			
5. Align assessment with instruction in physical education.	.681	175	3.69	.58	97.7			
6. Maximize students' moderate-to-vigorous physical activity during physical education lessons.	.557	175	3.62	.59	96.6			

Table 2 (cont.)

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
Effectiveness in Preparing Program Majors for Other CSPAP Roles						31.55	2.58 (.56)	.94
1. Train before-/after-school program staff to provide children with developmentally appropriate physical activities.	.823	174	2.29	.88	38.5			
2. Organize intramural sports programs for students.	.810	174	2.44	.89	47.7			
3. Train before-/after-school program staff to maximize children's physical activity.	.794	174	2.29	.88	38.5			
4. Organize physical activity clubs for students.	.695	174	2.54	.82	55.2			
5. Tailor employee wellness initiatives to the health needs of individual participants.	.695	172	2.31	.83	36.0			
6. Increase the availability of transportation from school to community facilities where students can be physically active.	.674	169	1.98	.83	20.2			

Table 2 (cont.)

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
7. Motivate school employees to increase their physical activity.	.660	172	2.52	.82	51.8			
8. Gain school administrators' support for implementing employee wellness initiatives.	.653	172	2.49	.92	47.1			
9. Organize interscholastic sports programs for students.	.648	174	2.47	.91	46.0			
10. Organize wellness events for school employees.	.642	172	2.56	.79	53.5			
11. Increase family/community use of school facilities to be physically active.	.612	169	2.48	.83	49.1			
12. Increase the availability of school facilities for before-/after-school physical activity programs.	.561	174	2.58	.81	62.6			
13. Help school administrators learn to promote students' physical activity.	.561	172	2.83	.77	69.7			

Table 2 (cont.)

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
14. Organize physical activity events for students' families (e.g., family fitness night).	.556	169	2.76	.72	68.6			
15. Collaborate with community organizations to increase students' use of community facilities to be physically active outside of school.	.546	169	2.72	.91	63.3			
16. Motivate school employees to be physically active role models.	.545	172	2.60	.86	56.4			
17. Educate parents' about strategies to promote their children's physical activity outside of school.	.497	169	2.92	.69	79.9			
18. Use politicking skills with district/ government officials to advocate for policies to increase students' physical activity at school.	.462	169	2.38	.92	47.9			
19. Organize schoolwide efforts to increase students' physical activity.	.438	172	3.05	.64	83.1			

Table 2 (cont.)

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
20. Help classroom teachers learn to increase students' physical activity in their classrooms.	.435	172	3.06	.78	80.3			
21. Help classroom teachers learn to increase students' physical activity at recess.	.421	172	2.94	.83	73.8			
Effectiveness in Preparing Nonmajors for CSPAP Roles						8.58	2.78 (1.15)	.96
1. Teach students active games they can play at recess.	.997	168	2.80	1.22	73.2			
2. Increase students' physical activity at recess.	.959	168	2.76	1.24	70.8			
3. Lead physical activity breaks (e.g., "Energizers") between academic lessons.	.922	168	2.74	1.32	69.0			
4. Integrate physical activity into academic lessons (e.g., math, science, language arts).	.860	168	2.93	1.22	75.0			
5. Draw on policy/research to advocate for students' school-based physical activity.	.771	168	2.67	1.16	67.8			

Table 2 (cont.)

Factor/item	Loading	*n*	*M*	*SD*	Agree/ strongly agree %	Total variance explained %	Response across items *M* (*SD*)	α
Attitude Toward Preparing Program Majors for Other CSPAP Roles						5.72	3.15 (.56)	.90
1. The health and wellness of other school employees.	.817	168	2.89	.78	68.4			
2. The involvement of other school employees in physical activity promotion.	.804	168	2.99	.70	76.8			
3. Physical activity promotion in academic (i.e., non-physical education) classrooms.	.753	168	3.32	.70	88.6			
4. Family/community involvement in physical activity.	.685	168	3.23	.66	89.9			
5. Physical activity promotion during recess/ lunch/free periods.	.676	168	3.27	.64	91.1			
6. Before-/after-school physical activity programs.	.670	168	3.21	.67	87.5			

Note. Given the research questions, responses for *disagree* and *strongly disagree* were excluded from the analyses. Additionally, across all survey items, participants selected *don't know* as a response option less than 1% of the time. Therefore, responses for *don't know* were also excluded from the analyses.

Given the relatively large number of items loading on the second factor (Effectiveness in Preparing Program Majors for Other CSPAP Roles), we ran an additional item analysis in SPSS to examine the corrected item-total correlation, alpha if item deleted, and effects on scale mean/variance for the items just in this factor. The item-total correlations were high (.51–.74), indicating strong intercorrelations between the items in this factor. Additionally, the results indicated that the Cronbach's alpha would remain high (at least .936) if any of the items were deleted from the factor. Thus, statistically there were many items in this factor, but the items appeared to be functioning acceptably as a coherent set of items. We therefore turned our attention to the operational definition of the construct, which encompasses CSPAP roles in multiple contexts (e.g., before- and after-school programs, home and community settings). The construct is wider in definition and scope than the other constructs targeted in the survey, and broader constructs typically need more items to map the construct domain than do smaller, narrower constructs (Crocker & Algina, 1986). The items help to define the construct operationally, and as such, deleting any of the items would falsely narrow the conceptual band for the construct. Furthermore, each item provides a unique perspective related to specific CSPAP roles of interest in this study. Based on this expanded statistical and conceptual examination of the construct, we opted to retain all of the items.

Descriptive statistics on perceived effectiveness and attitudes are presented in Table 2. Participants reported higher perceived effectiveness in preparing preservice physical education teachers (program majors) for quality physical education (M = 3.63, SD = .49) than for other CSPAP roles (M = 2.58, SD = .56) or in preparing preservice classroom teachers (nonmajors) for CSPAP roles in the academic classroom and at recess (M = 2.78, SD = 1.15). For items assessing perceived effectiveness in CSPAP preparation beyond quality physical education, the highest mean scores were for preparing program majors to help classroom teachers learn to promote PA and preparing program majors to organize schoolwide PA promotion efforts. The lowest perceived effectiveness scores were for items that pertained to increasing the availability of transportation between school and other community sites where youth can be physically active and to training after-school program staff as PA promoters.

The mean response across all attitude items was 3.15 (*SD* = .56), reflecting a general consensus among participants that PETE programs should be preparing preservice physical education teachers for CSPAP roles beyond quality physical education. However, PETE faculty were more likely to disagree or strongly disagree that PETE programs should be preparing program majors for addressing the health and wellness of other school employees or increasing the promotion efforts of other school employees. About one third of participants disagreed or strongly disagreed that PETE should be preparing majors for leadership roles with respect to school employee wellness, and about one quarter of surveyed PETE faculty disagreed with the statement that PETE should be preparing majors for leadership roles with respect to school employee involvement in PA promotion.

Discussion

In this study, we examined the perceived effectiveness and attitudes of PETE faculty across the United States in relation to preparing preservice teachers for CSPAP roles, defined by numerous recommendations (e.g., CDC, 2013; NASPE, 2008a; Webster, Webster, et al., 2015). The majority (76%) of the survey respondents were undergraduate PETE program directors, which increases our confidence that, overall, the perspectives reflected in this study derive from faculty who should have a broad overview of program offerings.

Overall, responses leaned more toward agreement than disagreement on scale items assessing perceived effectiveness, but a substantial percentage of PETE faculty respondents shared doubt about whether, at the time of the study, programs were effectively preparing preservice teachers for a broad range of CSPAP roles. On one hand, respondents felt their programs were strongest in preparing program majors for quality physical education. Similarly, responses on the attitude factor indicated that faculty believed quality physical education was an important function of PETE. On the other hand, faculty reported relatively low perceived effectiveness scores and slightly more disparate attitudes related to preparing preservice teachers for roles beyond quality physical education. Several perceived effectiveness items with a focus on preparing program majors for roles related to staff wellness and staff involvement in PA promotion were particularly low. Moreover, based on the attitude data, there

was a relatively low level of agreement that PETE programs should be preparing majors for a leadership role with respect to staff wellness and staff involvement. Researchers could examine the beliefs underpinning faculty attitudes toward CSPAP preparation and the relationship between faculty attitudes and commitments related to CSPAP preparation. It could be that faculty believe that some CSPAP roles (e.g., staff wellness and involvement) are peripheral to or even beyond the purview of the professional responsibilities of physical education teachers. These beliefs may form the basis of unfavorable attitudes (Ajzen, 1991), which in turn may attenuate faculty commitments to preparing majors for these roles.

These results can be explained, at least in part, by the external accountability structure in place for CSPAP preparation in PETE. Currently, the knowledge and skills for leading a quality physical education program are the dominant focus of the national standards for initial teacher certification in physical education (NASPE, 2008b), which are widely used for program accreditation in PETE. These standards have historically had a major influence on the preparation of physical education teachers (Ayers & Housner, 2008). Incorporating a focus on knowledge and skills related to other CSPAP components into the standards as well may be a critical step that needs to be taken for the field to play a broader and potentially more effective role in the public health arena. In addition, the results of an informal national survey conducted by the American Alliance for Health, Physical Education, Recreation, and Dance (2011), now SHAPE America, indicated that 16% of elementary schools, 13% of middle schools, and 6% of high schools provided a CSPAP. Thus, the current employment profile for physical education teachers does not typically include CSPAP roles beyond physical education. Until CSPAPs are formally integrated with professional standards and expected responsibilities of physical education teachers, many PETE faculty may feel preparing majors for expanded PA promotion roles is unnecessary.

Enhancing the PA promotion efforts of other school staff members through wellness initiatives and professional development is beyond what some PETE professionals perceive as the responsibility of physical educators, but a key asset of successful approaches to garnering schoolwide support for PA promotion is a "champion"

within the school who can galvanize others in the school community to act as PA promoters (Doolittle & Rukavina, 2014; Jones et al., 2014; Langille & Rodgers, 2010). The IOM (2013) recommends that schools identify champions to lead PA promotion efforts in schools. With quality physical education as the foundation of a CSPAP (CDC, 2013; NASPE, 2008a), physical education scholars have called for physical education teachers to be champions for schoolwide PA promotion by serving as PA directors and leaders (e.g., Beighle et al., 2009; Bulger & Housner, 2009; Carson, 2012; Heidorn & Centeio, 2012). Physical education teachers who work to provide staff wellness programs and events and who organize and lead professional development opportunities for classroom teachers and other school staff may be taking crucial steps in championing the importance of PA and expanding PA promotion beyond the physical education classroom.

This study has several limitations. First, we gathered the perspectives of participants, and the data are therefore subjective. Observational data (e.g., sample lessons from courses, sample field experiences) would add an objective lens to this research, although obtaining such data from more than one or two programs would have required more resources than were available for this study. However, research in which CSPAP learning experiences in PETE programs are examined can also be strengthened by considering the perspectives of other program faculty and of students in these programs. In addition, obtaining program-related documents (e.g., course syllabi, programs of study) would help to confirm the veracity of participants' perspectives regarding the nature of these experiences. Second, despite our efforts to maximize participant responses to the electronic survey, the response rate was lower than in previous studies surveying PETE faculty (e.g., Graber et al., 2011; Metzler & Freedman, 1985). The low response rate limits the generalizability of the findings. Although the participants represented PETE programs from nearly all of the states, the majority of programs targeted for participation were not represented in this study. The results could have been different had the rate of survey responses been higher. Third, given the exploratory nature of this study, we did not subject the survey to rigorous psychometric testing. This should be an aim in future research within this line of inquiry. Finally, we did not con-

sider several other variables that could play a role in faculty perceptions and attitudes. Researchers could explore the possible influence of faculty characteristics (e.g., professional socialization), program characteristics (e.g., in which school/college the program is situated), and university characteristics (e.g., Carnegie classification) on the extent of CSPAP preparation offered in the program.

In conclusion, the results of this study provide an initial glimpse of PETE faculty as potential players in efforts to situate physical education more squarely at the vanguard of school- and community-based PA promotion. Most programs had integrated CSPAP learning experiences, but few PETE faculty appeared to believe that their programs were effectively preparing preservice teachers for roles in all CSPAP components. One reason for this may be that faculty place unequal value across CSPAP components. Based on the results, we suggest that faculty believe preparing majors to lead staff involvement and wellness initiatives is less important than other program functions to the mission of PETE and, by extension, physical education. If the future of the field is defined by a commitment to goals beyond that which can be achieved in the physical education classroom, it may become imperative for PETE faculty to prioritize learning experiences that help majors to capitalize on the support of other school professionals (Castelli, Centeio, & Nicksic, 2013). Ultimately, garnering schoolwide support for a CSPAP may be an important step toward establishing and nurturing sustainable partnerships, within and outside of the school setting, that can maximize the program impact (Webster, Beets, Weaver, Vazou, & Russ, 2015).

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PEDAGOGY

Physical Education Students' Perceptions of the Effectiveness of Their Distance Education Courses

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Abstract

Background: *Because of the increasing demand from students to have available to them distance education courses, it is vital to offer students health and physical education distance education courses that meet the their need for a challenging and rewarding educational experience. In this pilot study, we explored the learning experiences of students enrolled in distance coursework in health and physical education methods. We interviewed 14 students participating in the Distance Education Focus Group, who answered 10 semistructured questions pertaining to their satisfaction and achievements in distance education courses. Using qualitative analysis, we identified factors contributing to these students' satisfaction and academic achievement in distance education.* ***Results:*** *This study provides students and instructors with a better understanding of what is effective distance education instruction from the students' perspective.* ***Conclusion:*** *This study may result in improved retention of students, increased academic performance, and satisfaction with coursework, from understanding students' perceptions of the methods used for distance education. Knowing what students believe to be important for their learning experience helps health and physical education instructors better prepare for teaching through distance education.*

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Advances in technology have many learning institutions offering online programs to help accommodate the needs of students (Lim, Kim, Chen, & Ryder, 2008). Approximately 63% of academic leaders report online learning is an important factor when looking at their long-range strategic goals (Allen & Seaman, 2010). The literature suggests that distance education delivery models, such as hybrid and online classes, are as effective as traditional face-to-face courses (Larson & Sung, 2011; McFarland & Hamilton, 2006; Utts, Sommer, Acedolo, Maher, & Mathhews, 2010). In terms of content mastered and students' perceptions of satisfaction with their learning, distance education compares favorably with traditional face-to-face classes (Bata-Jones & Avery, 2004; Crowell & McCarragher, 2007; Huckstadt & Hayes, 2005; McAlpine, Lockerbie, Ramsay, & Beaman, 2002; Tesone & Ricci, 2008; Vernon, Vakalahi, Pierce, Pittman-Munke, & Adkins, 2009). Students may even perform better in distance education courses (Campbell, Gibson, Hall, Richards, & Callery, 2008; Corral, Guevara, Luquin, Pena, & Otero, 2006; Lim et al., 2008; Reasons, Valadares, & Slavkin, 2005). O'Malley and McCraw (1999) found student perceptions of online courses have been positive with regard to saving time and taking more courses. Lim et al. (2008) found that participants in the hybrid group were more satisfied with their learning environment compared to the face-to-face course.

Educators must thoughtfully use the pedagogies of distance education to achieve the greatest effect (Hylton, 2007; Regan & Youn, 2008). The educator's role is to engage students in stimulating interactions with peers and in meaningful discussions and to encourage deep thinking (Ouellette, Westhuis, Marshall, & Chang, 2006). What constitutes good teaching is educators' ability to use the available tools effectively to support good learning, creating a context in which learning and evaluation of effective teaching and learning can occur.

Kittleson (2009) stated, "There is no question that the future of health education (or probably any profession) lies in its ability to survive in the technology world" (p. 311). Because of the increasing demand from students to have available to the them distance education courses, it is vital to offer students health and physical education distance education courses that meet the students' need for a challenging and rewarding educational experience with the utilization of

technology. Understanding students' perspectives of distance education in the areas of health and physical education provides instructors with more information of students' learning experience when they are considering approaches that lead to student satisfaction and high levels of academic achievement.

Objectives

The purpose of this study was to explore distance education learning as experienced by health and physical education students for their perceptions of satisfaction and academic achievement. Despite support from the literature suggesting the efficacy of distance education, there is a lack of knowledge about how health and physical education instructors use distance education teaching methods effectively from their students' perspective.

Method

Participants

Students enrolled in a physical education department course from a Midwestern university were recruited via e-mail and announcements in class for this study ($N = 14$). Of the 14 participants, 50% ($N = 7$) were male, 50% ($N = 7$) were female, 92.9% ($N = 13$) were seniors, and 7.1% ($N = 1$) were juniors. The majority of participants (71.4%, $N = 10$) were physical education teaching majors with a minor in health and safety education, and 28.6% ($N = 4$) were kinesiology majors with a concentration in health and safety education.

Researchers

Both researchers are trained in interview techniques and have conducted several studies using qualitative research methods. One of the researchers is responsible for supporting faculty members in developing distance education courses, and the other researcher's primary responsibility is to teach health education courses.

Procedures

Students were invited to attend the Distance Education Focus Group. Sixty students were invited to attend the Distance Education Focus Group. Fourteen students responded to the e-mail to participate in the focus group and qualified for the study because they

had taken distance education courses (Teaching Strategies in Health Education, Safety Education, Emotional Health of Children in Sport, and Managing Organizations for Sport and Physical Activity) within the past year that were taught by five different health and physical education instructors. The researchers sent an e-mail message to each student and made announcements in health and physical education instructors' classes. The university's institutional review board permitted the researchers to offer students sandwiches and beverages for their participation in this study. Students signed consent forms that assured them of confidentiality and the support for withdrawing from the study at any time without penalty. The students were informed of the purpose of the focus group in the invitations to participate and individually.

The researchers facilitated a discussion with the Distance Education Focus Group by asking the following semistructured questions, which were formulated by the researchers:

1. What do you expect to learn by taking a physical/health education class online?
2. What do you wish you could have learned by taking a physical education class online?
3. How did the class you took meet your expectations?
4. Compared to your face-to-face classes, how was your learning experience different?
5. How did you participate in your class?
6. What would you have wanted your instructor to know about you to help you learn?
7. What helped you or prevented you from communicating your needs and interests in this course?
8. How did the instructor facilitate activities while taking the course (clinical demonstrations)?
9. How would you contrast the time spent learning concepts with practicing skills?
10. How was your experience interacting with classmates and the instructor?

The researchers engaged one particularly insightful student in an hour-long discussion of her experiences with distance education to gather detailed information of her perceptions and as a means of

verifying the information recorded in the semistructured interviews with the focus group. The group and the key informant were asked probing questions to clarify and expand their responses.

We audio taped the group session using Livescribe pen devices while we were writing the group members' written responses on paper. Using the Livescribe pen devices, we were able to add field notes to the written recordings to capture nuanced statements and reflections of the group members' perceptions. This method of recording improved the trustworthiness of the data collection and improved our ability to capture the authentic voices of the group members. The focus group and the hour-long session with the key informant were also recorded on a transcriber device and were later transcribed by a student assistant. We compared all data collected for accuracy.

Data Analysis

We used the constant comparison method for analyzing data separately and then together. The constant comparison method is a means to compare new data with existing categories of data to reach a good fit with all of the units of meaning (Cohen, Manion, Morrison, & Morrison, 2007). We compared the themes and determined that two themes were represented in the data analysis. The process for breaking data into bits and reassembling them into meaningful units and themes was described by Dye, Schatz, Rosenberg, and Coleman (2011) as a kaleidoscope. Categorizing, comparing, and refining data can form many images, when using the kaleidoscope as a metaphor, and can form numerous arrays in which to assemble meaning.

Results

The two themes that emerged from the data were (a) self-pacing of distance education courses contributes to student achievement and (b) the instructor's strong online presence supports students' achievement and satisfaction with the course.

Self-Pacing

Enrolling in a course taught primarily online appealed to most students because it permitted self-pacing, increased ownership, flexibility, expectation of high achievements, and convenience. Most students identified self-pacing as a means of exerting more control over their performance in the course: "I was able to put more effort

into it and be more thorough with it because I was on my own time." Another aspect of controlling one's own performance is the development of mastery for the subject matter: "In [a traditionally taught] class, some of the assignments you have to complete right then and if I rush through it, then I might not completely understand it and we move on to the next subject the next day." Working at the pace acceptable to individual students seems to contribute to having a better understanding of the material without concerns for keeping up with the pace of classmates or the instructor. The flexibility to complete coursework when convenient to the student contributed to the overall satisfaction the students felt taking online and hybrid coursework.

Although most students acknowledged the advantages of self-pacing, a couple of students expressed concern for their classmates who were unable to set a reasonable pace for themselves: "Some students rushed ahead and other students would wait until the end of the course and have too much to do to complete the course." Uneven progress through a course presented problems not only for individual students, but also for classmates when students were expected to work together on group projects and in class discussions. Whether some students advanced too far in the course schedule or were unable to keep up, classmates often felt frustrated by being "out of sync" with peers.

Students participating in the focus group identified themselves as being "good" students who felt they expended as much or more effort in academic performance than did other students. Therefore, the typical response of most of the students was, "Getting an *A* was pretty much my only expectation."

Students reported that they are often unable to take classes offered in the summer as their work obligations prevent them from scheduling coursework during summer semesters. Many students work extra hours during the summer to pay for their education. In addition to being able to work longer hours during the summer, online coursework saves them from the time and expense of driving to and from campus to take courses.

Instructors' Strong Online Presence

The students reported that their faculty member played a pivotal role in making the course worthwhile and satisfying. They identi-

fied several characteristics that contributed to their perceptions of a good learning experience including faculty exerting a prominent online presence, giving students reminders of assigned work, effectively communicating with students, and having a reasonable facility with online technology.

Students expressed a strong desire to engage with their instructors throughout the course. "Online presence," for many, was explained in contrast with traditional coursework:

> For face-to-face instruction we get structure and communication and we can build a better relationship with the professor and classmates. Also, you can ask a question better face-to-face. If you don't understand the first time you can ask them to explain it a different way.

Students commented that instructors who participated in online discussions responded to students' questions in a timely fashion, reminded students of assignment deadlines, and offered quick feedback on completed assignments provided the best learning experience. For example, a student replied, "Just make sure to notify when assignments are due. It's really hard for students to forget when assignments are due, because it's really easy to forget when a class is online and you don't check it every day." The students reported they felt most engaged in the class when the instructor had made it possible for them to get to know the other students enrolled in the class. These "getting-to-know-you" exercises occurred early in the course and may have been little more than sharing a brief autobiography and pictures with classmates.

Most students felt the assignments were reasonable and supported the course content: "The readings were lengthy and difficult to be reading on one's own without the perspective of the instructor." Instructors who offered their viewpoints enhanced their students' perceptions of being a caring, engaged, and active participant in student learning:

> It is really important especially when you're online; you need that communication and need to know exactly what is going on and what the instructor is wanting from you. It goes both

> ways too; the instructor needs to know what you understand and what you do not.

The instructors who were able to project the importance of developing a good working relationship with students contributed to students' feeling a sense of inclusion and belonging in the class. The "personal touch" seemed to make students feel they were part of a "live" learning experience rather than simply reading static materials and taking tests. Students perceived assignments and activities outside of the "online" environment as "busy work." Some of these assignments required students to evaluate the safety of playground equipment, for example. In general, students felt that some of these assignments were not closely associated with the course material.

Several students talked about having experienced hybrid and online courses in which little creativity and learning from one another occurred, and this was most evident on the asynchronous discussions:

> One person puts down an idea and it's what everyone else thinks and writes too. So it has no use because what happens is they write that they agree with what the first person says, but they're required to write something else down so they post a very generic response.

This produced a situation in which no one took risks: "With the discussion boards, sometimes they got repetitive but when the teacher interjected, we were able to bring up new ideas and new discussion for the topic." This perception is congruent with the findings of O'Malley and McCraw (1999), who found that students had concerns regarding how they could contribute to class discussions in an online format.

The students identified characteristics of instructors perceived to be poor communicators. The most frustrating characteristic identified was failing to respond promptly to e-mail messages. Students reported that they felt "alone" and "delayed" when the faculty member was unavailable to answer their questions. Contributing to their frustration was that students were attempting to contact their instructor because their assignments were not clear, the course expec-

tations were confusing, and the way in which the course was organized made it difficult for students find the content they needed to complete the course. Any changes the instructor made to the syllabus were perceived by students as evidence that the instructor was disorganized.

The students did not express any concern about instructors' ability to use new technologies, but they did state that not all of the instructors used multiple methods and forms of technology. Students identified their Internet service at home as not being as good as at school (e.g., the Internet connection is frequently lost at home), and their home computers were not up to the capabilities of the university or what the instructor used. The students observed, however, that most instructors were effective with streaming lectures and using audio recordings for students to listen at their convenience. Using the distance education facilities at the university library, such as podcasts and online journals, were highly valued by students for their convenience and instructional value.

Limitations

The intent of this study was not for generalizability; it was rather a representation of the perceptions of students of this particular focus group enrolled in distance education for health and physical education coursework. This was a small convenience sample, and the group of 14 that responded may have had a more positive experience than those who chose not to participate in the study. Another limitation of the study was that the students were not asked to differentiate between the health and physical education distance education courses. Finally, the study was conducted in a nonlaboratory setting, and therefore, the researchers could not control for all variables.

Conclusion

The findings of this study suggest that students perceive the source of their satisfaction and academic achievement is based on their ability to determine the pace at which they complete the distance education courses and the strong online presence of the instructor. Students in this study reported the need for communication between the instructor and student and the clarity of the instruction. This is consistent with the findings of Bata-Jones and Avery (2004). Song, Ernise, Singleton, Hill, and Koh (2004) reported that students

felt a lack of community and had difficulty understanding the objectives of the course. Though consistent with the literature pertaining to students' perceptions of distance education, this study contributes to the literature that is focused on the perceptions of students enrolled in health and physical education distance education courses. The outcome of this study may influence health and physical education instructors to put greater emphasis on maintaining a sense of belonging and shared purpose that may be achieved through pertinent discussions with the cohort. Instructors should consider ways in which students can interact with one another and with the instructor (Huckstadt & Hayes, 2005.)

Future studies to explore the health and physical education students' perceptions may include an exploration of instructors' perceptions of what leads students to feel satisfied with online education and helps them reach their academic goals.

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PEDAGOGY

Self-Regulated Learning and Perceived Health Among University Students Participating in Physical Activity Classes

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Abstract

The purpose of this study was to explore motivational indicators of self-regulated learning (SRL) and the relationship between self-regulation (SR) and perceived health among university students enrolled in physical activity (PA) classes. One hundred thirty-one Turkish students participating in physical education activity classes at two universities completed questionnaires assessing motivational regulations and perceived health. Qualitative comments about why students enrolled in their physical education activity classes were also included. Results indicated the students endorsed an overall intrinsic-oriented SR profile. Above average Identified and Intrinsic motivational regulation subscale scores, reinforced by qualitative comments expressing personal importance of activity, provided strong indicators of students valuing their activity class experiences. Of the four motivational SR subscales, Identified regulation

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predicted student perceived health. The lack of significant gender effects was a noteworthy finding among this population of university students, reinforcing the importance both genders place on internal regulation and physical activity.

The importance of physical activity (PA) in children and adolescents as a leading health indicator is well documented globally. The Centers for Disease Control and Prevention (CDC) attributes the lack of physical activity to dramatic rises in obesity levels and other health-related problems among school-aged children (Gao, Lodewyck, & Zhang, 2009). Inactivity at young ages may predispose youth to the early onset of chronic heart disease, type 2 diabetes, and related hypokinetic diseases (Boreham & Riddoch, 2001; Fox & Riddoch, 2000). An equally important concern is having such characteristics follow these individuals into early and late adulthood.

The lack of PA has been noted in numerous countries, including Australia (Smibert, Abbott, Macdonald, Hogan, & Leong, 2010), Sweden (Engström, 2008), Romania (Soos, Biddle, Balint, Sandor, & Szabo, 2012), Hong Kong (Cheung, 2012), and the United States (Vidoni, Azevedo, & Eberline, 2012). So serious are the effects of inactivity, worldwide initiatives have been undertaken. Vidoni et al. (2012) cited proposals such as the Global Recommendations of Physical Activity for Health (World Health Organization, 2010), the EU Physical Activity Guidelines (EU Working Group 'Sport & Health,' 2008), and Healthy People (U.S. Department of Health and Human Services, 2009) that recommend 60 min or more of daily moderate to vigorous physical activity (MVPA) for children and adolescents.

Although, physical education contributes to activity levels, Pate, O'Neill, and McIver (2011) addressed the lack of documentation of physical education on health outcomes. Additionally, few researchers have addressed PA among post–high-school-aged participants and fewer have addressed different countries. Little is known, for example, about why young adults attending college or university engage in physical activity, nor about what their perceptions of health may be. Because an important venue for promoting MVPA in college settings occurs through participation in physical education activity classes, we examined perceptions of health among students attending two Turkish public universities.

Perceptions of Health

Perceived health has long been a useful proxy measure for clinically measured health status and a determinant of post-illness recovery and adjustment (Garrity, Somes, & Marx, 1978; Mikolajczyk et al., 2008). A single Likert-type scale item asking about one's overall health remains one of the best predictors of health care utilization, incidence of various chronic diseases, and psychological well-being (Piko, 2000; Svardsudd & Tibblin, 1990; Wade, Prevalin, & Vingilis, 2000). Such perceptions are as important as medically defined health when affecting lifestyles. For example, researchers have reported that adolescent self-perception of obesity was more important than medically defined obesity in predicting poor mental health, self-esteem, and psychological distress (Atlantis & Ball, 2008; Jansen, van de Looij-Jansen, de Wilde, & Brug, 2008). In a comparative study, Kaleta, Makowiec-Dąbrowska, Dziankowska-Zaborszczyk, and Jegier (2006) found that engaging in sufficient levels of leisure-time physical activity had a significant and positive effect on perceived health by men and women.

Theoretical Framework

A theoretical approach attending to the why and what of understanding knowledge acquisition is self-regulated learning (SRL). Generally, SRL is seen as a process "whereby learners personally activate and sustain cognitions, affects and behaviors that are systematically oriented toward the attainment of personal goals" (Zimmerman & Schunk, 2011, p. 1). Self-regulation (SR) provides an inclusive approach to student learning that embraces cognitive, motivational, affective, and social contextual factors (Pintrich, 2000). It is viewed as being driven by environmental settings/circumstances that encourage learners to "adopt, develop, and refine strategies, monitor, evaluate, set goals, and change belief processes" (Hadwin, Jarvela, & Miller, 2011, p. 68). In sum, SR is seen to mediate connections between a learner's characteristics, context, and task performance (Pintrich, 2000, 2009).

This study was focused on the motivational regulations that influence SRL. Ryan and Deci (2000) identified four motivational regulatory categories: external, introjected, identified, and intrinsic. Externally regulated learners are influenced by outside demands or

rewards for performance. Learners who expect consequences based on expected behaviors are seen as externally regulated. The individual who engages in physical activity to outperform others or receive awards is externally regulated. Introjected learners acknowledge a regulation but do not fully embrace or internalize it. Though often self-initiated, the learner's behavior occurs under external pressure and tension and may be accompanied by stress or anxiety (Sun & Chen, 2010). Identified regulation is a more autonomous form of regulation wherein the learner consciously values a learning goal. The identified learner demonstrates more autonomy and SR because he or she personally accepts and identifies with that regulation. Those who engage in physical activity for health or wellness benefits are identified regulators. They value and recognize the importance of an active, healthy lifestyle. Intrinsic regulation finds learners involved in activities for their inherent enjoyment and satisfaction of learning (Ryan & Deci, 2000). Engaging in physical activity for the sheer joy and pleasure derived from mastering new skills or concepts characterizes an intrinsic self-regulator.

Self-Regulated Learning Research in Physical Activity Settings

In early research on SRL in physical education, researchers examined the role of goal setting. Kitsantas and colleagues found students who set process goals were more effective in the improvement of a dart-throwing skill than those who recorded performance outcome goals (Kitsantas & Zimmerman, 1998; Zimmerman & Kitsantas, 1997). Using Zimmerman's (2000) SRL model, Kolovelonis, Goudas, and Dermitzaki (2010) reported that sixth grade Greek students who moved from the emulation level to the self-control level recorded greater improvement in a motor skill compared to those who missed one or both of the levels in the model.

When self-recording and self-reflection were added to setting goals, Cleary, Zimmerman, and Keating (2006) noted improvement in university students' performance of the basketball free throw. Kolovelonis, Goudas, and Dermitzaki (2011) also recorded positive effects of self-recording among fifth and sixth graders' performance. Application of SRL strategies has also affected athletes' basic beliefs and tactics to enhance success in sports (Kitsantas & Kavussanu, 2011).

Though contributing to understanding of SRL in PA settings, the aforementioned studies have limitations. Most populations selected, for example, consisted of youth or early adolescents (ages 13–17). There is a paucity of information about SRL among post-K–12 participants. Although athletes are highly skilled individuals, their goals may not reflect those of less skilled, recreation-seeking individuals. Although examined in classroom-based SRL research, gender difference was not investigated for university students. In some studies, only one gender was examined, and in those with mixed-gender populations, observed similarities and differences were examined across intact samples.

The purpose of this study, then, was to explore indicators of self-regulated learning and the relationship between motivational SRL and perceived health among Turkish university students enrolled in PA classes. Though SRL encompasses cognitive, motivational, affective, and social contextual factors, we focused on the motivational element. Specifically, we asked, (a) what motivational SR indicators emerge from students participating in university physical education activity classes, (b) what is the relationship between motivational SR and perceived health, and (c) are there gender differences on the mean SR scores and perceived health?

Method

Participants

Voluntary participants included 131 students (M_{age} = 22.12, SD = 2.34) from two large urban universities in Turkey. The numbers of male and female students were approximately equal ($n_{female\ students}$ = 64, 48.9%; $n_{male\ students}$ = 67, 51.1%). Among the participants, 7.1% were freshmen, 19.7% sophomores, 39.4% juniors, 30.7% seniors, 2.4% master's students, and 0.8% PhD students. All students were enrolled in university physical education activity classes and had selected their classes under the elective requirements at both institutions. Classes included dance, football, health-related fitness, basketball, and volleyball. The health-related fitness and football classes met two times per week for 1 hr 50 min, and the dance, volleyball, and basketball classes met one time per week for 1 hr 50 min.

Instrumentation

Students completed two questionnaires. The first instrument included demographic information and one item to assess perceived health. Demographic information included name, age, gender, university, major, and if they were taking the class for a graduation requirement. Those not taking the class to fulfill a graduation requirement were asked to explain why they enrolled. For perceived health, we asked students to rate their present health status on a scale from 1 (*very poor*) to 5 (*excellent*).

The second instrument, the Self-Regulated Questionnaire-Exercise (SRQ-E), was validated in an extensive research project by Ryan and Connell (1989). The four regulation subscales—external, introjected, identified, and intrinsic—were shown to conform to a simplex-like ordered correlation that assessed domain-specific individual differences in regulation styles among urban, suburban, and rural population samples. We modified the original stem from "I try to exercise on a regular basis" to "I try to work hard in this activity class." Examples of the 16-item questionnaire included "Because others would be angry at me if I did not," "Because I enjoy exercising," and "Because I feel it is the best way to help myself." Participants were asked to respond to each item on a 7-point Likert scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*).

Adaptation of the Self-Regulated Questionnaire—Exercise

Because the SRQ-E had not been used with a Turkish population, we first asked a bilingual team of cultural authorities (professionals in physical education and sport) to examine the cultural relevance of the instrument. When the panel was unanimous in their assessment that the instrument was appropriate and applicable to a Turkish audience, we began the translation process following Brislin's (1970) translating and back translating model. Brislin recommends one bilingual expert first translate the instrument from the source language (SL) into the target language (TL). A second bilingual expert blindly back translates to the SL. If an error in meaning occurs (in the back-translated version) when compared to the original, the terms are retranslated and again blindly back translated by another bilingual expert and repeated until no errors in meaning occur.

Following the recommendation of Jones, Lee, Phillips, Zhang, and Jaceldo (2001) and Sireci (2011) that test adaptations involve separate teams of bilingual translators with independent translations and reviewers, we recruited two teams of three bilingual experts not affiliated with the study. The first team of three translated the SRQ-E into Turkish and then the second team (from the English department at one of the institutions) translated back to English. At each translation phase, we asked, (a) are the questions meaningful, (b) are the questions clear and understandable, (c) do you think the questions are appropriate for the Turkish culture, and (d) do you have suggestions on any of the questions? Written comments were recorded at the bottom of the translated document. Additionally, three graduate and four undergraduate bilingual students were shown the instrument and asked the identical questions at both translation phases. After translation back to the source language, the research team met and made final adjustments to the instrument based on the combined feedback received. We examined each item individually and discussed them until unanimous agreement occurred.

Procedures

Requisite institutional approval was obtained prior to the study. We contacted course instructors about the project and requested permission to visit their classes prior to data collection. All instructors agreed to our request. We informed students of the purpose of the study, explained that participation was voluntary, and explained that course grades would not be affected. They were also apprised that all information would be kept confidential and were encouraged to ask questions prior to signing informed consent forms. Questionnaires were then distributed during the students' regular physical activity class and took approximately 20 min to complete.

Results

Because the 131 participants were from two institutions, a MANOVA analysis was first conducted on the SRL items using university as the between-group variable. Results revealed no significant differences, Wilks' $\lambda = .932$, $F(4, 125) = 2.28$, $p = .064$, between the populations, so the data were collapsed and merged for analysis.

SRQ-E Reliability and Validity

Cronbach's alpha analyses of the four subscales were initially low: Introjected = .675, Identified = .673, External = .601, and Intrinsic = .587. After removing items SR6, SR16, SR2, and SR10, the Cronbach's alphas were acceptable: Introjected = .731, Identified = .686, External = .633, and Intrinsic = . 569.

To assess the model for its fit to the data, we performed a confirmatory factor analysis (CFA). Multiple indexes to evaluate the goodness of fit included (a) the chi-square to degree of freedom ratio (χ^2/df), for which values less than 2.0 suggest a good fit (McIver & Carmines, 1981); (b) the comparative fit index (CFI), for which values larger than .90 represent a good fit; (c) the Tucker-Lewis index (TLI), for which values over .90 are considered acceptable (Hu & Bentler, 1995); and (d) the root mean square error of approximation (RMSEA), for which .06–.08 is considered an acceptable fit (Browne & Gudeck, 1993; Hu & Bentler, 1995). When the 16 items in the CFA model were first loaded, the model did not fit the data, $\chi^2/df = 2.312$, CFI = .870, TLI = .821, RMSEA = .100. After again deleting items SR6, SR16, SR2, and SR10, the CFA model showed acceptable fit, $\chi^2/df = 1.526$, CFI = .953, TLI = .928, RMSEA = .064.

The results of the descriptive data on the study variables are shown in Table 1. Overall, the participants recorded above-average perceptions of health. They also demonstrated a positive, self-regulated learning profile. Identified and Intrinsic subscale scores in particular were above the midpoint (i.e., 3.5), with the Intrinsic subscale recording the highest mean score. The External subscale recorded the lowest mean score.

Table 1
Descriptive Statistics of Study's Variables

Variable	*M*	*SD*	Cronbach's alpha
External	2.07	1.02	.63
Introjected	4.43	1.48	.73
Identified	5.26	1.22	.69
Intrinsic	5.33	1.07	.57
Perceived Health	4.08	.74	n/a

Hierarchical multiple regression analyses were used to examine the relative contributions of self-regulated learning to students' perceived health. Identified SR was the only positive predictor ($\beta = .16$) of perceived health, $F(2, 128) = 3.32$, $p < .05$, explaining 3.2% of the variance. Intrinsic, Introjected, and External SR were not predictors of perceived health. Analysis of gender differences on perceived health revealed no significant differences, $t(129) = -1.636$, $p = .104$. Finally, MANOVA analysis among the other variables on the biographical data questionnaire (i.e., age, major, and classification) yielded no significant gender differences on the four SRL subscales.

Written Comments

Of the 131 participants, 90 (68.7%) indicated they did not take the class to fulfill a graduation requirement. Of these, 103 comments were recorded (three had no comments). Thirteen students cited two reasons for taking the class, and two students cited three reasons. Two members of the research team analyzed the 103 comments using constant comparison techniques (Lincoln & Guba, 1985). All statements were first sorted into categories. These categories were merged into larger categories that were then captured by four emergent themes. The four themes reflected each of the four motivational SRs. All disagreements during categorization were discussed until 100% agreement occurred. A summary of the students' motivational SR by theme and subcategories is provided in Table 2.

Table 2
Emergent Indicators of Motivational Self-Regulation by Theme and Subcategory

Self-regulation theme/ subcategory	Number of responses ($n = 130$)	Responses %
External		
GPA		
Requirement	10	9.71
Instructor		
Introjected	–	–

Table 2 (cont.)

Self-regulation theme/ subcategory	Number of responses (n = 130)	Responses %
Identified		
Health Benefits	35	33.98
Doing Exercise		
Intrinsic		
Enjoyment/ + sport specific	56	54.37
Gain Knowledge		
Dead End[a]	2	1.94

Note. GPA = grade point average.
[a]Not assigned

External Regulation

As seen in Table 2, this group generated no Introjected comments and just 10 (9.71%) External Regulation comments. Externally regulated comments primarily reflected a desire to increase grade point average or to fulfill the elective requirement in their university degree program. One student straightforwardly stated he wanted to "increase [his] GPA," and another student acknowledged that she enrolled "for the elective class." One student wrote, "At the beginning I had to take it [class], but now I really enjoy it," reflecting a shift from external regulation to intrinsic regulation. Yet another student acknowledged, "I am taking the class because of the instructor."

Identified Regulation

Identified responses were primarily focused on the desire to engage in activity and the health benefits derived from participation. Students valued the role of exercise in their lives and wished to continue. One student noted the general health benefits, writing, "I lost my physical health and conditioning during my education life so I want them back." Another shared a similar feeling about the value of exercise in a busy academic setting, acknowledging, "I am so busy during the semester and I do not have any chance to do sport, by this class I can do exercise in a regular way." Others acknowledged

the importance of having to and wanting to "do exercise," "sweat," and "have a healthy life." Two specific health benefits emerged, and one student wrote, "I am a basketball player, [so] for out of stress," and another recorded that engaging in activity helped "to fight my depression."

Intrinsic Regulation

The final theme generated the highest number and percentage (56, 54.7%) of comments, lending support to the descriptive and regression results of an overall intrinsic SR profile. Students noted participation in the activity classes emerged from a desire to learn as well as for the fun and enjoyment gained. The enjoyment element was noted in the number of "I like" comments generated. One student captured the feeling of "having fun": "The class is fun and enjoyable." Another simply wrote, "I love dancing." In addition to having fun, the challenge of learning something new was evident in some of the comments. One student, for example, said he took the class because "it is fun and I like to force my borders." Still, other students combined having fun with learning opportunities. One participant stated she wanted "to learn to live in a healthy way," and another indicated, "While I learning [*sic*] something, I would like to have fun."

Discussion

The purposes of this explorative study were to identify indicators of motivational SR, assess perceived health, and determine gender differences among students participating in university physical education activity classes. Though examined in physical education settings, SRL has not previously been linked to perceptions of health among Turkish students. All motivational regulation styles were present, but the results suggested an internal and autonomous approach to learning. Evidence of external regulation emerged but was limited. The qualitative data provided additional support that internally regulated participants valued the health benefits of physical activity. Both genders recorded positive perceptions of health.

Intrinsic SR requires a shift in learning from externally controlled perspectives to internal or self-centered perspectives (Sun & Chen, 2010). Research reveals an individual's value of learning or learning outcomes often relates to choice. These choices entail what activities to do, and in turn, performance on those activities can affect

regulation (Durik, Vida, & Eccles, 2006). One student's comment, "It is my choice [to take the activity class]," supports the importance of choice offered in the environment. If students do not value what they are doing, they will be less likely to identify important learning outcomes or plan requisite strategies to accomplish those outcomes (Wigfield, Kaudia, & Cambria, 2011). The above average Intrinsic and Identified regulation subscale scores, reinforced by qualitative comments about the importance of activity, provide strong indicators of students valuing their class experiences.

Reeve, Ryan, Deci, and Jang (2008) asserted that regulation of behavior is autonomous when a learner's interests and values serve as underlying causes for learning. Autonomous students are self-initiated and persistent because they see learning as appealing or personally relevant. High mean scores on the Identified regulation scales suggest many participants selected their classes because engaging in activity represented an important personal goal or attribute. Similarly, high mean scores on the Intrinsic scale provide evidence of student enjoyment of the activities as well as of an expressed interest for learning. Internal regulators, such as enjoyment and learning, also underscore an intrinsic-oriented and autonomous approach to learning (Ryan & Deci, 2000). Repeatedly students indicated they registered for their activity class because of a desire to learn in an enjoyable environment. This sentiment was perhaps best captured by one student, who wrote, "I love dancing, watching dancing, and I would like to learn it."

The second question assessed whether SR could predict perceived health. Of the four self-regulatory scales, Identified regulation was the sole predictor of perceived health. As noted in the introduction, an identified learner exhibits greater autonomy and SR because he or she personally accepts and associates with that regulation. Combined with the written comments, students in this study provided compelling evidence of personal acceptance of health benefits derived from physical activity.

Wilkinson and Bretzing (2011) reported similar results among high school females participating in fitness units. From the authors' analysis, Health Benefits emerged as the primary theme among their sample of participants, who also cited and valued the importance of health gains derived from activity. In another study, following simi-

lar stepwise multiple regression analyses, Piko (2000) identified four predictors of self-perceived health. Following psychological well-being and the frequency of psychosomatic symptoms, self-perceived health was significantly related to physical activity.

Ryan and Deci (2000) reported another important source of autonomous SR is intrinsic motivation, which they described as a form of regulation based on student interest in a learning activity. Interest is of import because it is viewed as a psychological predisposition to reengage with classes of objects, activities, and ideas (Hidi & Ainley, 2008). Related research results provide corroboration, linking the import of interest to enhanced SR and learning. Soric and Palekcic (2009), for example, confirmed the presumption that learning strategies may be a mediator in the relationship between students' interests and their academic achievement. Pintrich and DeGroot (1990) found that among their group of 173 seventh grade science and English classroom students, those who believed their schoolwork was interesting and important were more cognitively engaged and persistent when trying to learn and comprehend the material. Similarly, Lawanto, Santoso, and Liu (2012) reported a significant relationship between students' interest in engineering design tasks and their expectancy for success. Heikkilä, Lonka, Nieminen, and Niemivirta (2012) found that among 213 Finnish first-year teachers, nonregulatory participants expressed the highest levels of stress, exhaustion, and lack of interest. Finally, Soric and Palekcic (2009) found a link, albeit a weak link, between interest, learning strategies, and achievement with a population of Croatian university undergraduate students.

The final research question examined gender differences on the SRQ-E and perceived health. There were no significant differences by gender on the four subscales of the SRQ-E. Self-regulated learning requires forethought, setting goals, anticipating outcomes for attaining those goals, as well as knowledge of self-regulatory strategies and how to evaluate and reflect on the outcomes (Zimmerman, 2000). Few differences occur between genders' academic abilities, but many differences have been noted in academic achievement, course selection, and career choices (Bussey, 2011). Self-efficacy beliefs represent known predictors of academic success, particularly affecting the ability to use self-regulatory skills when facing limited

success (Zimmerman & Cleary, 2006). These beliefs carry through to college, so strong efficacy beliefs are important for future achievement (Bussey, 2011).

Usher and Pajares (2006) found that social persuasion, such as relying on the opinions of others, is an important source that contributes to informing academic and self-regulatory efficacy beliefs. Other sources of social persuasion come from parents, peers, and teachers, who can exert powerful social pressure on gender differentiation and self-regulated learning (Bussey & Bandura, 1999). Though we cannot ascribe social pressures or other attributes affecting SR, there were no significant differences on the subscales of the SRQ-E, and this indicates that both genders endorsed the key attributes of SR.

Other researchers have found significant differences on perceived health status and have suggested that higher scores among male students may be a result of Western societal masculine norms of invincibility, independence, and overconfidence (Baffi, Redican, Sefchick, & Impara, 1991; Davies et al., 2000). Ruthig, Marrone, Hladkyj, & Robinson-Epp (2011) concurred and suggested that although men may experience health symptoms, stress, or poor nutrition, they may be unwilling to report them because of societal expectations. Though Turkish society is generally male dominated, this population of university students generated no significant gender differences on perceived health. This may be due to males being more honest and/or sensitive about their health status than were their male counterparts in North America and Europe, or conversely, the females may be overreporting their perceived health status. Regardless, the result warrants further inquiry to pursue credible explanations and to determine whether the result holds across a wider population of university students.

We acknowledge this study has limitations. First, measurements occurred at one time only during the semester. Longitudinal data may help further replicate the theoretical constructs of SRL and perceived health across an expanded number of Turkish university sites. Second, self-report questionnaires are sometimes valid and reliable in assessing aptitudes or predispositions to use SR strategies, but they are not as efficient at documenting actual events or ongoing processes involved in SR (Pintrich, 2009). In light of the tendency

for males to overrate perceived health values, and though qualitative comments were included, additional measures should also be included in follow-up research.

Despite these limitations, the results are encouraging. In an era of shrinking budgets and cuts to activity programs, policy makers and administrators require evidence-based research about factors affecting instruction, to foster interventions that may affect learning (Leaper & Friedman, 2007). Results of our exploratory study provide early evidence of the importance and support Turkish students from two higher education institutions place on physical activity. Furthermore, lack of significant differences between genders represents an important finding reinforcing the importance that both genders place on motivational SR and physical activity. This study represents but a first step to explore and identify the relationship between SRL and perceived health among Turkish university students.

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SPORT MEDICINE

Knowledge of Concussions by High School Coaches in a Rural Environment

Josh Shroyer and Craig Stewart

Abstract

The purpose of this study was to determine the knowledge and opinions on concussions of high school coaches from a geographically large yet rural state in the northern Rocky Mountains of the United States. Few medical issues in sport are more important, or have had as much publicity recently, as concussions. The exposure gleaned from tragic health issues among professional athletes post-concussion has motivated college and professional sport agencies to modify and enact strict guidelines in the diagnosis and treatment of suspected concussions. Yet underdiagnosis and mistreatment by some (former University of Michigan coach in 2014) highlight the need for continued education and enforcement of the current guidelines. Obviously, when a head coach from a major NCAA Division I university still places an athlete's health in jeopardy by disregarding a head injury, it is imperative that coaches' knowledge of concussions in smaller, more rural and remote programs is considered as well. We used a commercial electronic product to survey coaches across the state. Coaches responded voluntarily with their opinions and their current knowledge of issues related to concussions. The

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purpose was to identify the current status of knowledge and attitudes in hopes that any weaknesses can be addressed in additional coach education opportunities.

Over 300,000 sport-related concussions occur each year in the United States, but that number relates only to athletes who lost consciousness and reported it. According to numerous sources, the number of sport-related concussions each year is between 2 million and 4 million (Covassin, Elbin, & Sarmiento, 2012; Grady, 2010; Guskiewicz & McLeod, 2011). Approximately one third of those concussions occur in young athletes at precollegiate levels (Martineau, Kingma, Bank, & McLeod, 2007; Murphy et al., 2012; Yard & Comstock, 2009). That population is even more susceptible to long-term effects and extended recovery times than are adults (Gessel, Fields, Collins, Dick, & Comstock, 2007; Grady, 2010).

Because of no universal definition, a concussion is difficult to understand and diagnose (Cantu, 2001; Covassin, Elbin, Stiller-Ostrowski, & Kontos, 2009; Guskiewicz et al., 2004; Martineau et al., 2007). In 2001, an international group of experts defined concussion as a complex brain injury caused by biomechanical forces that affects numerous body functions (Aubry et al., 2002; McCrory et al., 2013). To date, that definition is still accepted. Therefore, any force directed on a player that is transmitted to the head may result in a concussion (Aubry et al., 2002; McCrory et al., 2013). The resulting concussion may cause temporary neurological impairment lasting for varying amounts of time and may affect vision, balance, sleep, and concentration. Loss of consciousness (LOC) is NOT required for a concussion to be diagnosed. Likewise, magnetic resonance imaging (MRI) or computed tomography (CT) scans rarely show signs of concussions (Aubry et al., 2002; McCrory et al., 2013).

Because concussions are not easy to define, determining occurrence and grading severity is difficult. According to the National Athletic Trainers' Association (NATA), there is no universal grading scale for concussions (Guskiewicz et al., 2004). Many scales are focused primarily on occurrence of LOC or if posttraumatic amnesia (PTA) exists (Cantu, 2001). Cantu (2001) described two types of PTA: (a) *retrograde amnesia,* which is a failure to remember events that occurred prior to receiving a concussion, and (b) *anterograde*

amnesia, which is a failure to remember events after the concussion has occurred.

The NATA lists a grading scale for concussions with three divisions (Guskiewicz et al., 2004). In this scale, a Grade 1 concussion is characterized as no LOC, some confusion, and other signs and symptoms *that resolve themselves in less than* 15 min. In Grade 2, LOC has still not occurred, but there is some confusion, and signs and symptoms *last longer than* 15 min. Finally, a concussion is rated Grade 3 when LOC has occurred.

Though there are many approaches to grading concussions, all emphasize diagnostic signs and symptoms. Many of these are self-reported and are therefore different between players (Guskiewicz et al., 2004). The more common signs and symptoms are *headache; nausea; vomiting; drowsiness; dizziness; balance problems; sleeping problems; sensitivity to light or noise; trouble studying or concentrating; memory problems;* or *changes in attitude,* such as *irritability* or *nervousness* (Aubry et al., 2002; Guskiewicz et al., 2004; Martineau et al., 2007; Oliaro, Anderson, & Hooker, 2001). Basically, a qualified medical diagnosis should be performed with any change of an individual's normal functioning after a suspected blow to the head or body.

Some signs and symptoms, however, are not self-reported, so other tests are needed to help in assessing a concussion. Mental status screenings, postural stability assessments, neuropsychological testing (Guskiewicz et al., 2004; Martineau et al., 2007; Oliaro et al., 2001), and cranial nerve testing (Oliaro et al., 2001) are used to test for signs and symptoms that are not self-reported. These tests require trained health professionals, so coaches should know whom to contact in their community.

In every case, all suspected concussions have the potential to be serious health issues and should not be overlooked or ignored. A concussion is an invisible brain injury with the possibility of long-term implications. Regardless of the grading scale, concussions must be identified and treated appropriately. Likewise, a proper *return-to-play* progression should be followed to ensure the safe and healthy return of an athlete to competition. Athletes should not return to practice or play until cleared by a health care professional trained in the care of concussions.

In rural, sparsely populated locales, a majority of high schools rarely have athletic trainers or medical personnel present at practices, and the coaches are responsible for diagnosis and medical referral. The primary concern is the injured player, but the effect of failing to diagnose and refer a player with a suspected concussion may affect the future of the coach and the whole program. It is imperative that coaches have the current knowledge and understanding to address these issues as quickly and accurately as possible.

Method

The participants in this study were high school coaches from a geographically large rural state in the Northern Rockies, USA. After permission was received from the institutional review board and the staff of the state athletic association, coaches from a neighboring state completed a pilot study that resulted in minor modifications of wording. The survey was then administered electronically to determine current knowledge and opinions of high school coaches on concussions.

The questions used were identical or slightly modified from works by Covassin et al. (2012), Hossler and Goldenberg (1995), and McLeod, Schwartz, and Bay (2007; see Table 1). The survey contained questions that covered issues such as *the knowledge of signs and symptoms of concussions, appropriate action when a concussion is suspected, return-to-play guidelines,* and *the seriousness of a concussion* and the opinions of coaches as to whether *the threat of concussions was overemphasized.*

Results

Fifty-three coaches completed the survey, with all coaches responding to the 5-point Likert scale and 52 answering the true and false questions. The demographics of the respondents and their school classifications are shown in Table 2. Thirty-seven of the respondents reported having at least one player who sustained a medically diagnosed concussion in the past 3 years (Table 3).

Table 1
Knowledge Questions (True/False/I Don't Know)

Question	True	False	I don't know	Total
A loss of consciousness always occurs when a player has a concussion.	0.0% (0)	96.2% (50)	3.8% (2)	52
Concussion may be caused either by a direct blow to the head, face, neck, or elsewhere on the body with an impulsive force transmitted to the head.	92.3% (48)	1.9% (1)	5.8% (3)	52
Concussion is considered a form of traumatic brain injury.	88.5% (46)	5.8% (3)	5.8% (3)	52
The diagnosis of concussions is easy because there are just a few true signs or symptoms.	3.8% (2)	82.7% (43)	13.5% (7)	52
If the athlete has lost consciousness or is not coherent, then a cervical spine injury should be suspected.	42.3% (22)	13.5% (7)	44.2% (23)	52
The helmet, shoulder pads, and other equipment should not be removed if a player remains lying on the playing surface after a suspected concussive blow.	63.5% (33)	9.6% (5)	26.9% (14)	52
Simple assessment of orientation to person, place, and time is not a reliable screen for a sport-related concussion.	59.6% (31)	25.0% (13)	15.4% (8)	52
Cognitive evaluation should include situation-relevant questions, such as name of opponent, score of the game, and time remaining in the game.	69.2% (36)	15.4% (8)	15.4% (8)	52

Table 1 (cont.)

Question	True	False	I don't know	Total
Balance problems and visual tracking deficits are common concussion findings, but any focal neurological deficits should be referred immediately to emergency medical personnel.	90.2% (46)	0.0% (0)	9.8% (5)	51
High school–aged athletes take longer to heal from a concussion than do older athletes.	13.7% (7)	37.3% (19)	49.0% (25)	51
If your athlete clearly shows signs and symptoms of concussion at the time of initial evaluation, it is never appropriate to return the player back to play the same day as the injury regardless of the skill level or resolution of symptoms while on the sideline.	94.2% (49)	3.8% (2)	1.9% (1)	52
Concussion is a common injury in the preadolescent and adolescent student-athletes.	59.6% (31)	15.4% (8)	25.0% (13)	52
Once a concussion is sustained, athletes are more likely to experience a second concussion, even if the second blow is relatively mild.	92.3% (48)	5.8% (3)	1.9% (1)	52
If your athlete clearly shows signs and symptoms of concussion at the time of initial evaluation, you should only return to play if the parent/guardian at the event gives his/her permission.	0.0% (0)	98.1% (51)	1.9% (1)	52

Table 2
Demographics of the Participants

Demographic information	% (Total responses)
Gender	
Male	32.1 (17)
Female	67.9 (36)
Classification of Schools (by number enrolled and % total in state)	
Class AA (900 or more students)....8%	35.8 (19)
Class A (370–899)....12%	47.2 (25)
Class B (130–369)....22%	11.3 (6)
Class C (129 or less)....58%	5.7 (3)
Years of Coaching Experience	
1–5 Years	17 (9)
6–10 Years	34 (18)
11–15 Years	11.3 (6)
16–20 Years	11.3 (6)
21+ Years	26.4 (14)
Sports Coached	
Soccer	22.6 (14)
Football	17.7 (11)
Basketball	14.5 (9)
Track and Field	9.7 (6)
Volleyball	9.7 (6)
Softball	6.5 (4)
Tennis	4.8 (3)
Cross Country	4.8 (3)
Wrestling	3.2 (2)
Golf	3.2 (2)
Swimming	1.6 (1)
Cheerleading	1.6 (1)

Table 3
Number of Medically Diagnosed Concussions in the Past 3 Years at Practice and Game/Match/Event

Number of concussions	Total responses
0	30.2% (16)
1–3	45.3% (24)
4–6	15.1% (8)
7–9	3.8% (2)
10 or more	5.7% (3)

Most of the coaches were certified in first aid and believed it was their job to educate their players about the risks and implications of a concussion (Table 4). Nearly all (96%) of the respondents knew that loss of consciousness does not always occur in players and believed it is a form of traumatic brain injury (89%). Forty-eight coaches (92%) remarked that any blow to the body that transmits a force to the brain can cause a concussion. However, barely half (52%) of the coaches knew that a cervical spine injury should be suspected if an athlete loses consciousness.

Regrettably, only seven coaches (13%) knew and 25 (48%) did not know that high school athletes take longer to recover from a concussion than do older athletes. On the other hand, 31 (60%) responded that a concussion is a common injury in the preadolescent and adolescent population. Finally, most coaches (95%) agreed that if a head injury is suspected, the athlete should not return to participation the same day, and the same number agreed that not even a parent or guardian can give permission for same-day return.

Table 4
Opinion Questions on a 5-Point Likert Scale

Question	Agree strongly	Agree	No opinion	Disagree	Disagree strongly	Total responses
The current emphasis on concussion in sport has been overly sensationalized in terms of injury rate.	1.9% (1)	15.1% (8)	20.8% (11)	43.4% (23)	18.9% (10)	53
It is not the coach's responsibility to educate players about the characteristics of concussions.	1.9% (1)	11.3% (6)	3.8% (2)	39.6% (21)	43.4% (23)	53
Prior to the start of my team's practice, I screen the players' medical releases for evidence of prior concussions and injuries.	26.4% (14)	45.3% (24)	18.9% (10)	5.7% (3)	3.8% (2)	53
I am currently certified in first aid by an accepted organization (Red Cross, American Heart Association, etc.).	71.7% (38)	13.2% (7)	0.0% (0)	11.3% (6)	3.8% (2)	53
After a concussion, only medical professionals should authorize a return to play for the athlete.	73.6% (39)	18.9% (10)	0.0% (0)	3.8% (2)	3.8% (2)	53
After a player has had a concussion, his/her parent or legal guardian can legally permit them to return to play/practice.	0.0% (0)	1.9% (1)	3.8% (2)	36.5% (19)	57.7% (30)	52

Discussion

Although common in sports, concussions remain a poorly understood injury. It has been estimated (Esquivel, Haque, Keating, Marsh, & Lemos, 2013; Gessel et al., 2007; Murphy et al., 2012) that concussions account for 8.9%–13.2% of all injuries for high school athletes. However, because many high schools do not have adequate access to proper medical personnel during practices or games (Table 5), it is imperative that coaches are educated on this topic. The lack of immediate access to medical staff is even more critical in rural communities. Esquivel et al. (2013) found that, even in a heavily populated state where athletic trainers were regularly (two thirds of the time) present at games, no medical support staff were present at over 75% of practices. Likewise, Covassin et al. (2012) found that 70% of the coaches in private youth programs had never received formal education on concussions prior to completing the Centers for Disease Control and Prevention's (CDC) Heads Up: Concussion in Youth Sports program.

Table 5
Access to Professional Medical Personnel at Practices and Games (Certified Athletic Trainer, Physician, etc.)

Access	Total responses
At practice?	
Yes	58.5% (31)
No	41.5% (22)
At games?	
Yes	79.2% (42)
No	20.8% (11)

The understanding and science of brain injury is still growing and subject to clinical judgment (McCrory et al., 2013), and concussions remain a common injury in high school athletes (Grady, 2010). In addition to loss of playing time, the inability to concentrate or focus on tasks may affect the student athletes' academics, social existence, and home life. In this study, a staggering 86% of respondents did not know or believe that younger athletes took longer to recover from a head injury. That is tragic. Of coaches in this study,

62.3% did not believe that the emphasis on concussions was overly sensationalized, but 17% did. Coaches must understand that regardless of high school athletes' age or size, their central nervous systems are still developing and take longer to recover from a concussion than does an adult's (Gessel et al., 2007; Grady, 2010; McCrory et al., 2013). Young athletes who return too early to practice or play are more at risk of yet another concussion that often causes more severe and longer lasting impairments (Yard & Comstock, 2009).

Historically, LOC was a prerequisite for diagnosis of concussions, but in 1999 the CDC determined that it was reported in less than 10% of diagnosed concussions (Grady, 2010). Many grading scales are still focused on LOC or PTA, but those symptoms occur only in 4%–6% of concussions (Gessel et al., 2007). Therefore, LOC and PTA are not valid predictors of the severity of injury or the time required to return to play (McCrory et al., 2013). Obviously, LOC is serious, but it is not required for the diagnosis of a concussion.

In addition, coaches should also be aware that if athletes lose consciousness, they should be treated as if a cervical spine injury is suspected (Bailes, Petschauer, Guskiewicz, & Marano, 2007; Grady, 2010; McCrory et al., 2013; Oliaro et al., 2001). In that case, the athlete should be put on a spine board and sent to the hospital for further evaluation (Bailes et al., 2007). Additionally, equipment (helmets, shoulder pads, etc.) should not be removed in these cases because this could cause further spinal damage (Bailes et al., 2007; Grady, 2010; Swartz et al., 2009).

When a concussion is suspected, an athlete should not be allowed to return to play the same day as the injury (Grady, 2010). In the state where this study was completed, young athletes showing any signs or symptoms of a head injury are to be removed from participation and are not to return until a *licensed health care professional* gives *written* clearance to return to play according to the Dylan Steigers Protection of Youth Athletes Act (2013). This act makes it *illegal* for coaches, athletic trainers, and officials to allow an athlete to return to organized sport activities after a suspected head injury without the approval of a licensed health care professional regardless of resolution of symptoms or pressure from parents and guardians. Even with this enactment, 5.7% of the coaches *did not know* that a player should not be allowed to return the same day as the injury and

7.6% of the respondents *did not agree* that *only* a licensed physician could legally authorize a player to return to play.

All coaches should also understand and follow current return-to-play guidelines. The CDC and the National Federation of High Schools list the five steps for return to play for athletes returning from a concussion:

Progressive activity recommendations: Athletes should only progress to the next level of exertion if they are NOT experiencing ANY symptoms at the current level.

- Step 1: Light exercise—5 to 10 min exercise bike or walking; NO weight lifting
- Step 2: Moderate running in gym or field without equipment; limited head movement
- Step 3: Noncontact training drills in full equipment—begin light weight training
- Step 4: Full contact practice in training
- Step 5: Return to game/practice

A PLAYER SHOULD DISCONTINUE IMMEDIATELY AND GET REEVALUATED BY A CERTIFIED HEALTH CARE PROFESSIONAL **IF SIGNS OR SYMPTOMS RETURN.**

Suspected head injuries not only include concussions, but also may be accompanied by skull fractures, subdural hematoma, and cervical injuries. Some head injuries cause rapid deterioration in health, and others may take hours or days to manifest complications (Yard & Comstock, 2009). If not recognized immediately, these injuries may be fatal. One reason for immediately evaluating an athlete with a possible head injury is not only to check for a concussion, but also to rule out additional serious injuries.

Parents usually have their child's best interests in mind, but many times do not understand the effects of certain injuries. Therefore, it is important for the coach to be educated in the area of injury prevention and management and to engage in proactive parent and player education programs. The overall safety of adolescent and preadolescent participants should be a priority, especially in regard to their developing central nervous systems.

The number of coaches who failed to respond from athletic programs in smaller communities is an additional concern. The majority (80%) of high schools in this rural state have 369 students or less. Yet only six coaches (11%) from those schools responded to the survey. In addition, the National Federation of High Schools has documented turnover nationally of high school coaches at about 25%, but in this state, the annual coach turnover is approximately 40%, with less than half of coaches being certified teachers in the schools. These two variables contribute significantly to the continued need for annual, ongoing coach education.

In all athletics involving young players, parents entrust their children to coaches assuming they will provide a safe and fun environment. If coaches fail to recognize concussions, are not certified in first aid, or endanger players by allowing them to return to play too early, they put their athletes at risk of serious injury. Because many schools in rural areas do not have access to proper medical help, it falls on the coaches to know the health history of their athletes and how to recognize and manage injuries. Thirteen percent of the coaches surveyed did not believe it was their responsibility to educate their players on concussions and almost 10% admitted they did not screen their players' medical histories for evidence of prior concussions or injuries. Finally, it is well documented that all coaches should be certified in first aid to deal with any injury, but 15% of the respondents were not.

Although limited by the number of participants, this study emphasizes the importance of continued coach education and proper training in medical concerns. Further studies should be focused on schools in rural areas with smaller student populations, in an attempt to evaluate their needs. Because of the low number of responses from these schools, our findings were limited to athletic programs that were more likely to employ an athletic trainer or to have proper medical support available during practices and games. It can be assumed that if more coaches from the smaller programs had responded, even greater needs would have been identified. Concussions are serious with many unseen implications. The education of coaches, parents, and players needs continued emphasis to protect young athletes, coaches, and programs everywhere.

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RISK MANAGEMENT

Analysis of Risk Management in Adapted Physical Education Textbooks

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Abstract

Physical education teacher education (PETE) programs vary on how the topics of safe teaching and risk management are addressed. Common practices to cover such issues include requiring textbooks, lesson planning, peer teaching, videotaping, reflecting, and reading case law analyses. We used a mixed methods design to examine how risk management is addressed in APE textbooks using a validated Risk Management Inventory as a guide. We analyzed nine APE textbooks. We performed content analyses using a Risk Management Inventory to assess content pertaining to risk management and safe teaching in APE textbooks. We performed quantitative analyses by computing percentages of content covered under each category of the Risk Management Inventory for each textbook. Percentages ranged from 11.29% to 35.48%. Elements found pertaining to Instruction included updated lesson plans, curriculum guidelines, adaptations and modifications, demonstrations, safety rules, lesson objectives, skill progressions, and instructional feedback. Elements found pertaining to Emergency and Medical Procedures included incident reports, first aid kits, existing

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medical conditions of students, and emergency action plans. Elements found pertaining to Equipment and Facilities included inspection of and warnings for equipment and facilities, use of equipment, developmentally appropriate equipment, inventories of equipment and facilities, and activities conducted away from hazardous areas. Elements found pertaining to Supervision included supervision of students, off-task behavior, safety rules, and medical notes. Elements found pertaining to Administrative Behaviors included licensure of teachers and communication and posting of guidelines for emergency actions plans as well as emergency exit procedures.

In the past 2 decades, the educational system in the United States has undergone reform. For teachers to prepare students for academic excellence, accountability and responsibility have come to the forefront in terms of qualifications and expectations of teachers (No Child Left Behind Act, 2001). Inadequate teaching has been among the reasons attributed to poor performance of students (No Child Left Behind Act, 2001).

The field of physical education (PE) has not been exempt from the educational reform movement. An increase in litigation in PE due to alleged poor teaching practices has created increased concern among educators (Dougherty, 2010). PE is an area in which students are more susceptible to injury because of the inherent nature of the activities taught (Hart & Ritson, 2002). Claims of negligence often comprise concerns involving supervision, instruction, equipment and facilities, and emergency and medical procedures (Dougherty, 2010). The issue of negligence is more common in PE than in other subjects taught in classroom settings (Dougherty, 2010). Negligence has been defined as ". . . conduct that falls below the legal standard established to protect others against unreasonable risk of harm, except for conduct that is intentionally, wantonly, or willfully disregardful of others' rights" (Garner, 2009, p. 1133).

Creating a safe environment in PE is paramount. According to Block (2007), concerns regarding safety in PE are heightened when students with disabilities participate in general PE classes. As a result of federal legislation, more students with disabilities are included in general PE. Specifically, the Individuals With Disabilities Education Act (IDEA) of 1990 continues the concept of free and appropriate

education, individualized education plan (IEP), least restrictive environment (if appropriate), and PE as a direct educational service (20 U.S.C. § 1400[d], 1401[3B], 1412[5B], 1414[d]). The reauthorization of IDEA is focused more on inclusion of students with disabilities in the general education environment (20 U.S.C. § 1414[d]). The concept of inclusion, which applies to adapted PE (APE) and general PE, comprises the concepts of least restrictive environment and continuum of placements for students with disabilities (Auxter, Pyfer, Zittel, & Roth, 2010). The Individuals With Disabilities Education Improvement Act of 2004 (IDEIA) was amended to align to the mandates of the No Child Left Behind Act of 1990 and supports inclusion and placement of students in general PE (20 U.S.C. § 6301). Given these mandates, it is critical for physical educators and adapted physical educators to be cognizant of and learn to address safety issues in the PE environment.

Accountability and responsibility practices have been promoted in physical education teacher education (PETE) programs to decrease the occurrence of negligence (Siedentop & Tannehill, 2000). Typically, novice teachers begin to learn to identify and address safety issues through assigned chapters in required textbooks for classes, lesson plan assignments, peer teaching assignments, videotapes of teaching episodes, reflections, case law analyses, and other assignments with a stated purpose of identifying and addressing safety issues. Textbooks vary on the amount and type of information included on safety and may be used to supplement class lectures and assignments. Elementary and secondary PE methods textbooks may include sections in chapters on negligence and risk management (Buck, Lund, Harrison, & Blakemore Cook, 2007; Graham, Holt/Hale, & Parker, 2013), and APE textbooks may include sections in chapters regarding health and safety concerns for students with disabilities (Dunn & Leitschuh, 2006; Sherrill, 2004).

In addition to chapters in textbooks and assignments in classes, novice teachers learn to identify and address safety issues through observing mentor teachers and modeling behaviors observed during field experience classes and student teaching practicums. Miller and Dollard (1941) originally proposed social learning theory, suggesting that humans learn through observation and that a combination of drives, cues, responses, and rewards influence learning new behaviors. The theory was expanded in 1962 by Bandura to what is

known today as social cognitive theory (Bandura, 1986). Social cognitive theory (Bandura, 1986) posits that humans still learn through observation and modeling as originally proposed, but that the added dimensions of expected outcomes influence a person's motivation. The more positive expected outcomes are perceived to be, the more motivation the person will have (Bandura, 1986).

In applying social cognitive theory to safe teaching practices (Bandura, 1986), novice teachers in PETE programs learn through observing and modeling mentor teachers in various fieldwork placements and student teaching. Novice teachers also observe and model university teachers who they have for classes throughout their coursework. Mentor teachers and university supervisors who were once teacher candidates themselves also learned by observation and modeling in their teacher preparation programs. They used textbooks in their elementary and secondary methods classes and APE classes that may or may not have addressed safe teaching directly. Most teachers teach the way they were taught and learn through experience what practices to modify. Programs vary on how safe teaching practices are addressed according to the experience of the teacher instructing the class. If mentor teachers and university supervisors were taught safe teaching indirectly and briefly in their teacher preparation programs, they may not be modeling the practices to novice teachers to the extent they should be. Novice teachers do not necessarily have the experience to identify that teaching behaviors that could be considered best practices and could just model what is observed. Behaviors learned from supervising practitioners and college supervisors may extend into the teaching environment (Rikard & Veal, 1996). We used the social cognitive theory by Bandura (1986) as the theoretical framework in this study.

A related area to accountability and responsibility that has progressively gained attention in assisting to decrease litigation and lessen the likelihood of negligence is risk management (Appenzeller, 2012). According to Carpenter (2008), risk management "is an integrated strategy for both conducting safe programs and reducing the potential for loss arising from successful legal claims against the program, its individual employees, and administrators" (p. 71). Essential steps in effective risk management include identifying, evaluating, and managing risks (Carpenter, 2008). According to Appenzeller

(2012), risk management is an integral part of a successful program. Risk management techniques should be implemented into effective teaching practices and PE programs (Carpenter, 2008). To reduce the possible occurrence of negligence and educational malpractice, novice teachers should be given the opportunity to acquire and practice the skills of effective and responsible teaching and risk management.

Previous researchers have focused on attitudes (Block & Rizzo, 1995), attitudes and perceived competence (Hodge, Davis, Woodard, & Sherrill, 2002), inclusion (Place & Hodge, 2001), and teaching practices in APE (Everhart et al., 2013). Few if any researchers have conducted reviews pertaining to effectiveness of content contained in APE textbooks used in classes. The purpose of this study was to examine how risk management is addressed in APE textbooks using a validated Risk Management Inventory as a guide.

Method

We used a mixed methods design to examine how risk management is addressed in APE textbooks using a validated Risk Management Inventory as a guide. Nine APE textbooks were chosen for analyses. Content analyses described in the Data Analyses section were performed using the Risk Management Inventory to assess content pertaining to risk management and safe teaching in APE textbooks. Quantitative analyses were performed by converting tallies of content under each category of the Risk Management Inventory for each textbook into percentages.

Procedures

The Risk Management Inventory was developed by Murphy (2015) and is a content validated instrument that assesses risk management in the areas of equipment and facilities, supervision, instruction, emergency and medical procedures, and administrative behaviors (Murphy, 2015). The Risk Management Inventory was specifically developed for use in public school PE programs (Murphy, 2015).

The category of Equipment and Facilities addresses issues pertaining to safe use and maintenance of equipment and facilities (Dougherty, 2010; Hossler, 2010). An example of an element contained under Equipment and Facilities reads, "Equipment is regu-

larly inspected prior to use." The category of Supervision addresses issues pertaining to physical presence as well as visual contact of all students (Dougherty, 2010). An example of an element contained under Supervision reads, "Teachers are positioned so they are able to observe the entire class." The category of Instruction addresses issues pertaining to elements involved in effective instruction before, during, and after a teaching episode (Dougherty, 2010). An example of an element contained under Instruction reads, "Alternative rainy day lesson plans are prepared in advance for activities." The category of Emergency and Medical Procedures addresses issues pertaining to responding to and preparing for possible injuries and emergencies (Dougherty, 2010; Hossler, 2010). An example of an element contained under Emergency and Medical Procedures reads, "A first aid kit is readily available with adequate supplies." The category of Administrative Behaviors addresses issues pertaining to behaviors of school administrators regarding the well-being of faculty, staff, and students (Dougherty, Goldberger, & Carpenter, 2007). An example of an element contained under Administrative Behaviors reads, "Guidelines for emergency action plans are posted and communicated regarding the expected conduct of students, staff, and teachers."

Each category in the Risk Management Inventory contains a series of statements pertaining to teaching behaviors and practices (Murphy, 2015). The physical educator using the Risk Management Inventory reads the statements under each category and places a check mark next to the statements that he or she performs or adheres to (Murphy, 2015). The statements that are not checked need to be examined closely for potential safety issues (Murphy, 2015).

Each category also contains a comment section at the end for the physical educator to add notes or comments pertaining to issues that may not be included in the Risk Management Inventory and/or may need further examination (Murphy, 2015). For example, a statement under the Equipment and Facilities category reads, "Equipment is used according to the manufacturer's specifications and intended purpose." In addition to the manufacturer's specifications, many physical educators use equipment for additional purposes. From a risk management perspective, the issue is whether the alternative use is appropriate and safe (Murphy, 2015). For example, a Frisbee can be used for its intended purpose or as a racquet to learn striking. In

this example, the physical educator would not check the box and would write a note in the comment section to determine if the alternative use is suitable and does not pose a risk to students (Murphy, 2015).

A signature line is included at the end of the Risk Management Inventory for physical educators to track when the Risk Management Inventory was completed and who completed it (Murphy, 2015). In addition, the Risk Management Inventory can be completed as a whole or modified to complete each category separately (Murphy, 2015; see Appendix).

The lead author who served as the principal researcher of the project participated in data collection along with two graduate students (G1 and G2). Both graduate students were enrolled in a masters of Kinesiology and Rehabilitation Science with a specialization in APE. The graduate students were also working with the lead author on individual theses related to risk management in APE.

For this study, we operationally defined risk management as procedures to identify and prevent possibilities of risk. We used the Risk Management Inventory as a guide in data analyses to review APE textbooks to determine to what extent the content in textbooks aligned with the content in the Risk Management Inventory. Prior to selecting APE textbooks to analyze, we examined definitions of PE and APE to determine operational definitions to be used in the study.

Adapted Physical Education Textbooks

Public Law 108-446 specifically defines PE as development of "physical and motor fitness; fundamental motor skills and patterns; and skills in aquatics, dance, individual and group games and sports (including intramural and lifetime sports)" (Assistance to States for the Education of Children With Disabilities, 2006).

Auxter et al. (2010) defined APE as

> the art and science of developing, implementing, and monitoring a carefully designed physical education instructional program for a learner with a disability, based on a comprehensive assessment, to give the learner the skills necessary for a lifetime of rich leisure, recreation, and sport experiences to enhance physical fitness and wellness. (p. 8)

Merriam-Webster defines a textbook as "one containing a presentation of the principles of a subject" (p. 1293). We operationally defined the term *textbook* as that which contains content pertaining to a specific subject area. For the purposes of this study, we operationally defined an APE textbook as containing comprehensive and specific content related to teaching physical activities and lifetime activities to students with disabilities. Inclusion criteria for APE textbooks included (a) textbooks only in print within the last 10 years and (b) textbooks focused on pedagogical content with a teaching emphasis toward teaching students with disabilities, ages 3–21, in a K–12 setting.

Once we developed and agreed upon operational definitions and inclusion criteria, we performed searches to identify textbooks that complied with all criteria. Initially, we performed searches on the following publishing company websites to identify APE textbooks: Brown, Human Kinetics, Holcomb Hathaway, McGraw-Hill, Kendall-Hunt, Pearson Benjamin Cummings, and Prentice Hall. We delimited publishing companies to major publishing websites that are the most common for PE textbooks. To be as exhaustive in the search as possible, we examined common websites that sell used books. We did this to see if there were any additional books that were not listed on the publisher websites. Searches were performed on Amazon.com, Ebay.com, Google.com, Half.com, and Pecentral.com. Key words searched on all websites included *adapted physical education textbooks.* After we performed all searches, we compared the lists and identified textbooks to be used in the study. We identified nine APE textbooks to be analyzed for this study (see Table 1).

Table 1
Adapted Physical Education Textbooks Chosen for Analyses

Authors	Texbooks
Auxter, Pyfer, Zittel, & Roth (2010)	*Principles and Methods of Adapted Physical Education and Recreation* (11th ed.)
Block (2007)	*A Teacher's Guide to Including Students With Disabilities in General Physical Education* (3rd ed.)
Dunn & Leitschuh (2006)	*Special Physical Education* (8th ed.)

Table 1 (cont.)

Authors	Texbooks
Hodge, Leiberman, & Murata (2012)	*Essentials of Teaching Adapted Physical Education: Diversity, Culture, and Inclusion*
Horvat, Kalakian, Croce, & Dahlstrom (2010)	*Developmental/Adapted Physical Education: Making Ability Count* (5th ed.)
Lieberman & Houston-Wilson (2002)	*Strategies for Inclusion: A Handbook for Physical Educators*
Seaman, DePauw, Morton, & Omoto (2007)	*Making Connections From Theory to Practice in Adapted Physical Education* (2nd ed.)
Sherrill (2004)	*Adapted Physical Activity, Recreation, and Sport: Crossdisciplinary and Lifespan* (6th ed.)
Winnick (2011)	*Adapted Physical Education and Sport* (5th ed.)

Data Analyses

To ensure that all APE textbooks were analyzed thoroughly and similarly, we discussed and agreed upon the procedures to follow, prior to data collection. First, we reviewed the Risk Management Inventory, became familiar with the elements contained under each category, and reviewed the Risk Management Inventory with the lead author for clarification.

Second, we reviewed the table of contents in each textbook to identify chapters with titles or content related to the content in the Risk Management Inventory. For example, we reviewed chapters specifically related to risk management and chapters including elements pertaining to the five categories of equipment and facilities, supervision, instruction, emergency and medical procedures, and administrative behaviors.

Third, we then reviewed chapters using the Risk Management Inventory as a guide. We identified key words related to the element under the category. For example, an element under Instruction reads, "Adaptations and modifications of instructional activities are made when necessary to meet the needs of all students." In this example, we searched for content related to specific examples of alternative

activities and modifications to activities taught that would be used to ensure success of students with disabilities. We placed a tally mark under the element to indicate that content of the element was present in the chapter. In addition, we recorded notes and page numbers under the specific element on the Risk Management Inventory.

Fourth, to be as exhaustive as possible, we then thoroughly examined the index at the back of each book to identify key words related to elements contained under each category. For example, an element under Instructions reads, "Knowledge, understanding, and appreciation of dangers is communicated clearly and learned by students prior to participation in activities." In this example, we examined the index and read for key words, such as *negligence, liability, risks, risk management, safety,* and *contraindicated activities.*

We were assigned one APE textbook at a time and were given a specific amount of time to analyze content in the APE textbook using the Risk Management Inventory. Once analyses were completed, we met to discuss areas that we felt needed clarification in a particular APE textbook. We continued discussion on the issue in question until an agreement was met.

Interobserver agreement (IOA). After we decided upon all procedures, and prior to beginning data collection, we established interobserver agreement (IOA) using the IOA formula (Thomas, Nelson, & Silverman, 2015). We did this to ensure that all of us were including the same material in each category of the Risk Management Inventory. The formula estimates reliability by dividing "the number of agreements in behavior coding by the sum of the agreements and disagreements" (Thomas et al., 2015, p. 213).

We chose a chapter entitled "Making Inclusive Physical Education Safe" written by Block and Horton (2007) contained in Block (2007) to use to calculate IOA. We chose this specific chapter because it was the only APE textbook out of the nine selected for analyses that contained a specific chapter pertaining to safety. We reviewed the chapter using the procedures agreed upon and outlined above.

We were given a specific amount of time to review the chapter and met and reviewed each element under each category to determine the number of agreements and disagreements among us for all elements in the Risk Management Inventory. The IOA between us was as follows: US and G1 $r = 93.55\%$; US and G2 $r = 91.94\%$; G1 and G2 $r = 90.32\%$. We reached a high agreement.

Results

The purpose of this study was to examine how risk management is addressed in APE textbooks using a validated Risk Management Inventory as a guide. We used the procedures outlined in the Data Analyses section to analyze each APE textbook. We chose nine APE textbooks for analyses.

The five categories of the Risk Management Inventory include Equipment and Facilities, Supervision, Instruction, Emergency and Medical Procedures, and Administrative Behaviors. The number of elements in each category varies and includes Equipment and Facilities, 17 elements; Supervision, 12 elements; Instruction, 13 elements; Emergency and Medical Procedures, six elements; and Administrative Behaviors, 14 elements. The number of elements in the Risk Management Inventory is 62.

We calculated percentages by dividing the total number of tallies in each category by the total number of elements in the Risk Management Inventory. Total tallies were the number of times the content contained in that particular element was referenced in the textbook. Each time content in an element was referenced, we placed a tally mark under the element. For each APE textbook, we totaled tallies for each category. Percentages of content included in each category of the Risk Management Inventory and covered by each APE textbook ranged from 11.29% to 35.48% (see Table 2). Results are organized according to the categories of the Risk Management Inventory.

Table 2
Percentages of Risk Management Inventory Content Included in Textbooks

Textbook authors	%
Auxter, Pyfer, Zittel, & Roth (2010)	11.29
Block (2007)	35.48
Dunn & Leitschuh (2006)	22.58
Hodge, Lieberman, & Murata (2012)	17.74
Horvat, Kalakian, Croce, & Dahlstrom (2010)	32.26
Lieberman & Houston-Wilson (2002)	27.42
Seaman, DePauw, Morton, & Omoto (2007)	19.35

Table 2 (cont.)

Textbook authors	%
Sherrill (2004)	17.74
Winnick (2011)	29.03

Instruction

Content in the category of Instruction was included in all nine APE textbooks, specifically, Auxter et al. (2010), 38.46%; Block (2007), 38.46%; Dunn and Leitschuh (2006), 76.92%; Hodge, Lieberman, and Murata (2012), 69.23%; Horvat, Kalakian, Croce, and Dahlstrom (2010), 92.31%; Lieberman and Houston-Wilson (2002), 69.23%; Seaman, DePauw, Morton, and Omoto (2007), 38.46%; Sherrill (2004), 61.54%; and Winnick (2011), 69.23%. Elements pertaining to this category contained in textbooks included updated lesson plans, curriculum guidelines, adaptations and modifications, demonstrations, safety rules, lesson objectives, skill progressions, and instructional feedback.

Preplanning was viewed as an important avenue to ensure safe lessons and also updated lessons. Block (2007) wrote, "Many unsafe practices can be avoided with careful planning that allows for the foreseeability of accidents (Gray, 1995; Gross, 1990; Pangrazi, 2007)" (p. 201). In reference to updated lesson plans, Hodge et al. (2012) wrote, ". . . Your lesson plans should also encompass the wide array of skills you might see at a specific grade level, as not all students of the same age perform the same way" (p. 80). Keeping updated lesson plans that encompass this type of information is critical for effective teaching.

Curriculum guidelines overlapped with adaptations and modifications and safety. For example, Block (2007) wrote in reference to adaptations and modifications and curriculum guidelines,

> Actually all students should be presented with physical activities that are individualized to meet their unique needs. In some cases these needs can be met by following the general curriculum with simple modifications, in other cases an alternative curriculum will need to be followed. (p. 201)

Auxter et al. (2010) reiterated by writing, "Modification of teaching approach should occur when there is no demonstrated progress toward the short-term objectives" (p. 171). Sherrill (2004) repeated by writing, "A warm positive learning climate is also enhanced by teacher flexibility in assessing and implementing adaptations that might help individual students be more successful" (p. 195).

In addition to curriculum guidelines, Block (2007) addressed safety by writing, "Therefore it is important to determine if the content you present is appropriate for the student's abilities and, if not appropriate, determine what adjustments (or alternatives) will be needed to ensure safe participation in physical education" (p. 201).

In reference to instructional feedback and lesson objectives, Sherrill (2004) wrote that teaching behaviors should include "demonstrating and explaining activities related to instructional strategies; conducting closure activities related to objectives" (p. 197) and "specific feedback (related to the task) is preferred over general feedback like global phrases, 'Good!' or 'Great.'" (p. 197).

Dunn and Leitschuh (2006) referred to the importance of proper skill progressions by writing, "Failure to prepare the student with proper lead-up skills prior to performance of a complex skill is evidence of negligence" (p. 142). In this example, they also referred to the importance of planning for lessons in advance to ensure safety.

Emergency and Medical Procedures

Seven textbooks included content covered in the category of Emergency and Medical Procedures. Specifically, Block (2007) included 66.67%; Dunn and Leitschuh (2006), Horvat et al. (2010), Lieberman and Houston-Wilson (2002), Sherrill (2004), and Winnick (2011) all included 16.67%; and Seaman et al. (2007) covered 33.33%. Elements pertaining to this category contained in textbooks included incident reports, first aid kits, existing medical conditions of students, and emergency action plans.

In adapted PE, it is imperative for physical educators to be aware of existing medical conditions to be able to plan properly and write appropriate lessons and objectives. It is viewed as critical in terms of planning developmentally appropriate activities and avoiding teaching contraindicated activities. Dunn and Leitschuh (2006) wrote,

> . . . The physical education teacher must consider the medical problems that are related to specific types of disabilities. Weakened muscles must not be strained by overwork; the muscles of the set antagonistic to the weaker ones must be protected from overdevelopment, which would produce muscular imbalance… (p. 274)

Emergency action plans are critical to have and practice, especially when dealing with students with disabilities. Block (2007) explained, "You will need to establish special emergency plans for some children with health problems or disabilities such as a plan for removing children who are in wheelchairs from the gymnasium in the event of a fire or other emergency" (p. 202).

Block (2007) further explained that teachers should then notify school administration and complete appropriate accident reports if a student is injured. In a case scenario at the beginning of the chapter, Block (2007) included having a first aid kit with adequate supplies; he was the only author to do this.

Equipment and Facilities

Six textbooks covered the content included in the category of Equipment and Facilities, specifically, Block (2007), 35.29%; Dunn and Leitschuch (2006), 17.65%; Lieberman & Houston-Wilson (2002), 23.53%; Seaman et al. (2007), 29.41%; Sherrill (2004), 11.76%; and Winnick (2011), 29.41%. Elements pertaining to this category contained in textbooks included inspection of and warnings for equipment and facilities, use of equipment, developmentally appropriate equipment, inventories of equipment and facilities, and activities conducted away from hazardous areas.

Inspection of equipment and facilities is critical. Seaman et al. (2007) wrote, "The physical educator should establish a regular schedule of checking and identifying equipment and apparatus that need care, maintenance or repairs" (p. 316).

Lieberman and Houston-Wilson (2002) wrote, "It is important to remember that equipment should be age-appropriate" (p. 58). Winnick (2011) agreed by writing, "Appropriate equipment and supplies are even more important for classes serving people with disabilities than for the general population" (p. 489).

In reference to conducting activities away from hazardous areas, Block (2007) wrote, "The teaching environment should have boundaries that separate activity and hazardous areas" (p. 196). Lieberman and Houston-Wilson (2002) presented rubrics for adaptations and modifications that included a list of equipment.

Supervision

Six textbooks covered the content in the category of Supervision, specifically, Auxter et al. (2010), 16.67%; Block (2007), 33.33%; Hodge et al. (2012), 8.33%; Horvat et al. (2010), 58.33%; Lieberman and Houston-Wilson (2002), 16.67%; and Winnick (2011), 16.67%. Elements pertaining to this category contained in textbooks included supervision of students, off-task behavior, safety rules, and medical notes.

In terms of off-task behavior and safety rules, Auxter et al. (2010) wrote that teachers must be able to establish rules and effective discipline to manage off-task behaviors. They stated that teachers should be "consistent, establish clear and concise rules and expectations, and have clear and concise consequences tied to the behavior" (Auxter et al., 2010, p. 26).

It is important for teachers to be physically present and supervise students at all times. Horvat et al. (2011) wrote, "Stand at doorway, and monitor general activity inside and outside as they first enter the room or the activity area" (p. 46). Block (2007) further explained the importance of being able to observe the entire class at all times by writing, "Observing the entire class involves establishing a position such as the 'back to wall' technique and scanning , which allows you to see all students at all times (Graham, Holt-Hale, & Parker, 2003)" (p. 200).

To be able to maintain a safe environment, teachers need to be aware of medical conditions of all students regardless of ability. Block (2007) wrote, "Having students' medical and health information is imperative" (p. 196). He further explained, "A physical educator who is not aware of these and other conditions could put a child into dangerous situations" (Block, 2007, p. 196).

Administrative Behaviors

Content covered in the category of Administrative Behaviors was included in four textbooks. Specifically, Block (2007) includ-

ed 21.43%; Hodge et al. (2012), Lieberman and Houston-Wilson (2002), and Winnick (2011) all included 7.14%. Elements pertaining to this category contained in textbooks included licensure of teachers and communication and posting of guidelines for emergency action plans as well as emergency exit procedures.

In terms of licensure, Hodge et al. (2012) discussed the highly qualified teacher as one who has appropriate licensure in the field. It is an administrative responsibility to ensure that teachers who are hired hold current licensure.

It is important to not only post guidelines for emergency action plans and emergency exit procedures, but also to communicate the procedures to staff, faculty, and students. Block (2007) wrote, "Make sure you have an emergency plan in place and that all staff are familiar with and have practiced this plan in the unlikely event of an injury (Clements, 2000; Halsey, 2005)" (p. 202). Administrative behaviors are not covered as much in textbooks because the target audience is current and future educators.

Discussion

The purpose of this study was to examine how risk management was addressed in APE textbooks using a validated Risk Management Inventory as a guide. Nine APE textbooks were chosen for analyses. Discussion has been organized according to the categories of the Risk Management Inventory.

Instruction

The category of Instruction was included in all APE textbooks, with high percentages of elements contained in the Risk Management Inventory included in all APE textbooks. Program analysis involves looking at three factors: preparedness of students for activities, preparedness of the instructor, and preparedness of the environment (Dougherty, 2010). Preparedness of students for activities involves whether students have prerequisite skills to engage in activities, whether they are aware of all safety concerns involved in participating, whether they understand the inherent risks involved, and how well teachers have communicated this information to them (Mitchell & Feigley, 2010). These elements should be included as part of effective instruction.

In terms of preparedness of the instructor, pedagogical content knowledge is examined, which is defined as overall knowledge of content, including how to properly teach and overall general knowledge of students (Buck et al., 2007). When an injury occurs, courts typically examine whether the activity was developmentally appropriate in addition to whether students were instructed properly (Dougherty, 2010). According to Dougherty (2010), the majority of activities are not inherently unsafe, but rather the instruction received needs to be examined. Mitchell and Feigley (2010) agree, stating that most injuries are a result of a combination of social, environmental, and behavioral factors that has not been structured or monitored properly.

Risk management is the most effective way to recognize where injuries could occur and involves implementing a series of steps to minimize the chances of injuries (Carpenter, 2008; Dougherty, 2010; Eichhoff-Shemek, Herbert, & Connaughton, 2009). Steps can be taken to minimize and help prevent injuries from occurring (Carpenter, 2008). Dougherty (2010) outlined guidelines for properly selecting and instructing activities that included selecting developmentally appropriate activities, performing pre- and postassessments, preparing lesson plans according to curriculum guidelines, preparing alternative lessons, preparing modifications and adaptations for activities, aligning activities to objectives, adhering to medical excuses, using safety gear, allowing students to perform to their ability level, reviewing safety protocols, providing feedback, tailoring the activity to the level of the student, and avoiding mismatching students while grouping students. The extent to which teacher candidates enrolled in PETE receive training in these areas varies tremendously. This may depend on the interest and background of program faculty teaching the courses. Preparing PETE teacher candidates more in depth in these elements of instruction would contribute to a decrease in accidental injuries (Dougherty, 2010; Mitchell & Feigley, 2010).

Equipment and Facilities

Elements contained under the category of Equipment and Facilities in the Risk Management Inventory were included in a majority of APE textbooks. In terms of preparedness of the environment, the focus was on maintaining safe facilities and use of safe equipment (Dougherty, 2010). Dougherty (2010) outlined guide-

lines for minimizing injuries pertaining to equipment and facilities including inspecting equipment and facilities daily, teaching PETE students to inspect equipment, discontinuing use of broken equipment, marking off and communicating hazardous areas, ensuring equipment and facilities meet recommended specifications, checking surfaces on which activities are conducted, and using safety equipment. PETE program faculty should be reviewing and teaching PETE teacher candidates to be cognizant of issues pertaining to malfunctioning equipment and facilities. Equipment should not be used if broken, and facilities should be marked off as out of bounds and clearly communicated to students to not use. A teaching strategy that we suggest to learn the skills of identification in these areas is for PETE faculty to take PETE teacher candidates into equipment rooms and facilities and ask them to identify possible risks and to name the risk management techniques that could be used to address the risks.

Supervision

Elements contained under the category of Supervision in the Risk Management Inventory were included in a majority of APE textbooks. Dougherty (2010) outlined guidelines for minimizing injuries pertaining to supervision including understanding content thoroughly, preplanning lessons, establishing safety rules, not leaving class unattended, maintaining vision of all students at all times, locking and securing equipment and facilities when not in use, maintaining current first aid and CPR certification, establishing emergency protocols, and maintaining control of class. Inadequate supervision is a common claim of negligence. Supervision is closely tied to standard of care (Carpenter, 2008). When a special relationship is formed, which in school is the teacher–student relationship, a higher duty is owed (Carpenter, 2008). According to Carpenter (2008), "The standard of care sets a minimum level at which a legal obligation may be met" (p. 51). The obligation varies according to certain variables; age, maturity, and skill level are among the variables considered (Carpenter, 2008). When students are younger, less mature, and less skilled, supervision should increase (Carpenter, 2008). The type of supervision (general, specific, transitional) changes throughout the teaching episode (Carpenter, 2008). PETE teacher candidates

should be taught to ensure that adequate supervision is maintained at all times and coverage should be sought when the teacher needs to leave the classroom.

Emergency and Medical Procedures

Elements contained under the category of Emergency and Medical Procedures in the Risk Management Inventory were included in a majority of APE textbooks. Given that risks are inherent in activities and accidents and that injuries occur in PE (Carpenter, 2008; Dougherty, 2010), it is expected that emergency and medical procedures would be covered in PETE programs. Hart and Ritson (2002) outlined guidelines for emergency and medical procedures including having familiarity with common injuries, avoiding diagnosing any injuries, establishing first aid procedures for head injuries, maintaining an adequately equipped first aid kit, maintaining files accident records and medical notes, seeking medical attention when needed, avoiding delegating first aid to students, requiring doctor's notes for readmission to activities, maintaining emergency contact cards, maintaining medical treatment authorization cards, and maintaining policies for blood-borne pathogens and body fluids. Many of the elements contained in this category overlap with elements in the Administrative Behaviors category. Emergency and medical procedures should be developed and practiced. Program faculty in PETE programs should be teaching PETE teacher candidates how to develop effective strategies if programs in which they are teaching do not have any. Administrators should communicate protocols developed to faculty, staff, and students.

Administrative Behaviors

Elements contained under the category of Administrative Behaviors were covered the least amount in APE textbooks, and we expected this. PETE programs may not cover expected functions of administrators. This would again be determined by the background of the instructor. If the instructor of the course has an administrative background, he or she may be more likely to review issues pertaining to roles of administrators in public schools. The most common interaction teachers have with administrators involves evaluating job performance. Many states have adopted required evaluation systems

of teachers. PETE programs are beginning to introduce evaluation processes into programs to educate PETE teacher candidates on what to expect prior to employment.

PETE teacher candidates tend to model behaviors they observed in their classes as well as in their field experience or student teaching experience (Bandura, 1986). If they observe the outcome of the behaviors to be positive, they will be more likely to model them (Bandura, 1986). Information not contained in textbooks should be supplemented for PETE teacher candidates to learn how to be thorough.

Conclusion

The extent to which issues pertaining to safety and risk management are covered in PETE programs has a direct effect on how teachers address the issues when they are teaching in schools. It is important to examine safety in depth, beyond instruction-related safety issues. Program faculty in PETE programs should be cognizant of and supplement elements related to negligence that are not covered in APE textbooks. The number of students with disabilities participating in general PE is increasing because of mandates in federal legislation. As a result, concerns of safety regarding students with disabilities participating are heightened (Block, 2007). It is important for practitioners to keep current of safety issues and to expand and grow knowledge in negligence and risk management to ensure safe environments for students.

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Appendix

Risk Management Inventory[1]

Instructions:

- Place a check mark in the boxes next to items that either are performed by you or are in place.
- Write *N/A* next to the boxes of items that are not applicable.
- Use the comment section at the end of each category to write notes or add items that are not included in the category and need to be addressed.
- Sign, print name, and date the form.

Equipment and Facilities

- ☐ Warnings are placed for hazardous areas in gymnasium, around outside teaching areas, and school-owned property
- ☐ Activities are conducted away from hazardous areas in both gymnasium and outside teaching areas
- ☐ Equipment is developmentally appropriate for activity
- ☐ Equipment is developmentally appropriate for age level
- ☐ Equipment does meet safety standards
- ☐ Outside teaching areas are checked prior to use
- ☐ Equipment does work according to manufacturer's guidelines
- ☐ Equipment is used according to manufacturer's specifications and intended purpose
- ☐ Equipment is stored properly and maintained within manufacturer's specifications
- ☐ Equipment is regularly inspected prior to use
- ☐ Written notification is sent to administrator(s) of known dangers
- ☐ Equipment use is discontinued after notification to administrators of dangers
- ☐ Facility use is discontinued after notification to administrators of dangers
- ☐ Written inventory of conditions of equipment is maintained
- ☐ Written inventory of conditions of outside teaching areas is maintained
- ☐ Equipment used does fit students properly
- ☐ Equipment used is in good condition

Comments: _____

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[1]From "Assessing Risk Management: How Effective Is Your Program?" by K. L. Murphy, 2015, *Journal of Physical Education, Recreation and Dance, 86*.

Supervision

- ☐ Appropriate number of licensed teachers are assigned to the class (student–teacher ratio)
- ☐ Teacher(s) are physically present in the classroom during the entire lesson
- ☐ Coverage is sought by another teacher if teacher(s) leaves the classroom
- ☐ Instructions are given to students by teacher(s) if teacher(s) leaves the room
- ☐ Teacher(s) are positioned so they are able to observe entire class
- ☐ Teacher(s) are able to see and manage off-task behavior
- ☐ Teacher(s) are able to see and manage discipline problems
- ☐ Supervision is provided in locker rooms
- ☐ Supervision is provided to and from outside teaching areas
- ☐ Supervision plan is written in advance for coverage of all activities and areas
- ☐ Teachers do adhere to medical notes written by doctors or parents
- ☐ Safety practices are implemented, reviewed, and reinforced by teacher(s) throughout the lesson/unit

Comments: _____

_____

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_____

Instruction

- ☐ Updated lesson plans/unit plans are prepared with objectives appropriate for age and ability level
- ☐ Alternative rainy day lesson plans are prepared in advance of activities
- ☐ Adaptations or modifications of instructional activities are made when necessary, to meet the needs of all students
- ☐ Demonstrations are clear and appropriate, given for each activity, and are able to be viewed by all students
- ☐ Instructions, warnings, and safety rules are clear and given to students prior to participation in activities
- ☐ Knowledge, understanding, and appreciation of dangers and risks is communicated clearly and learned by students prior to activities
- ☐ Objectives of lesson and activities are clearly identified to students

- ☐ Activity is instructed in a manner which is appropriate for age level
- ☐ Curriculum guidelines are followed by teacher(s)
- ☐ Proper skill progressions are taught by teacher(s)
- ☐ Instructional feedback given to students is clear and accurate
- ☐ Understanding and comprehension of students is checked by teacher(s) throughout the lesson
- ☐ Sufficient time is given for activities and transitions

Comments: _____

_____

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_____

Emergency and Medical Procedures

- ☐ Emergency action plans for all types of emergencies that could occur (injuries in the class, intruders on campus, environmental emergencies, etc.) are posted and visible for everyone to see
- ☐ Emergency exit procedures are posted for all facilities and visible for everyone to see
- ☐ First aid kit is readily available with adequate supplies
- ☐ Incident reports are completed by the end of the day and turned in to an administrator, when appropriate
- ☐ Allergies and existing medical conditions of students are known by teacher(s)
- ☐ Means of communication is available (cellular phones, 2-way radios) for activities in and away from gymnasium

Comments: _____

_____

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Administrative Behaviors

- ☐ Repair records are kept of equipment and outside teaching areas
- ☐ Maintenance records are kept of equipment and outside teaching areas
- ☐ Teachers are licensed in the field
- ☐ Arrangements are made for licensed teacher(s) to instruct class during teacher(s) absence

- ☐ School policies and procedures are written down and communicated to students, staff, and teachers
- ☐ Guidelines for emergency action plans are posted and communicated regarding expected conduct of students, staff, and teachers
- ☐ Guidelines for emergency exit procedures are posted and communicated regarding expected conduct of students, staff, and teachers
- ☐ Emergency action plans for all types of emergencies that could occur (injuries in class, intruders on campus, environmental emergencies, etc.) are kept
- ☐ Emergency action plans are practiced on a regular basis
- ☐ Emergency exit procedures are practiced on a regular basis
- ☐ Registration for vehicles used for field trips is current
- ☐ Maintenance for vehicles used for field trips is performed on a regular basis
- ☐ Maintenance records are kept for vehicles used for field trips
- ☐ Persons with appropriate licensure are hired to drive the vehicles for field trips

Comments: _____

_____

_____

_____

_____

Signature of Person Completing Inventory

_____

Printed Name

_____

Date

Instructions for Authors

The Physical Educator

Author manuscripts must be submitted online (http://js.sagamorepub.com/pe/information/authors) and meet the following guidelines:

Manuscripts must be double spaced in Times New Roman 12-point font in a Microsoft Office Word document. Number the lines of the manuscript, including the references. Manuscripts should be 25 pages or fewer in length, including charts, graphs, graphics, pictures, and tables. Please follow APA 6th edition style guidelines consistently throughout the manuscript.

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.

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