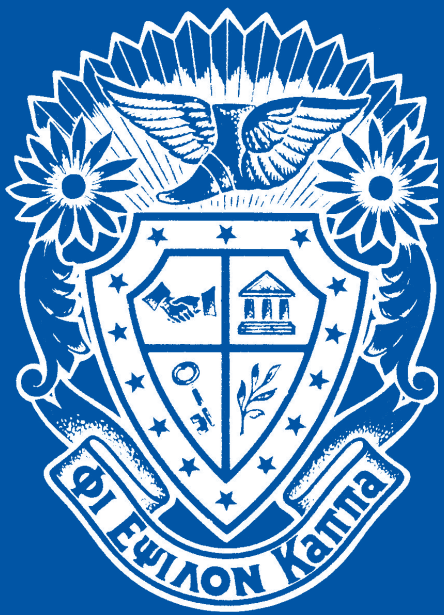
The Physical Educator

Volume 77 Spring 2020 Number 2



A PUBLICATION OF

Phi Epsilon Kappa Fraternity

THE PHYSICAL EDUCATOR
Spring 2020
Volume 77, Number 2

The Physical Educator

(ISSN print: 0031-8981; online: 2160-1682)
(USPS 431-220)

of Phi Epsilon Kappa

THE OFFICIAL PUBLICATION OF
PHI EPSILON KAPPA FRATERNITY

Phi Epsilon Kappa

CONTENTS

Kinesiology Students' Experiences in a Service-Learning Project for Children With Disabilities
José A. Santiago, Minhyun Kim, Erica Pasquini, Emily A. Roper 183

The Effect of Prompting and Group Contingency on Middle School Students' Physical Activity During a Badminton Sport Education Season
Zachary Wahl-Alexander, Annie Malecki, Steven Smart 208

Physical Activity Contributions of Dancing Classrooms Program on Middle School Students
Colin G. Pennington and Larry P. Nelson 230

Project Fit America's Effect on Youth Fitness Levels
Joe Deutsch, Sean Mahoney, Roman Waldera, Michelle Martinez, Ethan Schnabel 257

Utilizing Documentary Film as a Pedagogical Methodology: Exploring the Student Experience Through Writing to Learn After Viewing *The Rebound: A Wheelchair Basketball Story*
Cathy McKay, Justin Haegele, Jenna McMahon 271

Cooperative Learning in Physical Education and Its Effects on Student Reading Comprehension Scores
Stephen Tiberi, Ismael Flores Marti, Michael K. Laughlin 294

The Veteran and the Novice: Investigating Teacher–Coach Role Conflict From Two Perspectives
Christopher Mellor, Karen Gaudreault, Colleen Fadale 313

The Effect of a Goal-Setting Program in Physical Education on Cognitive and Affective Outcomes of the Lesson
Chrysa Gerani, Argiris Theodosiou, Vassilis Barkoukis, Vassilis Papacharisis, Haralambos Tsorbatzoudis, Apostolia Gioupsani 332

Physical Education Cooperating Teachers' Perceptions of Preparedness for the Student Teaching Experience
Hillary M. Franks and Jennifer M. Krause 357

The Role of Perceived Competence in Determining Teacher Support in Upper Secondary School Physical Education
Aron Laxdal, Erlingur Johannsson, Rune Giske 384

Japanese Elementary Classroom Teacher's Experiences of Teaching Gymnastics in Physical Education
Sadaomi Iwaki, Takahiro Sato, Emi Tsuda, James Wyant 404

Motivational Climate in Physical Education Classes: Is It Really Determined by the Instructional Model?
Sima Zach, Rona Cohen, Michal Arnon 426

Teenagers Suffer Traumatic Orifice Injuries While Using Personal Watercraft
Nathan T. Martin 447

Instructions for Authors 454

THE PHYSICAL EDUCATOR (Print ISSN: 0031-8981, Ejournal ISSN: 2160-1682) is published five times a year in the spring, summer, fall, early winter, and late winter by Sagamore Publishing, 1807 N. Federal Drive, Urbana, IL 61801.

POSTMASTER: Send address changes to *The Physical Educator*, Sagamore Publishing, 1807 N. Federal Drive, Urbana, IL, 61801.

The Phi Epsilon Kappa web page is located at http://www.phiepsilonkappa.org

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Terre Haute, IN 47802

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Sagamore Publishing LLC
1807 N. Federal Drive
Urbana, IL 61801

The Physical Educator
(TPE) Volume #77
Print ISSN: 0031-8981 | Online ISSN: 2160-1682
Print and electronic archives | Five issues annually

	Online	Both
Ind.	$200.00	$240.00
Ind. (Int'l)	$200.00	$280.00
Inst.	$532.00	$598.00
Inst. (Int'l)	$532.00	$635.00

http://bit.ly/2Jn7fgk

Average number of copies printed per issue (net press run) during the preceding 12 months is 3010; number of copies nearest to filing date is 150. Average number of copies of each issue distributed in mass mailing to subscribers during the preceding 12 months is 1337; number of copies nearest to filing date is 137. Average number of copies of each issue distributed free during the preceding 12 months is 29; number of copies nearest to filing date is 4.

Send address correspondence concerning subscriptions and change of address to Membership/ Subscription Department, *The Physical Educator*, Sagamore-Venture, 1807 N. Federal Drive, Urbana, IL 61801. Make check or money order payable to Sagamore Publishing, order online at www.sagamorepublishing.com, or call 800-327-5557.

The Physical Educator Vol. 77 • pp. 183–207 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9829

ADAPTED PHYSICAL EDUCATION

Kinesiology Students' Experiences in a Service-Learning Project for Children With Disabilities

José A. Santiago, Minhyun Kim, Erica Pasquini, Emily A. Roper

Abstract

Service-learning (SL) has become a popular teaching strategy to work with individuals with disabilities in adapted physical education/physical activity (APE/APA) courses. Despite the increasing popularity of the use of SL in APE/APA courses, little is known about kinesiology students' experiences in these contexts. This study examined kinesiology students' experiences in an SL project for children with disabilities. Thirty-three undergraduate kinesiology students who were enrolled in an APE course participated in an SL project in which they provided children with disabilities with individualized and developmentally appropriate physical activity. Data were collected from a post-SL project reflection essay. Each reflection essay was evaluated via a directed approach to qualitative content analysis. Five main themes emerged from the data: (a) contact and prior experience, (b) personal growth and academic learning, (c) future career aspirations, (d) biased language, and (e) recommendations for APE SL. The results of this study provide several implications for the design and structure of SL projects in APE/APA courses.

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For four decades, higher education institutions throughout the United States have been employing service-learning (SL) pedagogy to connect discipline-specific theory to practice while addressing community needs (Richards, Eberline, Padaruth, & Templin, 2015). Definitions of SL vary considerably throughout the literature and other forms of experiential learning such as practica, internships, field-based experiences, and clinical experiences have been used interchangeably with the term *SL* (Lim & Bloomquist, 2015; Richards et al., 2015). Specifically, SL has been defined as a

> credit-bearing educational experience in which students (a) participate in an organized service activity that meets identified community needs and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility. (Bringle & Hatcher, 1995, p. 112)

Bringle and Hatcher (2011) identified four distinct features that differentiate SL from other forms of experiential learning. First, SL is an academic activity. As Carson and Raguse (2014) explained, "The service experience in service-learning is inextricably tied to an academic discipline rather than the development of career-specific skills" (p. 57). Second, the SL experience must be designed to benefit the students and the community. Bringle and Hatcher (2011) suggested that the SL experience should contribute to the educational objectives of both the course and community partners for the experience to be beneficial to both entities. Third, the SL experience must include structured reflection activities that link the community service activities to course objectives. Reflection provides a framework within which learners can address the uncertainties of a complex situation, make meaning of these varied experiences, and take informed actions in the future (Bringle & Hatcher, 1999; Hatcher & Bringle, 1997; Mitchell et al., 2015). Finally, the SL experience should result in civic knowledge, skills, and habits that prepare the learner for active participation in a democracy (Bringle & Hatcher, 2011).

There is substantial evidence enumerating the benefits of SL. Findings on student participation in SL experiences show enhanced levels of self-efficacy, personal identity, moral development,

leadership skills, and the ability to work well with others (Conway, Amel, & Gerwien, 2009; Eyler, Giles, Stenson, & Gray, 2001). SL has been found to have a positive effect in reducing stereotypes, enhancing inclusion, and facilitating cultural and racial understanding (Eyler et al., 2001; K. Lee & Kelley-Petersen, 2018; Parys, 2015). Students participating in SL have reported deeper understanding of course content and greater ability to apply the learned knowledge in the real world (Eyler et al., 2001; K. Lee & Kelley-Petersen, 2018; Parys, 2015; Wilkinson, Harvey, Bloom, Joober, & Grizenko, 2013). Moreover, there is evidence that participation in SL results in greater awareness of civic issues and stronger connection and commitment to the community (Eyler et al., 2001; S. Lee, Olszewski-Kubilius, Donahue, & Weimbolt, 2007).

Reflection in Service-Learning

A central feature that differentiates SL from other forms of experiential learning is the use of reflection. According to Kendall (1990), an effective SL experience "provides structural opportunities for people to reflect critically on their service experience" (p. 40). Barnes and Caprino (2016) defined reflection as the "hyphen in service-learning as it brings together the equally important aspects of service and academic understanding to lead to new learning" (p. 560). Through reflection activities, students bridge the gap between theory and practice. As Bringle and Hatcher (1999) stated, "Reflection activities direct students' attention to new interpretation of events and provide a means to which the community service can be studied and interpreted" (p. 180). Research suggests that the use of reflection during SL experiences contributes to a deeper understanding of social problems and higher gains in civic attitudes (Mabry, 1998), positive effect on moral development skills, and development of critical thinking and problem-solving skills (Eyler et al., 2001).

Service-Learning in Kinesiology

Many academic areas in higher education have employed SL methodology. However, the use of SL in kinesiology is relatively new and has steadily grown in popularity in the last 20 years (Carson & Raguse, 2014; Galvan, Meaney, & Gray, 2018). According to Carson and Raguse (2014), in almost every subdiscipline in kinesiology (e.g., athletic training, exercise science, physical education teacher

education, sport management), there has been growth in the use and study of SL. Within kinesiology, SL methodology in physical education teacher education (PETE) is most prevalent and continues to grow (Cervantes & Meaney, 2013; Galvan et al., 2018).

In PETE, the use of SL programs reveals benefits for PETE students and the communities they serve. In 2001, LaMaster (2001) examined an early field experience for PETE students combined with an SL project. PETE students revised a physical education curriculum and taught units of instruction at a local urban and diverse high school. The PETE students became more effective teachers after the SL project. In addition, student motivation, enthusiasm, and participation in physical education class were reported by the school-age children after the SL project. Galvan and Parker (2011) found that PETE students acquired content knowledge, established protocol techniques, and experienced an enhanced awareness of cultural competence after participating in an SL project for underserved youth at a nonprofit organization. In 2013, Cervantes and Meaney examined the PETE SL literature and concluded that participation in SL results in PETE students' enhanced cultural and diversity awareness, enhanced positive attitude toward teaching students with different abilities, and increased confidence in and the ability to implement a variety of instructional strategies. More recently, Galvan et al. (2018) examined the effect of integrating two physical education curricula within an SL program on school-age children and PETE students. The SL program consisted of PETE students implementing an after-school fitness program to elementary- and middle school–age children. Participation in the SL program enhanced PETE students' general pedagogical knowledge, knowledge of curriculum, and knowledge of learners and educational contexts. In addition, PETE students' use of the teaching models had a positive effect on the children's ability to set and achieve fitness goals.

In the last decade, adapted physical education/physical activity (APE/APA) SL programs have become increasingly popular in departments of kinesiology (Bishop & Driver, 2007; Richards, Wilson, & Eubank, 2012). Bishop and Driver (2007) suggested that by employing SL methodology into APE/APA courses, "faculty can advance the reform in pedagogical kinesiology to more applied and relevant experience" (p. 15). As well as providing valuable hands-on

experiences to kinesiology students, SL can also provide physical activity opportunities to children with disabilities. This is critical, as scholars acknowledge that children with disabilities are particularly vulnerable to losing opportunities to engage in physical activity (Richards et al., 2012).

Despite the increase of APE/APA courses in kinesiology using an SL methodology, a limited amount of research reports results in these settings. Wilkinson et al. (2013) examined PETE students' perceptions about their experiences in an SL project for children with attention-deficit/hyperactivity disorder (ADHD). PETE students in this study reported a better ability to merge theory with practice, changed preconceptions about children with ADHD, and enhanced teaching confidence as a result of the SL experience. Roper and Santiago (2014) found that kinesiology students' attitudes and perceptions toward PreK–12 students with disabilities were positively influenced after participating in an APE SL project. Kinesiology students also reported developing pedagogical skills to teach children with disabilities. Woodruff and Sinelnikov (2015) qualitatively examined what undergraduate students found meaningful when teaching and how their perceptions toward individuals with disabilities evolved throughout a 10-week SL experience. Students moved through three discrete stages of development in their learning: anticipation, familiarization, and commitment. During the anticipation stage, students experienced a sense of uncertainty and fear of the unknown. Students' fears dissipated and students began to experience an increased level of comfort in their instructional roles during the familiarization stage. The commitment stage was described as the highest stage in the SL experience and was characterized by students developing personal relationships and showing signs of becoming fully involved in the learning process. Woodruff and Sinelnikov concluded that during the commitment stage of the SL experience, students positively changed their attitudes and understanding toward young adults with disabilities. Richards et al. (2015) evaluated college students' experiences in a physical activity–based SL program for children with disabilities. They found that students' perceptions of community engagement, cultural competence, and ethical leadership increased throughout the SL experience. Furthermore, qualitative analysis of the data revealed that students

perceived that they made a difference in the lives of the children with disabilities. Students also perceived emotional and personal growth, better ability to make connections between practice and theory, and an understanding of potential careers serving children with disabilities.

Purpose of Study

Employing a qualitative content analysis methodology (Hsieh & Shannon, 2005), this study examined kinesiology students' experiences in an SL project for children with disabilities. More specifically, this study examined (a) overall experience of the SL project, (b) personal meaning derived from the SL project, and (c) future impact of the SL project.

Method

Participants

The participants in this study consisted of 33 kinesiology undergraduate students (13 female, 20 male) enrolled in an APE course at a university in the Southwestern United States. The participants ranged in age from 20 to 27 years ($M = 22.12$, $SD = 1.60$). Seventeen participants self-identified as Caucasian/White, 10 as Black/African American, and 6 as Hispanic/Latino. Of the 33 participants, 1 was classified as first year, 12 as sophomores, 10 as juniors, and 10 as seniors. The participants in this study were selected as a result of availability and thus represent a convenience sample. The university's institutional review board granted approval for this study, and participants completed informed consent procedures in accordance with the university's human subject requirements. The participants' identities were protected in this study via pseudonyms.

Service-Learning Project Description and Setting

The SL project is a unique collaboration between the local school district and Department of Kinesiology at the university where the study was conducted. Before the SL project, kinesiology students receive instruction in the classroom about types of disabilities, types of modifications, adaptations for different types of disabilities, assessments of motor skills, and classroom and behavior management skills. Fifty-one elementary and 28 secondary children with

disabilities aged 3 to 21 years participated in the SL project in a university gymnasium once a week, for approximately 55 min/session, for 6 consecutive weeks (a total of 330 min). Each kinesiology student was assigned one child for the project. The SL project required kinesiology students to first assess each child's motor skill ability level and then design and implement an individualized motor activity plan. The APE course instructor, school district APE teacher, and classroom teachers supervised, monitored, and provided assistance to the kinesiology students throughout the SL project. Each class session consisted of a warm-up, a series of learning tasks from simple to complex, and a cooldown.

Reflection Essays

In this study, data were gathered from a postprogram reflection essay. Upon completion of the SL, participants responded to a set of reflection questions regarding their SL experience (see Appendix). Participants reflected on their SL experience including perceived strengths before and after the experience, recommendations to improve the experience, feelings about their effect in teaching children with disabilities, and future implications.

Data Analysis

Content analysis is the study of recorded human communications including a wide array of content such as written text, television, websites, artwork, newspapers, images, maps, and signs (Hsieh & Shannon, 2005; Krippendorff, 2013). According to Hsieh and Shannon (2005), "Research using qualitative content analysis focuses on the characteristics of language as communication with attention to the content or contextual meaning of the text" (p. 1278). The goal in qualitative content analysis is to "[classify] large amounts of text into an efficient number of categories that represent similar meanings" (Hsieh & Shannon, 2005, p. 1278).

A directed approach to content analysis was employed in this study (Hsieh & Shannon, 2005). The researcher who employs a directed approach begins with predetermined concepts or variables as initial coding categories (Potter & Levine-Donnerstein, 1999). The researcher then uses these predetermined categories as guidance for the initial themes (Hsieh & Shannon, 2005).

The researchers read each of the 33 reflection essays multiple times for the purpose of acquiring familiarity with the text. The reflection essay assignment consisted of three main categories: overall experience of SL, personal meaning of SL, and future impact. Students were required to address questions, or prompts, in each of the three categories.

Intercoder reliability, the use of two or more coders to ensure results are not the subjective interpretations of one researcher, is especially important in content analysis (Neuendorf, 2017). As such, the four researchers read each reflection essay multiple times and then coded each reflection essay independently. Upon completing an initial independent coding of each reflection essay, the four researchers met multiple times to discuss their independent analyses. During these meetings, they discussed their speculative themes until achieving consensus. In the few instances with a discrepancy between the ways each researcher coded the text, they discussed the specific instance until achieving consensus. Finally, the researchers discussed the extent to which the data were supportive of the research in the areas of SL and APE.

Results

Five themes emerged from the analysis of the reflection essays: (a) contact and prior experience, (b) personal growth and academic learning, (c) future career aspirations, (d) biased language, and (e) recommendations for APE SL. This section discusses each theme, giving supporting quotes from the participants.

Contact and Prior Experience

Upon learning about the SL project, the participants with prior experience and/or close interpersonal relationships with an individual with a disability described having a sense of confidence, preparedness, or excitement about the SL project, a feeling that was not evident among participants who did not have prior experience and/or such relationships. As Marie stated,

> Upon finding out we would be able to work one on one with a student I was extremely excited. With my current occupation working as a gymnastics and tumbling coach, I have been working with children and children who have

> been diagnosed with certain disabilities. Getting to work one on one with [name of child] was more practice for me and me getting to do what I love.

Rebecca alluded to a feeling of preparedness from having a close interpersonal relationship with a person with a disability. She explained, "I have a very close relative with a mental disability. This helped me understand what I could expect from [my student] and what teaching strategies and content modifications I had to be ready to use."

For participants without prior experience and/or contact with an individual with a disability, learning of the SL project was anxiety provoking. Gerald indicated, "Coming into the semester, I had hardly any experience working with students with disabilities. I was unprepared and nervous." Lydia also explained, "To be honest, I was kind of afraid of students with disabilities. I was extremely nervous going into the first meeting because I didn't know how I was going to handle it."

Overall, it was evident that the participants' past experiences working with individuals with disabilities or having a close interpersonal relationship with a person with a disability influenced their immediate perceptions and reactions of the SL project.

Growth and Academic Learning

The participants indicated that the SL project, in conjunction with the classroom content, provided them with an opportunity to "apply theory to practice" and acquire a deeper understanding and appreciation of the subject matter. Rebecca suggested,

> I discovered that I was able to adapt and apply my skills to teach someone with an intellectual disability. I have learned plenty from the lecture portion of APE and I was able to successfully apply what I learned.

Working with the children with disabilities involved considerable preparation on the part of the participants. It also presented an opportunity for the participants to learn how to adapt to changing dynamics of a planned situation. Lydia explained,

> That's another thing I have learned, I do very well with making quick and meaningful adjustments. When I need to, I am able to make adjustments to the plans I have already made and create a new alternative along the same lines of the previous one. I did that a few times with [name of student] because he did so well in the activities I set up for him. I had created new and improved challenges for him to try and complete. Most of the time, he was able to complete them after a while of practicing it.

In addition, the participants discussed various ways the SL project positively affected their personal growth and development. For the majority of the participants, but especially for those with no prior contact or experience working with individuals with disabilities, the experience of teaching and working with children with disabilities pushed them outside of their "comfort zone." Carla stated, "I feel that this experience overall was very educational for me. If I had a choice, I might not have done this on my own, so I think it got me out of my comfort zone for sure." Through this "discomfort" and "unfamiliarity," the participants felt they were able to grow. More specifically, the participants perceived that working with children with disabilities positively affected their communication skills, confidence, and patience. Juan indicated, "I feel that I am walking away from this with an even better understanding of how to communicate with someone who has a disability, whether it be physically or mentally."

Future Career Aspirations

Within the reflective essays, the participants referenced the specific children they were assigned to, often detailing their child's disability, antidotes about their interactions, the types of activities they taught, and their child's progression throughout the SL experience. Many participants suggested that the SL project encouraged them to consider working with individuals with disabilities, a population they had not previously considered. Octavius indicated, "Working with [child's name] and completing the service-learning experience has captured my intrigue and interest in possibly working with individuals with disabilities in the near future." Taisha also suggested,

> This experience has greatly impacted my desire even more to work with [those with] different disabilities . . . because I feel like I can make a difference for the students to have a better chance to improve their skills and learning ability.

Participants also indicated that the SL project confirmed that they did not want to work with individuals with disabilities in the future. Jennifer stated,

> As for me aspiring for a future in adapted physical education I would definitely say I would not head in that direction. The experience did give me a new respect for the field, but it also made me realize that I did not have many [of] the attributes to be able to last in the field and make a lifelong career.

Despite expressing a desire to not work specifically with individuals with disabilities in their future career, these same participants suggested a desire to volunteer with disability organizations or groups in the future. Colin stated,

> I will continue to volunteer for Special Olympics and anything else I come across, because they are always in need of more volunteers for these types of things. I plan on having my whole family volunteer next time, because I think it would be a great thing to experience with my family.

Biased Language

While almost all of the participants described the SL project with positive adjectives such as "amazing," "wonderful," and "invaluable," almost all of the participants periodically used insensitive and biased language to describe the children with disabilities and the manner in which they worked with the children. Person-first language was used within the reflective essays (e.g., child with a disability); however, it was common for the participants to also use disability-first language (e.g., "Down syndrome student").

When describing how they worked with their assigned children, the majority of the participants used language such as "handling," "dealing with," and/or "coping with." Lydia stated, "It is an advantage

to be able to work with these kids considering some of the jobs that we might end up getting might deal with some people like that."

Approximately half of the participants contrasted the children with disabilities with able-bodied individuals, who they described as "normal" or "regular." Participants used adjectives such as "special," "unique," and "different" to categorize or describe the children with disabilities. Derek stated,

> Throughout the learning experience, I learned that no matter what is wrong with you, there is always some kind of fun you can have while you may be disabled . . . also, I learned that kids never give up to be like a normal kid and play and have fun.

Chen stated, "He was like any other normal kid around eleven years old."

In addition, participants shared "heartwarming" explanations of their experience working with children with disabilities. Hector stated, "After having this experience, one day I would like to have some sort of Special Olympics held at my gym, because I want to let others experience the heartwarming experience I received from this service-learning experience." Michelle also explained,

> I watched the students walk through the doors of the gymnasium and just about all of the students had a smile on their face, laughing, or just having a good time even though they had no control over becoming handicap or disabled, they were enjoying life to the fullest.

Recommendations for Adapted Physical Education Service-Learning

Based upon their experience of teaching and working with children with disabilities, the participants shared recommendations to improve the SL project. A desire for increased contact time with the children with disabilities was the most significant recommendation provided by the participants. Participants suggested more frequent class sessions to interact with and get to know the children with disabilities and more contact time to develop the motor skills of the children they were assigned to. Amanda indicated,

> I think the SL experience should be extended to at least twice a week so that the future kinesiology students who take the course can build a better relationship with the students with disabilities . . . I realized that I needed more time to build a personal relationship and get to know each student individually so they could feel comfortable around me.

Michelle also echoed the importance of contact time: "I think that the program would be better if we had more time with the students to have an opportunity to see better growth in physical activity."

Almost all of the participants also requested additional information about the children with disabilities. They thought the information could assist them with the development and delivery of the learning activities. Laura explained,

> I think that we should have been given more information on our student prior to actually interacting with them. I think we should be informed on things the students like, their favorite snack or candy, games they like to be incorporated with lesson plans, and more on their disability.

In addition, the participants discussed a desire for more freedom to select the stations/activities available in the gym. Some of the participants described the lack of gym space as a limitation for effective delivery of a lesson plan. Peter explained,

> More stations should be added so that the coaches can have [more of a variety] of activities they can create for the child. I often found myself doing that same activity just a little different because of the limited stations. If we were to expand the workspace [gym], we could also expand the work stations.

The participants also expressed a desire to work with a peer rather than alone. The perception was that working in a dyad would allow for collaboration and better design and delivery of the lesson plan, which would benefit all individuals.

Discussion

This study examined kinesiology students' experiences in an SL project for children with disabilities. Consistent with previous research, this study shows that participants with prior experience with an individual with a disability feel more comfortable entering the SL project (Tindall, MacDonald, Carroll, & Moody, 2015). Also, consistent with Deci and Ryan's (1985) self-determination theory of motivation, this study shows that individuals who have prior experience feel more competent and prepared and thus more motivated and comfortable. Participants discussed both their personal relationships with an individual with a disability and previous volunteer experiences as helping them feel more prepared going into the SL project.

In contrast, students who had no experience working with or no close relationships with an individual with a disability had low perceived competence prior to the SL project. Beyond the feeling of unpreparedness, participants without previous experience characterized working with an individual with a disability as frightening. At the onset of the SL project, multiple participants discussed being afraid of doing the wrong thing, hurting the individual they were working with, and generally feeling discomfort about being with individuals with disabilities. Consistent with Bandura's (1977) theory of self-efficacy, this study shows that individuals who lack previous experience tend to have doubts of their preparedness going into a new situation. It is noteworthy that students' reflections of the SL project expand beyond feeling a lack of competence into feeling scared and uncomfortable around individuals with disabilities.

A number of studies have examined the effect of SL on academic learning and growth (Kolb, Boyatzis, & Mainemelis, 2001; Toncar & Cudmore, 2000). The findings of this study provide further evidence that SL projects have a positive effect on participants' perceptions of academic learning. Specifically, the SL project provided participants with an opportunity to connect the course content to real-life situations. In other words, participants strongly believed that they were able to bridge the gap between theory and practice. To apply course content, participants were required to plan and implement lessons and to determine the most effective method of instruction for their assigned student with a disability. This process fostered

academic learning and enabled the participants to apply the content being taught in the class to real-life situations (Gallini & Moely, 2003). Another positive effect of the SL project on the participants' academic learning was the ability to adapt and change their lesson and instructions based on their observations and interactions with their assigned child. The SL project created real-life opportunities for the participants to make appropriate decisions with regard to the content and instruction to create a better learning environment for the children with disabilities. This improved skill set is particularly valuable, as it is difficult to achieve in the classroom (Adler, 1991). In addition to academic learning, SL appears to have had a critical effect on the participants' personal growth, specifically patience and self-confidence. Similar to this study, Richards et al. (2015) found that patience was one personal characteristic that many participants developed through participating in an SL experience with children with disabilities.

Students enrolled in APE are pursuing a wide range of professional careers including physical education, adapted physical education, physical therapy, occupational therapy, athletic training, and exercise science. Some of the participants suggested that the SL project helped them to reaffirm their chosen career path and desire to work with individuals with disabilities. The SL experience provided them the opportunity to experience the work environment, expectations, and required skills of a job they may work in the future. The SL project also opened new opportunities for the participants to discover their level of interest, ability, and desire to pursue a career related to working with individuals with disabilities. Additionally, consistent with previous research (Eyler et al., 2001; Root, Callahan, & Sepanski, 2002), this study shows that participants had an increased interest in and commitment to volunteering in the community after the SL experience. The SL project made participants realize the areas of social need and support (Heffernan & Cone, 2003) and influenced them to make an impact on the community.

The participants in the APE course were taught to focus on and emphasize the person rather than the disability, commonly referred to as person-first language (Dunn & Andrews, 2015). Person-first language promotes the idea that someone's disability is only a label and not a defining characteristic of the entire person. Within their

reflections, the participants used person-first language (e.g., boy with Down syndrome) when referring to the children with disabilities. However, those same participants also used disability-first language (e.g., Down syndrome boy) within their reflections. While the participants' reflections indicated some degree of understanding and appreciation for the need to use person-first language, it is clear from their inconsistent use that there had not been a full shift in their way of thinking. Further examples suggest that the participants, while extremely positive about the experience of working with the children with disabilities, were also deprecating in their descriptions of working with the children. Using phrases and terms such as "dealing with" and "handling," contrasting the children with disabilities with "normal" and "regular" children, and emphasizing a need to care for the children do not suggest a way of thinking that emphasizes children with disabilities as capable, equal, and deserving of respect.

Based upon the findings, it is imperative that students in APE/APA not only learn about the range of disabilities and behavior management and instructional strategies but also consider the bias that may be present in their everyday language. Language is our main form of communication and it plays a powerful role in contributing to and eliminating discrimination. Too often the use of terms or phrases that diminish or depersonalize people persists without anyone even noticing.

Reflections should provoke and stimulate individuals to think critically on the quality and quantity of the experience. This will enable the individual and SL providers to inform their practices and enhance the SL experience. In this study, participants were asked to suggest ways that the SL project could be improved in the future. Participants suggested that more time to work with the children with disabilities might help them to develop a better rapport with their assigned children, enhance their communication with the children, and improve the children's motor skills. This is an important suggestion, as contact time with individuals with disabilities has been found to influence positive attitudinal changes for individuals without disabilities (Tripp, French, & Sherrill, 1995). The SL project in this study required 330 contact minutes with the children. Adding contact time to the SL project may lead to positive attitude change and enhanced academic learning among the kinesiology students

and provide additional opportunities for the children with disabilities to improve their motor skills.

Although the local school district provided general information (e.g., grade level, sex, type of disability) about each child, participants suggested the need for more specific information regarding their child's disability. Participants indicated that more disability-specific information such as their assigned child's individual education plan could have assisted them in developing better lesson plans and improving communication and modifications. While such information would likely be helpful, the school district was unable to share this information due to confidentiality. It is, however, an important consideration in the design of future SL experiences with children with disabilities. Negative attitudes toward individuals with disabilities stem from a lack of knowledge about disability and about individuals with disabilities (Ison et al., 2010); therefore, it is critical that the school district and course instructor find solutions to provide additional information about each child's specific disabilities. This information may also assist the participants in reducing some of their anxieties, preconceived notions, and stereotypes at the beginning of the SL project.

Participants in this study also suggested that working in pairs might enhance the sharing of ideas for lesson planning and delivery of the learning activities. While this arrangement may not always be possible in an SL project, when it is possible it is important that the advantages and disadvantages of working with a partner are considered. Working with a partner may allow for one partner to focus on presenting the learning activities, while the other may focus on providing feedback and assessing the child's progress (Rink, 2014). Working with a partner, however, requires more planning time and a good working relationship.

Several limitations should be considered in the interpretation of the results of this study. The participants in this study are the result of a convenience sample. Therefore, caution should be used in the interpretation of the results of this study since they represent the experiences of the kinesiology students. The only data source used in this study was students' reflection essays. Future research in this area should consider using additional data sources such as surveys,

focus group interviews, direct observations, and ongoing reflection journals.

Despite the limitations, the results of this study provide several implications for the design of SL experiences in APE/APA, especially experiences for children with disabilities. The quantity and quality of contact time during SL experiences should be carefully considered. The results of this study suggest that more than five and a half hours of contact time are needed for the students to better achieve the outcomes of the class and SL project. As Carson and Raguse (2014) indicated, there is considerable variation in contact time across SL experiences, and there are no specific recommendations due to the unique factors associated with each SL experience.

APE/APA course instructors should provide as much information as possible to students about their assigned person with a disability before the SL experience. Course instructors may consider assignments for research on specific disabilities and encourage conversations with school personnel, involvement in local community events, and visits to sites or schools. Such actions may alleviate some of the participants' fears and better serve the academic learning of the participants and the needs of the individual with disabilities. Finally, course instructors should be persistent during the course to teach students the importance of person-first terminology. The use of ongoing written reflections during the SL project for which the course instructor provides edits and feedback may help. Important resources include the Americans With Disabilities Act National Network (https://adata.org/factsheet/ADANN-writing) and the American Psychological Association (https://apastyle.apa.org/style-grammar-guidelines/bias-free-language/disability), both of which provide guidelines for writing about individuals with disabilities. These guidelines include emphasis on putting people first, not labeling by a person's disability; using emotionally neutral expressions; and emphasizing the ability rather than the limitation (among others). Such guidelines should be discussed and emphasized in an introductory APE/APA course, and instructors must recognize that a shift in discourse and way of thinking among students is occurring in opposition to discriminatory language and negative stereotyping that persist in society about individuals with disabilities.

Future research needs to examine best practice pertaining to contact time, duration, and course structure for the successful accomplishment of the academic objectives for the kinesiology students and provision of the best services to the children with disabilities. Additional research needs to explore kinesiology students' biases pertaining to ability status and the influence of their assumptions, past experiences, and biases on their work with children with disabilities. While an introductory APE/APA course for kinesiology students is tremendously beneficial, such content should be embedded across all kinesiology curricula, which could have a more significant effect on students' perceptions and attitudes.

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Appendix

Reflection Essay Assignment

As a part of this course, you are required to write a reflection essay about your experiences in working with children with disabilities. The reflection paper is an opportunity for you to reflect on what you have learned and how will use what you have learned in the future. I am asking you to reflect on three main areas related to the in-class service-learning experience with children with disabilities. You are expected to respond to all of the questions within each of the three sections. This essay should be 5 to 7 pages double-spaced (minimum of 5 pages). Unless otherwise indicated, you must write in paragraph form.

1. The Service-Learning Experience
    - From your perspective, what was the purpose of the service-learning experience?
    - How well were you prepared to work with the children with disabilities?
    - What did you learn through the service-learning experience?
    - What were your perceived strengths going into this experience?
    - What were your perceived weaknesses going into this experience?
    - What are your strengths now after completing this experience?
    - How would you recommend that the service-learning component be improved for future kinesiology students?
2. Personal Meaning of the Service-Learning Experience
    - Do you believe that your work with the children with disabilities in this course made a difference? Please explain. How? Why?
    - How do you feel about the experience of working with children with disabilities in KINE 4369?

- What have you learned about yourself this semester through your work with children with disabilities in this course?

3. Future Impact

   How do you anticipate that you will build on this experience in your future profession?

The Physical Educator Vol. 77 • pp. 208–229 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9570

PHYSICAL ACTIVITY

The Effect of Prompting and Group Contingency on Middle School Students' Physical Activity During a Badminton Sport Education Season

Zachary Wahl-Alexander, Annie Malecki, Steven Smart

Abstract

This study evaluated the effect of three conditions in which 34 sixth-grade students were prompted to accumulate as much activity as possible during a Sport Education season. Three intervention conditions were assessed via an alternating treatment design: (a) baseline: no prompting of students; (b) teacher prompts: verbal prompts and suggestions on how to "maximize activity within class"; and (c) teacher prompts plus independent group-oriented contingencies: verbal prompts in addition to bonus points awarded based upon reaching step count criteria. Graphically plotted step count data illustrate data trails, variability, and trends within and across the three conditions. This demonstrates that students were more active in class when the teacher prompted the students and employed prompting in conjunction with the contingencies. The results of this study suggest that prompts and prompts plus independent group-oriented contingencies within Sport Education are effective and authentic frameworks for maximizing in-class physical activity.

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Participation in consistent physical activity (PA) has long been associated with countless physical, social, and psychological benefits in children and adolescents (Janssen & LeBlanc, 2010). According to the Centers for Disease Control and Prevention (2008), children between the ages of 6 and 17 should regularly participate in 60 min or more of daily PA. Not adhering to these requirements may lead to increased risk of factors that control cardiovascular diseases (Loprinzi, Lee, Andersen, Crespo, & Smit, 2015), energy imbalances (Kraak, Liverman, & Koplan 2005), and an augmented risk for obesity (Centers for Disease Control and Prevention, 2008). Despite these hazards, only 21.6% of 6- to 19-year-olds in the United States achieve 60 min or more of moderate to vigorous PA (MVPA) regularly (National Physical Activity Plan Alliance, 2016).

Schools are in a unique position in their ability to provide opportunities for PA, as the amount of total contact hours are substantial. Specific to physical education, quality programs aid in developing children's motor skills and cognitive knowledge while improving their social development. Further, physical education is one setting in which PA can be encouraged daily (Centers for Disease Control and Prevention, 2011). Specifically, *Healthy People 2010*: *Health Objectives for the Nation* included objectives aimed at improving daily PA during the school day and recommended that students be moderately to vigorously active at least 50% of class time (U.S. Department of Health and Human Services, 2000). However, research indicates that these lofty goals are rarely achieved (McKenzie et al., 1995).

Because of this deficiency in providing suitable opportunities for PA within traditional physical education classes, researchers have begun to examine other contexts in which children may be able to engage in supplementary activities (Carson, 2013; Carson, Castelli, Beighle, & Erwin, 2014). More specifically, before- and after-school clubs (Carson et al., 2014; Wahl-Alexander, Schwamberger, & Neels, 2017), extracurricular sports (Bocarro, Kanters, Casper, & Forrester, 2008), and summer camps (Hickerson & Henderson, 2014; Wahl-Alexander & Morehead, 2017) have been proven to complement physical education effectively by providing other opportunities for physical activity. While such programs are particularly important, research has illustrated many barriers in facilitating (Garn et al.,

2014) and populating (McMullen, van der Mars, & Jahn, 2014) such programs. Early indications have shown these programs successfully expand activity levels; however, further attention needs to be dedicated to maximizing opportunities for physical activity within the physical education context (McKenzie et al., 1995).

The Sport Education pedagogical model has rapidly fostered positive attention since its induction in the early 1990s (Siedentop, 1994). Unlike other modes of instruction within physical education, Sport Education provides an authentic experience that aims to create students who are competent, literate, and enthusiastic performers of sport (Siedentop, Hastie, & van der Mars, 2011). The six key features of the model (affiliation, formal competition, seasons, recordkeeping, statistics, festivity and culminating event), small-sided gameplay, and the emphasis on fair play differentiate Sport Education from other forms of instruction.

To date, the majority of research on Sport Education has concentrated on its ability to develop students' competency (Hastie, Calderón, Rolim, & Guarino, 2013; Pereira et al., 2015), literacy (Wahl-Alexander, Sinelnikov, & Curtner-Smith, 2016), and enthusiasm (Brock, Rovegno, & Oliver, 2009) toward sport. However, scholars have begun to examine the potential applicability of Sport Education on fitness levels and activities, heeding Wallhead and O'Sullivan's (2005) call. Specific to student fitness levels, several studies have examined seasons with a fitness-based content focus. These studies established that students not only engaged in high levels (over 60%) of MVPA during class time (Pritchard, Hansen, Scarboro, & Melnic, 2015) but also significantly improved fitness scores (Hastie, Buchanan, Wadsworth, & Sluder, 2009; Ward et al., 2017) and fitness content knowledge (Ward et al., 2017). Researchers have also explored students' in-class PA levels during team sport seasons, finding mixed results. In one 12-lesson soccer season, Parker and Curtner-Smith (2005) reported less than 36% MVPA. However, these findings can mainly be attributed to the teacher's lack of expertise and unit length. Other researchers have established higher levels of MVPA (over 60% of class time) in elongated seasons taught by more experienced instructors (Hastie & Trost, 2002; Wahl-Alexander & Morehead, 2017). While preliminary findings posit that Sport Education appears to lead to elevated activity levels, fur-

ther research focused on improving and increasing in-class activity levels is warranted.

Behavior change techniques have been proven as an efficient way of altering an assortment of behaviors in adults and children in a variety of contexts. These techniques are defined as discernible, replicable, and irreducible components designed to change or regulate behaviors (Michie et al., 2013). Research indicates that there are 93 behavior change techniques for altering PA and healthy eating behaviors (Michie et al., 2011). Within education, several of these strategies (e.g., prompting, feedback, group contingencies) have proven to be effective at influencing behavior (Johnston, Pennypacker, & Deitz, 1981). *Prompting* can be defined as introducing a defined action and providing consistent cues that influence a behavior (Abraham & Michie, 2008), while *feedback* can be described as the monitoring of a specific behavior and providing ongoing evaluative information pertaining to the performance of that given action (Valente & Pumpuang, 2007). Specific to education, the combination of prompting and feedback is influential in individuals immediately after a target behavior (Cooper, Heron, & Heward, 2007), however can be less effective with larger groups.

Group-oriented contingencies have been successfully used to alter the behavior of many people simultaneously (Bushell, Wrobel, & Michaelis, 1968). This strategy has been used to effectively reduce various actions (e.g., truancy, unhealthy eating, risk taking) and increase behaviors such as quiz scores and on-task behavior (Heck, Collins, & Peterson, 2001; Thorne & Kamps, 2008). Group-oriented contingencies include offering a common contingency on a behavior of (a) each group member (independent group-oriented contingency), (b) part of the group (dependent group-oriented contingency), or (c) everyone in the group (interdependent group-oriented contingency; Cooper et al., 2007). In *dependent* group-oriented contingencies, the reinforcer (e.g., consequence) for the group is dependent on an individual student or small group of students achieving the given criterion. An *independent* group-oriented contingency occurs when only students who meet a criterion receive the reinforcer (e.g., consequence). The *interdependent* group-oriented contingencies entail all group members needing to meet a standard to receive the reinforcer (e.g., consequence). Group-oriented contingencies com-

monly occur over elongated units in which students can obtain or lose tokens based upon contingencies and in which they acquire reinforcers (e.g., computer time or free play) when meeting a criterion (Ennis, Blair, & George, 2016). While limited research has examined the differences of the various contingencies, investigations have demonstrated that interdependent group-oriented contingencies were more effective than dependent and independent contingencies in reducing various negative behaviors (Alexander, Corbett, & Smigel, 1976) and improving positive actions (Lloyd, Eberhardt, & Drake, 1996). Specific to physical education and different sporting contexts, group-oriented contingencies have been shown to effectively improve on-task behavior (Hume & Crossman, 1992; Ward & Dunaway, 1995) and promote positive fair play behaviors (Patrick, Ward, & Crouch, 1998; Vidoni & Ward, 2006). In each of these studies, students modified specific behaviors when provided with a specific reinforcer.

Through the use of fair play points, formal competition, and recordkeeping, the Sport Education model offers a unique opportunity for promoting group-oriented contingencies. During a fourth-grade jump rope season, group contingencies provided students with an opportunity to accumulate bonus points toward the league standing for engaging in out-of-school PA. In this season, students were more active outside of school when the contingency reinforcement was in place, which demonstrates that Sport Education is an effective context for promoting such contingencies (Hastie, van der Mars, Layne, & Wadsworth, 2012). These findings, coupled with the ongoing need to optimize activity time within the physical education setting, provide the rationale for this study. Although preliminary findings suggest Sport Education is an appropriate model for providing opportunities for physical activity, further attention needs to be dedicated to optimizing such opportunities. Therefore, this study examined the influence of prompting and prompting plus independent group-oriented contingencies on students' in-class PA during a badminton Sport Education season. This study evaluated three research questions: (a) how physically active students were during the badminton Sport Education season without any intervention, (b) whether the instructor prompting the students to be physically active during class would increase in-class PA levels, and (c) whether

prompting plus independent group-oriented contingencies would increase students' in-class PA levels.

Method

Participants and Settings

The participants in this study were 34 sixth-grade students (15 males, 19 females) from one middle school in the Midwestern United States. The majority of the children were African American (61%), with several reporting Caucasian (26%) and Hispanic (13%). At the time of the study, the middle school enrolled 469 sixth, seventh, and eighth graders, of which 54% were on free and reduced lunch. Each class period at this school was 30 min long, excluding transitional time and changing in and out of gym clothes. The authors' university institutional review board approved this study, and prior to the initiation of the study, all students provided assent and their parents gave informed consent.

Target Behavior

The target behavior in this study was the average number of steps accumulated within the physical education class. The average step count was based on the number of steps each student accumulated each class period.

Intervention

The participants' in-school PA was monitored across three diverse conditions throughout a 15-lesson badminton Sport Education season. The study included three experimental conditions: *baseline*, *prompting only*, and *prompting plus independent group-oriented contingencies*. During all *baseline* (Condition A) lessons, the teacher did not provide prompts regarding in-class PA, which reflected the traditional instructional patterns of the physical education teacher. During the *prompting only* (Condition B) lessons, the teacher prompted students to "get as many steps during this class period as you can" and encouraged PA in class (i.e, jog in place, pace while you wait for gameplay to start) during the introduction, at closure, and throughout the lesson. In *prompting plus independent group-oriented contingency* (Condition C) lessons, the teacher verbally prompted students to engage in as much PA as possible in class (Condition B),

in addition to implementing a independent group-oriented contingency in which teams could earn bonus points toward the league standings by achieving step count goals independently.

For this study, the teacher used the independent group-oriented contingency by providing each student with an opportunity to earn bonus points for their team. During all Condition C lessons, 1, 2, or 3 points were awarded to any student who accumulated 1,500, 2,000, and 2,500 steps, respectively. Not only were these step count goals discussed during the introduction, but they were also posted in various publicly accessible points throughout the gymnasium. At the conclusion of all Condition C lessons, the teacher announced any students who were awarded bonus points and reminded others of these goals.

Research Design

This study employed an alternating treatment design that allows for the comparison between two or more experimental conditions while reducing the possible confounding caused by order or sequencing effects. More specifically, the alternating treatment design precipitously exchanges several distinct treatments while measuring the effect of the independent variable on a target behavior (Cooper et al., 2007). In this study, after the first five Condition A (baseline) lessons, the three conditions were determined by random sequencing, which minimizes the potential for order and sequence effects (Cooper et al., 2007). Each condition was systematically arranged so that each condition was preceded and followed by each condition at least once. The more frequently such sequences are replicated, the sturdier the case for experimental control.

Fidelity of Treatment

For fidelity of the treatment, the instructor was reminded immediately prior to each lesson if they needed to avoid prompting the students (baseline, 7 lessons), provide prompts to promote PA in the introduction and during the lesson (prompting, 4 lessons), or prompt the students while explaining the step count goals that would lead toward achievement of bonus points (prompting with independent group-oriented contingency, 4 lessons). For further fidelity, all lessons were observed throughout the study for the alignment of the teacher with the expected behaviors. During the study, the instruc-

tor did not mention step counts during any Condition A lessons. On Condition B days, the teacher promoted maximizing PA levels and ways students could increase activity during every introduction and closure, and reiterated this a minimum of five times throughout the lesson. Finally, on Condition C days, step count goals were posted in two publicly visible locations, instructions and step count goals were explained explicitly during the introduction, and the teacher explained several ways to maximize activity during the lesson. It is also of note that after Condition C lessons, the teacher announced which players on each team achieved their goals and how many points were awarded because of their successes. Achievement level of fidelity for each condition was 100%, as this procedure was followed correctly in all cases.

Badminton Season

The Sport Education badminton season integrated all six of Siedentop's (1994) key tenets of the model and followed standard protocols. The season extended across 15 lessons and included a preseason, a regular season, and a postseason tournament (Table 1). The preseason extended across six lessons and included teacher directed skill instruction, application of game rules, officiating protocols, team creation, and role selection. During daily instruction, the instructor demonstrated and explained a skill or strategy, with student subsequently leading team practices. The last two preseason lessons introduced officiating protocols and responsibilities. Students practiced this role as a whole group and during an intrateam scrimmage that determined seeding.

The regular season included seven lessons and a student-initiated daily routine of a warm-up and practice, followed by two modified badminton matches against another team. The teacher created the first two warm-ups, but the "warm-up leader" facilitated these; however, students created the remaining warm-ups. Similarly, the teacher created the first two practice task cards and then provided each coach with a skill or tactic to focus on when creating all subsequent practices. During the regular season, the students reported to their designated practice space upon arrival to class; prepared the courts for gameplay; checked the daily schedule to determine playing areas and opponents; and reported scores, stats, and fair play to the teacher. On each regular season day, two teams officiated the remaining

Table 1
Badminton Sport Education Season Outline

Lesson	Content	Intervention
1	Outline of Sport Education season, team selection, team colors, name, mascot	A
2	Selection of team roles, teacher-led activities focusing on offensive and defensive strategies	A
3	Poster creation, offensive and defensive strategies	A
4	Student-led activities focusing on offensive and defensive strategies	A
5	Mock demonstration of game focused on officiating protocols	B
6	Intrasquad scrimmage with officiating practice	C
7	Team warm-up, team practice, two regular season league games	A
8	Team warm-up, team practice, two regular season league games	B
9	Team warm-up, team practice, two regular season league games	C
10	Team warm-up, team practice, two regular season league games	A
11	Team warm-up, team practice, two regular season league games	C
12	Team warm-up, team practice, two regular season league games	B
13	Team warm-up, team practice, two regular season league games	C
14	Quarter and semifinals of elimination bracket tournament	B
15	World championship badminton final and award ceremony	A

competitions. The postseason consisted of a quarter and semifinal single elimination bracket officiated by the last- and first-place teams, a championship game, and an award ceremony. Important to note is that the season was intended to be 16 lessons (8-day regular season); however, the school went into lockdown, which caused a reduction in total season length.

Model Fidelity

This study aimed to examine the effect of prompting and prompting plus independent group-oriented contingencies on students' in-class PA during a Sport Education season and thus employed guidelines from the literature to determine model fidelity (Sinelnikov, 2009). One independent Sport Pedagogy faculty member with significant experience teaching with Sport Education coded teacher pedagogy behaviors during the badminton season. Interobserver reliability was conducted on two lessons during each phase (preseason, regular season, and postseason) and, in accordance to scholars, interobserver reliability was 96% (van der Mars, 1989). The results of this fidelity check establish that the teacher demonstrated a majority of the teacher-specific behaviors vital for proper implementation of this Sport Education badminton season (Table 2).

Table 2
Demonstration of Sport Education–Specific Pedagogical Behaviors During a Badminton Season

		Badminton season	
Benchmark element		**Planned**	**Actual**
Teacher plans the unit around principles of a "season"	Management/organizational phase	✓	✓
	Team selection phase	✓	✓
	Preseason scrimmage phase	✓	✓
	Regular season phase	✓	✓
	End of season event	✓	✓

Table 2 (cont.)

Benchmark element		Badminton season	
		Planned	Actual
Teacher promotes the "affiliation" concept	Students involved in team selection process	✓	✓
	Consistent teams for duration of unit	✓	✓
Teacher promotes students taking "responsibility"	Incorporates student roles	✓	✓
	Teacher holds students accountable	✓	✓
	Teacher provides referee training	✓	✓
	Teacher provides task sheets	✓	✓
	Teacher adopts facilitator approach during interactions	✓	✓
	Teacher encourages conflict resolution	✓	✓
Teacher uses "formal competition" within unit plan	A formal schedule of competition established	✓	✓
	Fair play and sportsmanship utilized	✓	✓
Teacher utilized a form of "record keeping" within unit	Teacher provides rubric for scorekeeper	✓	✓
	Incorporates peer assessments as part of recordkeeping process	✓	✓
Teacher uses "culminating event" near the end of the season	Culminating event is festive in nature	✓	✓
Teacher creates "festivity" within unit	Teams are easily identifiable (team names, team colors, team posters)	✓	✓
	Teacher emphasizes the celebration of fair play	✓	✓

Data Collection

Immediately after changing, all students were fitted with a Yamax Digi Walker SW-701 pedometer (Tokyo, Japan) and were instructed to wear it for the entire lesson. At the conclusion of each lesson, the student handed their pedometer to the teacher, who recorded the total number of steps for each student. The instructor of the class announced which teams obtained bonus points based upon achieving team step count goals during the closure of all group-oriented contingency lessons. This same sequence was followed each day of the study.

The Yamax Digi Walker model has been shown to be a valid instrument for assessing PA (Brusseau & Kulinna, 2015) and has been proven to be a reliable appraisal of step count in adolescents (Rowe, Barfield, & Michael, 2001). The Yamax Digi Walker model pedometer has been shown to be accurate within ± 3% of actual step count, and researchers have determined this as a valid measure of assessing PA (Crouter, Schneider, Karabulut, & Basset, 2003). It should be noted that all students routinely wore pedometers during normal physical education instruction, knew the purpose of the pedometer, and how the pedometer operates.

Data Analysis

The data from this study were plotted graphically, which is standard practice in applied behavior analysis research. The authors utilized visual analysis to determine all functional relationships between the conditions (prompting and prompting plus independent group-oriented contingencies) and the target behavior (step counts). For this iteration, in-class PA for every class was calculated and graphed along the horizontal axis above the given lesson day, with each condition given its own symbol to aid with analysis. As an experimental design was utilized in this study, the authors aimed to determine the presence and degree to which the treatment effect affected each of the conditions. The authors visually analyzed the graphic data, examining trends, overlap, and data path separation, including the number of data points, variability, and trends within and between the conditions.

Results

Figure 1 demonstrates the students' mean in-class step count across the 15 Sport Education lessons, whereas Table 3 shows the mean and standard deviation for each condition. As Figure 1 shows, the total amount of in-class PA within each condition remained stable throughout the season. This is reflected in the lack of noticeable up or downward trends in the data paths and in a minimal group variability within each session. Students achieved higher levels of activity in the prompting and prompting plus independent group-oriented contingency conditions than in the baseline condition. This is revealed in the absence of overlap between Condition B and C and the other condition and in the sizable separation between data paths. As Table 3 shows, students averaged over 22% more steps during Condition B lessons and 25% more during Condition C lessons than in the baseline condition lessons. However, contrary to similar findings focused on out-of-school PA, students only accrued less than 4% more steps with the addition of contingent reinforcement to instructor prompting (Hastie et al., 2013). This illustrates that in this study, the instructor's consistent prompting to focus on PA contributed to the increase in activity level during Condition B and C lessons.

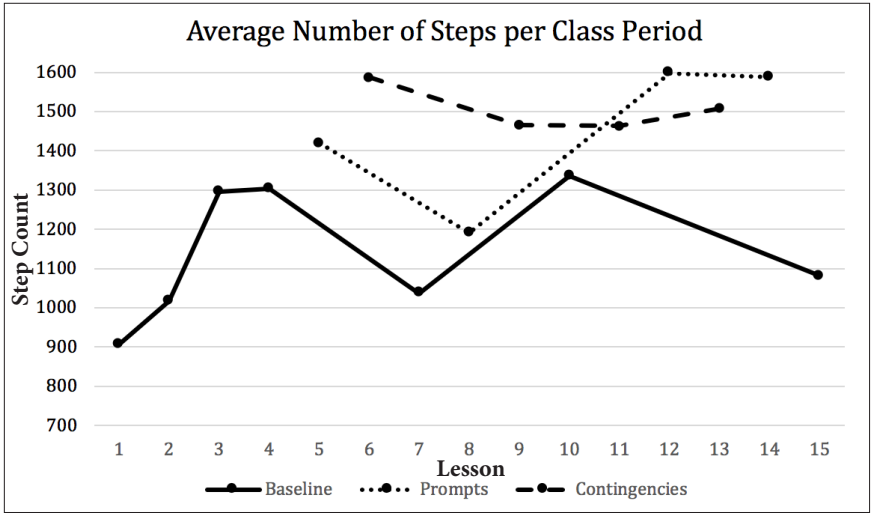

Figure 1. Mean in-school step count across conditions.

Table 3
Mean Step Count for Each Condition

Condition	*M*	*SD*
A (baseline)	1,139	169.8
B (prompting only)	1,448	190.5
C (prompting plus independent group contingency)	1,505	57.9

Although there were minimal discernible differences in average step count between prompting and prompting plus independent group-oriented contingency conditions, the standard deviation within Condition C is considerably smaller than that for Condition B. This reveals that almost everyone spent a similar amount of time being physically active during class, suggesting that almost all students were dedicated to achieving points toward the league standings board. While it is impossible to speculate why only small differences in average steps among these conditions occurred, less variability within Condition C demonstrates more students reaching higher levels of activity during this condition. Another trend needs to be considered, as all three data paths increased as the Sport Education season progressed. This aligns with previous findings (Wahl-Alexander & Morehead, 2017) and demonstrates improvements to PA as a season progressed. Although speculative, this trend suggests that the students became increasingly invested in the season, which led to elevated levels of activity regardless of condition.

Discussion

The purpose of this study was to determine the effect of prompting with and without a group-oriented contingency on in-class PA in sixth-grade students within a badminton Sport Education season. Throughout the season, the use of prompting and prompting plus independent group-oriented contingency produced consistently higher PA levels than the baseline condition.

It has been well documented that most adolescents are consistently sedentary and do not accumulate the recommended amount of daily PA. Although this population amasses almost 60% of their activity outside of school hours (Brusseau et al., 2011; Tudor-Locke, Lee, Morgan, Beighle, & Pangrazi, 2006), maximizing every opportunity for physical activity is imperative. It has been established that

specific to physical education, fitness/invasion games provide the highest amount of PA, whereas net/wall games lead to lower quantities (between 33 and 41 steps/min; Brusseau & Burns, 2015). The findings from this badminton Sport Education season compare favorably, as across the three conditions, students accrued an average of over 1,300 steps (in 30 min of activity) and just under 44 steps/min. Globally, these findings substantiate scholars who established Sport Education as a pedagogical model that promotes PA levels greater than recommended guidelines (Hastie & Trost, 2002; Pritchard et al., 2015; Wahl-Alexander & Morehead, 2017). Similar to these studies, this study found that the heightened levels of activity are likely caused by modified gameplay, team affiliation and festivity, and the authentic nature of Sport Education. The results from this study reaffirm that although PA is not a primary objective of the model, Sport Education indirectly provides ample opportunities for PA.

Another significant finding from this study was the effect of prompting and prompting plus independent group-oriented contingencies on student PA levels throughout the season. Students accumulated 21% more steps during all prompting lessons and 24% more steps during prompting plus independent group-oriented contingency lessons than during baseline. These results conflict with research that utilized prompting and group contingencies during a Sport Education season to promote out-of-school PA. This previous iteration found no differences in out-of-school PA in prompting compared with baseline (Hastie et al., 2012). One potential reason prompting was more effective in this study might be the proximity of feedback given by the teacher (Abraham & Michie, 2008). For example, the instructor discussed and promoted PA within the introduction, however was able to provide real-time reminders to the class or individual students who were deficient. This immediate feedback was successful in raising activity levels within class, however appears less effective in promoting out-of-class activity (Hastie et al., 2012).

Although PA increased 24% during prompting and prompting plus independent group-oriented contingency lessons compared with the baseline, it appears the group contingency in this iteration had little effect on increasing activity. These findings are in stark contrast to Hastie et al. (2012), who found slightly lower than a 50% improvement in activity outside of school when students were able

to earn points toward the league standings board. Several rationales might account for this finding. First, the instructor was effective at eliciting high levels of in-class activity through prompting. This success may not have allowed students to garner additional gains in an abbreviated 30-min class. Further, researchers have found that students accumulate fewer steps per minute (Brusseau & Burns, 2015) and lower MVPA (Chow, McKenzie, & Louie, 2008) in net/wall games compared to other activities, which may have further contributed to the limited differences between conditions.

Throughout this season, students earned points for their team by individually accumulating either 1,500, 2,000, or 2,500 steps during rompting plus independent group-oriented contingency lessons. It is conceivable that modifying these contingencies might influence the results of this study. One alternative is to employ an interdependent group-oriented contingency in which all team members must meet a step count standard to earn bonus points. Other options that may improve activity levels within this condition include increasing the requirements to earn points or increasing the point total being rewarded. While these decisions may motivate students to be more physically active, this also demonstrates to the class that PA accumulation is more significant than formal competition. Another interesting finding is that although there was little difference in total step counts between prompting only and prompting plus independent group-oriented contingency lessons, the standard deviation within the contingency condition was small (57.9). This reveals that more students were being physically active while in class. The reason for this decreased variability cannot be definitively stated; however, one can speculate that during this condition, more students attempted to achieve the step count goal.

The results of this study are promising. The use of prompting throughout a lesson seems to improve in-class PA levels during a Sport Education season; however, the lack of a maintenance phase and the small sample size are the main limitations of this study. First, a maintenance phase is significant for establishing the extent to which the effect of an intervention is sustained after the intervention has been completed (Ward & Barrett, 2002). In this study, the intervention was tethered to the framework of the Sport Education model; thus, it would not make sense for the instructor to continue

to provide bonus points toward a league standings board after the season. However, future research can aim to determine the effect of group contingencies in consecutive Sport Education seasons while using similar contingencies. Second, before further conclusions can be made, replications of this study using similar interventions with different activities, grade levels, and contingencies would provide more generalizable results. Moving forward, scholars should attempt to complete longitudinal research expanding this study over multiple consecutive seasons to demonstrate if such improvements to in-class PA can be maintained or improved through prompts and contingencies. The results of this study demonstrating that instructor prompting can improve PA levels by 20% are significant, as obesity rates continue to increase and more emphasis is being placed on student inactivity within physical education. Moving forward, attention needs to be placed on determining if similar results occur during physical education classes taught with other pedagogical models.

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The Physical Educator Vol. 77 • pp. 230–256 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9794

PHYSICAL ACTIVITY

Physical Activity Contributions of Dancing Classrooms Program on Middle School Students

Colin G. Pennington and Larry P. Nelson

Abstract

This study measured the physical activity contributions of Dancing Classrooms on middle school students. Data were collected on 77 students from two large urban middle schools who wore Actigraph wGT3X+ accelerometers for 2 weeks during the program. Physical activity profiles were created to show participant heart rates and step counts. Focus groups further explained motivations for and limitations of exercising in the program. Participants averaged 30.23 min of class time participating in beneficial physical activity, including a mean heart rate of 122 bpm and 1,863 steps/class period. Swing dance recorded the highest exercise outputs as well as highest enjoyment by students. Girls recorded significantly higher exercise intensity levels than boys. The majority of dances in the Dancing Classrooms curriculum produce light to vigorous physical activity with Swing dance and some Sugar dances producing a moderate to vigorous physical activity response. Higher physical activity outputs were also attributed to uptempo music modifications and styles of dance instruction that focus on time-on-task awareness.

Due to evidence of increasingly high levels of adult and childhood obesity in the United States, a renewed effort has been undertaken to identify the etiology of this epidemic. While poor nutrition has emerged as one contributing cause, the increasing prevalence of a

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sedentary lifestyle is also a major factor. Regular physical activity has been shown to reduce a person's likelihood of becoming obese. Research has shown, however, that 1 in 5 adults meets physical activity guidelines, less than 3 in 10 high school students get at least 60 min of physical activity every day, and by the completion of elementary school, only 70% of children are participating in health-enhancing physical activity on a regular basis (this number falls to 42% for boys and 30% for girls by age 21; Institute of Medicine, 2013). Furthermore, only 16% of Hispanic adults meet physical activity guidelines and women are 8% less likely to meet physical activity guidelines than men (Centers for Disease Control and Prevention, 2014). Thus, it is important to develop habit-forming physical activity in children to help improve these outcomes (Gao, Chen, Huang, Stodden, & Xiang, 2017; Hulteen, Morgan, Barnett, Stodden, & Lubans, 2018).

Physical education can play a critical role in helping children establish a foundation for an active lifestyle (Pennington, 2019). Unfortunately, traditional practices of physical education have been called into question in regard to the amount of beneficial physical activity the class provides. Therefore, it is possible that traditional physical education exposure and curricula are deficient in providing the kinds of robust physical activity needed to combat these sedentary behavior–related trends. In this light, researchers and professional organizations have called for structured, well-designed, and innovative daily physical education activities that can help children to achieve health-enhancing fitness (Institute of Medicine, 2013).

In a well-cited longitudinal study by Nader, Bradley, Houts, McRitchie, and O'Brien (2008), physical activity among youth decreased significantly between the ages of 9 and 15 years. It is at age 13 for girls and 13–14 for boys that adolescents drop below the recommended physical activity threshold for maintaining health-enhancing exercise (e.g., 60 min/day at a moderate to vigorous physical activity level; Institute of Medicine, 2013). Coincidently, this also happens to be the same time frame in which many middle school physical education programs have been criticized for not delivering activities that are well structured and liked by students (Lee, Burgeson, Fulton, & Spain, 2007). Therefore, one place to focus attention is the middle school level where having access and opportunity to high-quality and culturally-relevant physical activity programs can affect sedentary

forms of behavior. The goal should be to bring the community together and look for new ways to increase physical activity output and engage students in programs that inspire health-enhancing physical activity, positive role-modeling, parental engagement, and a greater appreciation for school (Pennington, 2017, 2018).

Research has also shown that enjoyment is a major factor for exercise motivation and maintaining a productive engagement in physical activity (Prochaska, Sallis, Slymen, & McKenzie, 2003; Wallhead & Ntoumanis, 2004; Yli-Piipari, Watt, Jaakkola, Liukkonen, & Nurmi, 2009). Positive feelings during an exercise-related episode have shown improvements with self-efficacy (Gentile et al., 2009; Gråstén, Jaakkola, Liukkonen, Watt, & Yli-Piipari, 2012) and predict the likelihood of a person continuing those activities on their own and into the future (Guinn et al., 2006). Research has also shown that girls have a greater tendency to feel less optimistic about achieving health and participating in physical activities than do boys (Burnett, Sabiston, Dorsch, & McCreary, 2010; Puskar et al., 2010; Shen, Chen, Tolley, & Scrabis, 2003). Thus, providing less aggressive activities in middle school physical education may correct this imbalance and improve fitness-related outcomes (Barr-Anderson et al., 2008; Mansfield, Caudwell, Wheaton, & Watson, 2018; Webber et al., 2008). Dancing Classrooms may be an innovative and promising program approach to addressing some of these challenges.

Dancing Classrooms is an in-school residency that has spread rapidly into new cities and schools over the past decade. Featured in the award-winning 2005 documentary *Mad Hot Ballroom,* Dancing Classrooms (http://www.dancingclassrooms.org/) was created in 1994 and introduced in the New York City public schools by ballroom dance champion Pierre Dulaine. The primary mission of the program was to address fundamental social development characteristics (e.g., respect for differences, self-confidence, and cooperation) that cultivate essential life skills in fifth-grade children through the mechanism of social dance. These objectives are constructed through group dance circles that utilize sequential rhythmical skills while working with a multitude of partners in a "dance frame." Participants of the program learn basic American-Style Merengue, Foxtrot, Rumba, Tango, Swing, and Waltz. In addition, the students learn up to four "Sugar" dances that do not require a partner

such as the Stomp, Electric Slide, and Cha Cha Slide. During the 2013–2014 school year, Dancing Classrooms served 44,348 students at 549 schools in 29 major cities across the United States (Dancing Classrooms, 2020).

The Dancing Classrooms program is taught by guest teaching artists from the community who receive training on the Dulaine Method of dance pedagogy. This method embodies Respect and Compassion, Being Present, Creating a Safe Space, Command and Control, Body and Verbal Language, and Humor and Joy. Qualifications of teaching artists include stage presence, vocal command, and prior work experience with children. While previous dance training is preferred, it is not mandatory. The curriculum is made up of 20 uniform lessons that all students at the participating schools receive twice per week via physical education classes. Each class in the series introduces new steps, reinforcing those previously learned through practice and repetition. The highlight of the Dancing Classrooms program is a "Culminating Event" in which all students collectively demonstrate the accomplishments of their 10-week journey while performing the dances of the program for parents, teachers, and administrators at school. Additionally, schools may elect to send a team of 12 students to perform the dances and compete against other local schools at a "Colors of the Rainbow Team Match," which is performed regionally.

Although there is little research on Dancing Classrooms in the literature, two studies have exhibited some of its benefits. The first study examined some of the developmental assets characteristic of the program such as personal efficacy, social support, and school climate. Findings showed that Dancing Classrooms had a beneficial social support structure in which African American and Caucasian students, in particular, showed significant gains in the way they felt accepted by peers of different ethnic backgrounds (Nelson, Wilson, & Guess, 2011). Additionally, Nelson, Evans, et al., (2011) profiled the heart rates of fifth graders in Dancing Classrooms, in which students averaged 124 bpm and were physically active 37 min of class time (17.39 min were spent above a 60% maximal heart rate level). This study also showed girls recorded significantly higher heart rates than boys during the program.

With the successes Dancing Classrooms has had with elementary students over the years, many parents and school officials have

asked the program to expand into the secondary school setting. Therefore, a new version of the Dancing Classrooms program was devised for a pilot. The purpose of this study was to measure how much physical activity middle school students received in the pilot and to explore how students at this level responded to the dance program. Efforts to increase physical activity output for participants' adjustments to the program included a new music soundtrack (with more upbeat tempos for each dance), higher intensity warm-ups at the beginning of lessons, and replacing the Waltz dance with the Salsa dance. With such changes, the following research questions were asked: How much physical activity did Dancing Classrooms provide middle school students? Which components of the Dancing Classrooms program provided the most and least desired physical activity response? What did students think about the program in terms of enjoyment and willingness to participate enthusiastically?

Method

Participants

Participants in the study ($N = 77$) were eighth graders from two middle schools located in a large urban southwest school district ($n_{boys} = 39$; $n_{girls} = 38$). Participants were 12 to 13 years old (average 13 years). The two middle schools receiving the Dancing Classrooms pilot were eager to bring dance to their physical education curriculum and were selected by school district officials. Demographic makeup of the school district was 62.7% Hispanic, 22.9% African American, and 10.9% Caucasian. Seventy-four percent of students were economically disadvantaged and 31.4% were limited English proficiency. According to the FitnessGram PACER test, data showed 75% of students at School 1 ($N = 45$) and 74% of students at School 2 ($N = 32$) recorded "healthy fitness zone" levels. School 1 had 30% of its student body considered to be at "some risk" and 15% at "high risk" for obesity, and School 2 exhibited 34% of students to be at "some risk" and 13% at "high risk" for obesity. School 1 operated on a 50-min class period, while School 2 operated on an 80-min class period. Attendance rates at both schools were similar. Assent was obtained from all participants and informed consent was obtained from parents. Protocols for the study were approved by an internal review board for research.

Procedures

Two teaching artists (TAs) with many years of experience were selected to teach the program. The selection of TAs was based on teaching evaluations, overall leadership in the classroom and instructor trainings, and program seniority. Both TAs were trained on new curriculum additions (i.e., Salsa dance), music soundtrack modifications, and other lesson plan progressions (see Appendix for an example modified lesson plan).

Data Collection and Analysis

Actigraph wGT3X+ triaxial accelerometers were used to measure physical activity contributions of students. These are widely used in a variety of research settings and have been proven a reliable and valid assessment tool for measuring free living physical activity (Rothney, Schaefer, Neumann, Choi, & Chen, 2008). In addition to collecting heart rate data, the wGT3X+ accelerometers have multiple sensors that measure motion along an axis plane (i.e., horizontal, vertical, and perpendicular) and convert those movements into electrical signals over time (epoch). In terms of wearing the accelerometers, students were instructed to wear the unit all day while awake. The only time students were to remove the unit was to sleep or shower. Devices were collected after 2 weeks of wear time and data were downloaded into software for analysis. Heart rate and step count data were independently matched up by program time frames and plotted at 10-s epochs to show a representative physical activity profile. Analysis of variance computations were also used to show differences between the dependent variables (heart rate and step counts) and independent variables (gender and the two schools used for data collection).

Pulsford et al. (2011) cut-point classifications were used for categorizing physical activity intensity levels (i.e., sedentary, light, moderate, and vigorous). For heart rate classification, this study followed the Healthy People 2020 report (Office of Disease Prevention and Health Promotion, 2008), which noted, vigorous physical activities are rhythmic, repetitive physical activities that use large muscle groups at 60% or more of maximum heart rate for age. An exercise rate of 60% of maximum heart rate for age is about 50% of maximal

cardiorespiratory capacity and is sufficient for cardiorespiratory conditioning.

Therefore, using Tanaka, Monahan, and Seal's (2001) regression equation (208 − 0.7 × Age) for maximum heart rate prediction, the study calculated an average maximum heart rate of 199 for the participants (using the average and mode age of 13 years old). Thus, if students had a heart rate of 119 bpm (60% of maximal heart rate) or higher for more than 50% of class activity time, the Dancing Classrooms program was considered to be successful at meeting exercise guidelines.

This study also utilized a naturalistic approach (Lincoln & Guba, 1985) in the form of a questionnaire and focus group interviews. Two focus groups were selected in consult with the resident physical education teacher and consisted of a male group (N = 12) and a female group (N = 14). The questionnaire was administered by the principal investigator at the beginning of the focus group and asked simple and direct questions about which dances students enjoyed most in the program and which dances did they thought stimulated the most physical activity. The students were then asked follow-up interview questions about the specifics of how actively engaged they were in the learning process. Follow-up questions were also directed toward identifying the perceived benefits of participating in dance activities. This process took about 20 min for each group. For enhanced trustworthiness, the content of the interviews was voice recorded, transcribed, and analyzed, to find salient and recurring units of meaning (Goetz & LeCompte, 1981). These themes were used to structure and clarify the important issues arising from the study.

Results

General physical activity findings showed middle school students were sedentary 68.65% of the day. Students were engaged in moderate to vigorous physical activity (MVPA) 3.16% of each day or 17.45 min. Overall, boys spent more time being physically active than girls (Table 1). Dancing Classrooms data showed students spent 61.56% of class time (32.53 min) engaged in light to vigorous

physical activity (LVPA) and 3.08% (1.55 min) in MVPA (Table 2). Dancing Classrooms accounted for 18.79% of total daily LVPA and 8.89% of MVPA. Although there were little differences between genders, there were large differences in the amount of physical activity being recorded between the two schools (Table 2).

Heart rate measures showed Dancing Classrooms exceeded the 60% maximum heart rate threshold for 54% of class time (Table 2) with a mean heart rate of 122 bpm (Table 3). Overall, girls achieved significantly higher heart rates than did boys, $F(1, 3220) = 195.14$, $p = .000$. Girls also achieved the desired heart rate across each of the seven dances in the program, whereas boys did not reach desired heart rate levels in Foxtrot, Rumba, Salsa, and Tango (Figure 1). Table 4 shows that School 1 achieved significantly higher heart rates than School 2, $F(1, 3220) = 72.71$, $p = .000$. Of total physical activity time per lesson, 61% (or 25 min out of a 50-min class period) was spent above the 60% maximal heart rate threshold for School 1, whereas 48% (or 28 min out of an 80-min class period) was spent above the heart rate threshold for School 2. School 1 recorded higher heart rates for each dance independently except with Merengue dance, for which both schools recorded 122 bpm average (Figure 2).

Table 1

Physical Activity Profile of Middle School Students Overall

Physical activity level	Overall	Girls	Boys
Time in Sedentary (%)	68.65	75.17	60.60
Time in Light Physical Activity (%)	28.20	22.98	34.62
Time in Moderate Physical Activity (%)	2.31	1.48	3.33
Time in Vigorous Physical Activity (%)	0.85	0.36	1.45
Average MVPA Per Day (min)	17.45	11.23	23.47
Average LVPA Per Day (min)	173.17	151.48	193.81
Average Steps Per Minute	7.5	5.8	9.5
Steps Max Counts Per Minute	179	178	179

Note. Data use Pulsford et al.'s 2011 cut points for children and exclude non-wear times. LVPA = Low to Vigorous Physical Activity; MVPA = Moderate to Vigorous Physical Activity.

Table 2
Physical Activity Profile of Middle School Students During Dancing Classrooms

Physical activity level	Overall	Girls	Boys	School 1	School 2
Time in Sedentary (%)	35.35	36.01	34.71	5.01	53.08
Time in Light Physical Activity (%)	61.56	60.64	62.48	89.04	45.51
Time in Moderate Physical Activity (%)	2.64	2.91	2.37	5.05	1.23
Time in Vigorous Physical Activity (%)	0.44	0.44	0.45	.90	.18
Average MVPA Per Class (min)	1.55	1.65	1.46	2.53	.78
Average LVPA Per Class (min)	32.53	31.52	33.35	40.39	25.96
DC Contribution to Daily MVPA (%)	8.89	14.69	6.22	12.46	5.06
DC Contribution to Daily LVPA (%)	18.79	20.81	17.21	20.26	16.79
Average Steps Per Minute	18.5	19.8	17.1	31.4	10.9
Steps Max Counts Per Minute	148	148	143	148	119
Classtime Above 60% Max HR (%)	54	64	43	61	48

Note. Data use Pulsford et al.'s 2011 cut points for children and exclude non-wear times. DC = Dancing Classrooms Program; LVPA = Low to Vigorous Physical Activity; MVPA = Moderate to Vigorous Physical Activity; HR = Heart Rate.

Table 3
Dancing Classrooms Physical Activity Measures by Gender and School

Measure	Gender	Condition	*M*	*SD*	*N*
Heart Rate (bpm)	Boys	School 1	121.02	15.93	495
		School 2	114.30	17.90	1070
		Total	116.42	17.58	1565
	Girls	School 1	129.38	18.37	850
		School 2	124.67	19.99	805
		Total	127.09	19.31	1655
	Total	School 1	126.31	17.97	1345
		School 2	118.75	19.41	1875
		Total	121.90	19.24	3220

Table 3 (cont.)

Measure	Gender	Condition	*M*	*SD*	*N*
Step Counts (per Minute)	Boys	School 1	32.34	21.78	495
		School 2	23.24	18.43	1070
		Total	26.12	20.00	1565
	Girls	School 1	33.45	22.43	850
		School 2	21.25	19.42	805
		Total	27.52	21.88	1655
	Total	School 1	33.04	22.19	1345
		School 2	22.39	18.89	1875
		Total	26.84	21.00	3220
Vector Magnitude (in Feet)	Boys	School 1	2259.46	1030.91	495
		School 2	2003.18	1092.92	1070
		Total	2084.24	1079.97	1565
	Girls	School 1	2616.60	1247.23	850
		School 2	2181.57	1275.20	805
		Total	2405.00	1279.16	1655
	Total	School 1	2485.16	1184.47	1345
		School 2	2079.77	1177.64	1875
		Total	2249.10	1197.13	3220

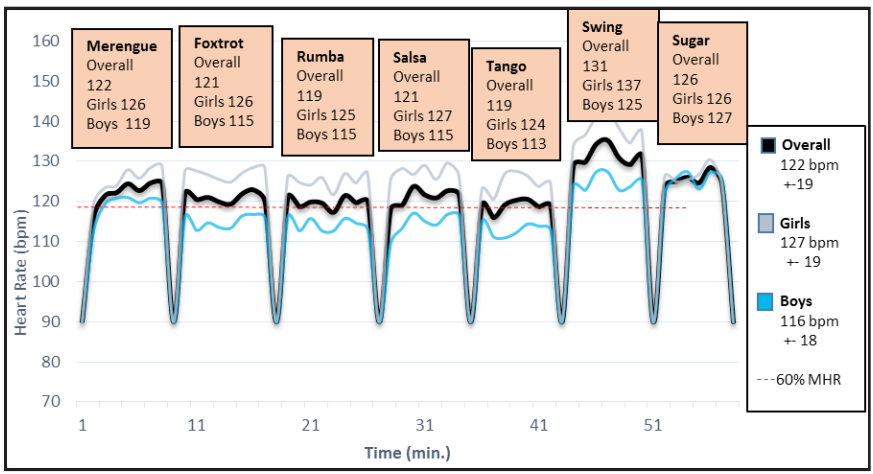

Figure 1. Heart rates of Dancing Classrooms middle school program. MHR = max heart rate.

Table 4
Dancing Classrooms Tests of Between-Subjects Effects for Gender and School

Source	Measure	Type III sum of squares	*df*	*F*
Gender	Heart Rate	65275.92	1	195.14*
	Steps	142.57	1	.345
School 1 * School 2	Heart Rate	24322.78	1	72.71*
	Steps	84340.84	1	204.25*
Gender * School	Heart Rate	754.62	1	2.26
	Steps	1795.04	1	4.35

*$p < .05$.

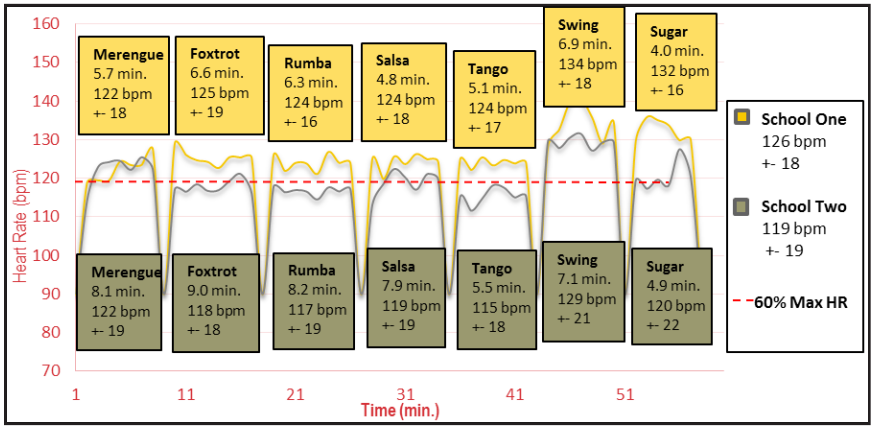

Figure 2. Heart rates of Dancing Classrooms program (School 1 vs. School 2). HR = heart rate.

Dancing Classrooms provided students with an average of 18.5 steps/min during class time (Table 2). School 1 (33 steps/min) recorded much higher average step count totals than School 2 (22 steps/min). No significant gender differences were found with overall step counts, $F(1, 3220) = .345$, $p = .557$. There were visible differences between gender at the beginning of some dances (i.e., Merengue, Foxtrot, and Swing) where girls outperformed boys (Figure 3). Boys showed higher step counts at the beginning of Tango

and latter part of Sugar dances. School 1 recorded significantly higher step count totals than School 2, $F(1, 3220) = 204.25$, $p = .000$, with the largest differences found in Merengue, Rumba, Tango, and Sugar dances (Figure 4). Step counts started out stronger in School 1 across every dance except Salsa.

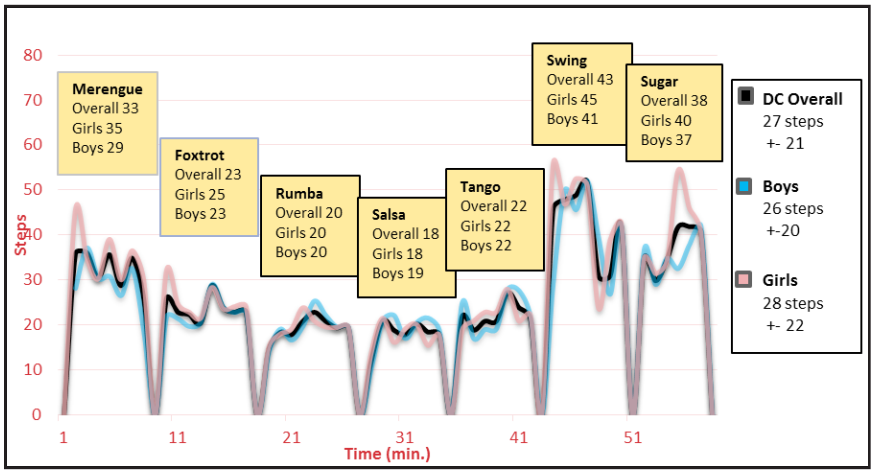

Figure 3. Step counts of Dancing Classrooms middle school program. DC = Dancing Classrooms.

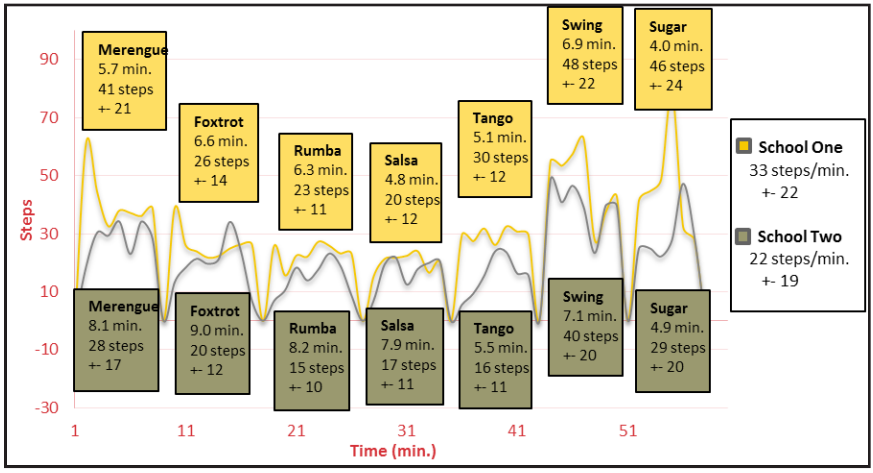

Figure 4. Step counts of Dancing Classrooms program (School 1 vs. School 2).

A vector is a quantity having direction as well as magnitude (i.e., length), as determining the position of one point in space relative to another. So the vector magnitude of a particular dance represents the distance traveled during the dance in feet. In addition to collecting heart rate data, the wGT3X+ accelerometers have multiple sensors that measure motion along an axis plane (i.e., horizontal, vertical, and perpendicular) and convert those movements into electrical signals over time (epoch). Multiple planes of these axis movements can be bundled together to show more comprehensive physical activity estimates (e.g., vector magnitude). The vector magnitude of movement counts (Table 4 and Figure 5) showed girls (2405.00) accumulated statistically significantly higher amounts than boys (2084.24). Additionally, vector magnitude was the only metric that showed girls at School 1 performed greater dance/exercise movements than boys at School 1 significantly more than did the girls at School 2 over the boys at School 2. Tables 3 and 4 also show School 1 (2485.16) accumulated significantly higher vector magnitude counts than School 2 overall (2079.77), especially within Foxtrot, Rumba, Tango, and Sugar dances (Figure 6). The largest vector magnitude of movement difference was found in Rumba where School 1 recorded 895 counts higher than School 2.

Questionnaire results showed middle school students thought Swing (68.57%) elicited the most fitness response of any dance. Additionally, Swing (62.86%) was enjoyed by students most. The dance viewed to be least enjoyable was Rumba (2.86%). The only significant difference found between gender across questionnaire reporting was with the question, "How much exercise do you feel you got in the Dancing Classrooms program?" where girls reported significantly higher means, $F(1, 33) = 4.202$, $p = .048$, than the boys.

Discussion

The Physical Activity Response of Dancing Classrooms on Middle School Students

Findings of this study suggest Dancing Classrooms is eliciting a generous amount of light to moderate physical activity with middle school students and is accounting for a substantial amount of total daily physical activity contribution. Based on middle school physical education activities measured by Brusseau and Burns (2015),

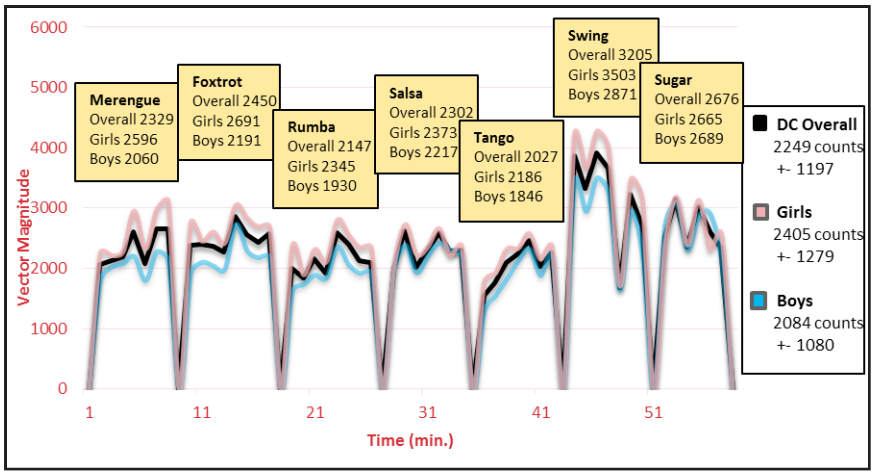

Figure 5. Vector magnitude counts of Dancing Classrooms middle school program. DC = Dancing Classrooms.

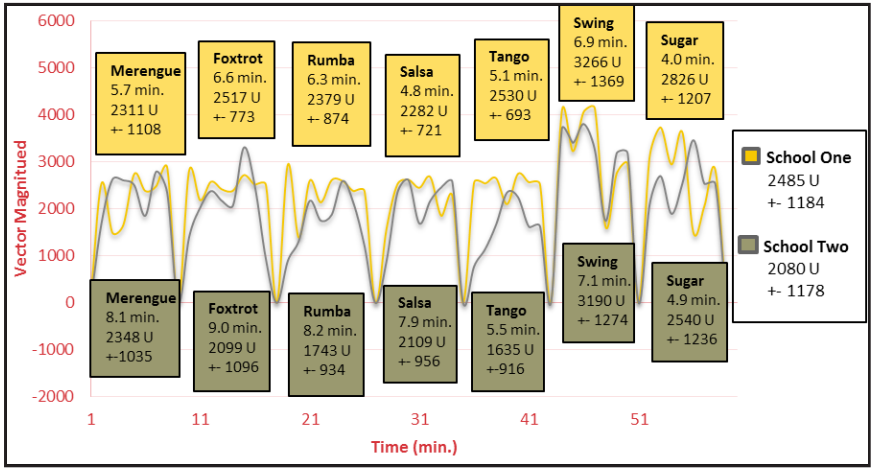

Figure 6. Vector magnitude counts of Dancing Classrooms (School 1 vs. School 2).

Dancing Classrooms total step count measures (1,863) compare similarly with Floor Hockey (1,863), Tchouckball (1,866), Hip Hop Dancing (1,766), Fitness Relays (1,705), and Cross Training (1,759). Compared to findings by Laurson, Brown, Cullen, and Dennis (2008), the recorded heart rates of Dancing Classrooms (119 bpm) measured most closely with high school physical education activities such as Pickleball (115 bpm) and Dance (124 bpm).

Boys are participating in more physical activity overall, although girls are exhibiting a greater physiological response during the Dancing Classrooms program. This lends further support to the gender findings of Nelson et al. (2011), who found girls (127.3 bpm) attained higher heart rates than the boys (121.1 bpm). Why girls are responding to the Dancing Classrooms program differently may be partly explained by the psychosocial and cultural factors associated with dance that influence girls more than boys (Puskar, et al. 2010). As Ginsburg-Block, Rohrbeck, and Fantuzzo (2006) reported, girls are likely to do better when presented activities that are more interactive and cooperative in nature. While many middle school physical education curricula are dominated by competitive activities, which are typically more appealing to boys (e.g., team sports), Dancing Classrooms may be viewed as a curriculum that can help motivate girls to participate more fully in middle school physical education.

The only measure from the study that did not show girls expending significantly more physical activity than boys was step counts (Boys, 26.12; Girls, 27.52). An explanation for this may have to do with the uniform and synchronized structure of the program. Because all participants dance in circular progressions with multiple partners at the same time, everyone is performing typically identical leg and step movements. For step count measures, the accelerometers are only taking vertical axis measurements of movement into consideration, which tend to be very similar between dance partners in the program.

Differences Between Activities in the Dancing Classrooms Program

Individual dances within the Dancing Classrooms program showed some variation. Heart rates, step counts, and vector magnitude of movement data showed much higher physical activity outputs within the Swing dance over all other dances in the program. The Swing is danced to vigorous music with an upbeat tempo and requires large and fast body movements (e.g., bouncing quickly on the balls of the feet and pushing and pulling a dance partner with speed and force). What makes the Swing dance even more appealing is that middle school students enjoyed this dance most. Additionally, there was a strong positive correlation ($r = .90$, $n = 36$, $p = .000$) between which dance activity in the program students thought would result

in the most fitness (i.e., Swing) and which activity they enjoyed most in the program (i.e., Swing). Furthermore, many students recorded on the questionnaire that Swing was the dance practiced most at home and taught to family members and friends. Clearly, the Swing dance is most likely to be rehearsed and remembered into the future by students.

One goal the researchers and program administrators had for this pilot was to find another dance (i.e., Salsa) that would elicit a high physical activity response with middle school students. This study shows that Salsa does not meet these expectations. Salsa led to the least amount of step counts of any dance in the program and did not elicit any more physical activity. Furthermore, Salsa (121 bpm) did not improve heart rate much more than the dance it replaced (i.e., Waltz at 118 bpm) reported by Nelson et al. (2011).

Why Did School 1 Show More Physical Activity Contributions Than School 2?

Although we did not see a large difference in the amount of MVPA time between schools, we did find a large difference in the amount of LVPA time. The average time students were physically active during the Dancing Classrooms program was 39 minutes (School 1) and 24 minutes (School 2). Ironically, School 1 operated on a 50-minute class period, whereas School 2 operated on a "block schedule" that embodied 80-minute class periods. We think there may be two contributing reasons that help explain this difference between schools. First, after careful observations, the environment (and the students familiar with the existing environment) at School 1 was generally better managed by existing physical education faculty before, during, and after the Dancing Classrooms program. Second, the style of instruction from the TA at School 1 was generally more cognizant and focused on the fitness aspect of dance than the style of instruction from the TA at School 2. In other words, the instructor at School 1 was more focused and efficient with instruction, transitions, and minimizing downtime to get the students moving and completing the lesson on time. Because the duration of class length differs between and across schools delivering the Dancing Classroom curriculum, we recommend that future lesson plans be tailor-made for participating schools based on time allocated to physical education classes. We also support the effort of instructors employing efficient

transitions and management techniques to enhance the time on task of each lesson, thus increasing the likelihood of students staying in optimal physical activity ranges.

Results did show School 2 outperforming School 1 in the latter part of the Foxtrot dance in step count and vector magnitude. However, this was the only time in the program that School 2 showed more physical activity contributions than School 1. Excluding step count measures, Merengue was the only dance to not show a large difference in physical activity output between schools. This may be because the Merengue is the initial dance in the curriculum and students are receiving a lesson in cognition and behavioral change as a primary outcome of the instruction. Merengue is where the instructor is focusing on a familiarity process with classmates and introducing proper physical contact between genders.

Development Differences Between Gender and Self-Esteem Considerations

Focus group data revealed student feelings toward the Dancing Classrooms experience. While both boys' and girls' groups agreed the dancing component of the program was valuable and enjoyable, the groups maintained very different moods on the "social" and "coed" experience overall. Boys were much more positive and optimistic about dancing with the opposite gender and in front of the class. The majority of the male participants stated they were "pleasantly surprised with their enjoyment of program." Boys also acknowledged dance would enhance sport performance by improving balance and footwork.

The girls expressed some positivity about a variety of elements associated with the program (e.g., using dance as a regular form of exercise, dancing as opposed to "gym sports," learning dances for upcoming quinceañeras) but were far more negative toward the social experience. Much of this was aimed at the visceral discomfort of physical contact shared with the boys (e.g., the close proximity of the boys' face to their bosom). The female participants were typically taller than male participants, and the female participants were steadfast that this issue alone distracted them greatly from focusing on learning the lessons and impeded their motivation to engage fully in program activities. Many also expressed feelings of exposure by

virtue of having to adhere to a dress code that discouraged jackets or sweaters to be worn during class.

Although an important goal of the Dancing Classrooms program is to promote the idea that participants are maturing ladies and gentlemen, the expectation is participants' attitudes should reflect a higher level of etiquette and poise. Therefore, the TAs reinforce a confident posture among participants (i.e., standing up straight, head held high, shoulders back) and a precise dress code. This may include either a school-issued PE uniform (cotton T-shirt and cotton, knee-length gym shorts) or a standard school dress code uniform (khaki shorts or pants and cotton half-button shirt). The Dancing Classrooms program dress code does not allow for added clothing (i.e., hoodie, jacket, sweatshirt, etc.). It was detailed in the girls' focus group that they would have felt more comfortable with a less rigid dress code, thus enhancing their enthusiasm to participate. This suggests that Dancing Classrooms officials may want to look at dress code modifications for middle school students and make accommodations appropriately.

Limitations of the Study

Inherent to this study are a few limitations. School location, teacher style, class size, class time, nonrandomness of the sample, and time spent previously practicing the activities may have caused variation in the physical activity responses measured. The data presented here may have also overestimated the overall physical activity response of the program due to data collection at the very end of the Dancing Classrooms program (Lessons 17 and 18 out of 20 total). By this time in the program, students are familiar with the dances and more confident in their ability to perform the dances correctly.

Recommendations

Recommendations from this study include providing TAs more training protocols that emphasize continuous movement, pace with instruction, and less verbal instruction during the later lessons of the program (e.g., after Lesson 10). We also think that retaining the more up-tempo music selection and higher intensity warm-ups helped ensure students were maximizing their physical activity output for longer durations of class time. In addition, we endorse the utilization of transitional partner changes within each dance after

Lesson 12 to increase the flow of exercise movements throughout the lessons and eliminate idle partner switches. Since middle school students are expected to learn the dances more quickly than elementary students, we believe TAs should move through the curriculum at a faster pace, with fewer pauses in between partner switches, allowing for more constant movement and tempo. This includes adding into TA trainings new progressions that advance partners simultaneously without breaks in the dances. The assumption here is that more time on task will naturally develop the movement skills for students anyway without the TA stopping the class regularly to correct minor imperfections with technique.

Removal of the Waltz in replacement of Salsa showed no effect on increasing physical activity output. The steps associated with the Salsa were perhaps too sophisticated for this population, which led to more remedial teaching and more idle class time (less movement). Additionally, we believe introducing the Salsa lowered students' self-efficacy toward the program, as there appeared to be less overlap with the other dances in the program and more gaps in the learning sequence. In this light, the researchers developed a greater appreciation of each new dance introduced, which is built upon previous dances. In other words, the transition to the Salsa, in place of the Waltz, did not provide learners with this kind of sequential scaffolding, which led to unfamiliar dance steps and thus more idle time. This increased the need for more verbal instruction versus time-on-task repetition and practice. We believe it was this additional yet necessary "idle time" that led to unexpectedly low physical activity output for this dance. Therefore, we recommend the Waltz be added back into the middle school curriculum and the Dancing Classrooms progression for future study.

We also recommend that the program relax its dress code requirements and allow girls at the middle school level to wear sweatshirts, jackets, sweaters, and so forth to best align with the Dulaine Method teaching of "creating a safe place." The Dulaine Method suggests that a Dancing Classrooms classroom is a place where everyone is equal: the students, the TA, and the school staff. Otherwise known as therapeutic milieu, the environment is so different from

the children's normal daily environment that simply being in the room (and being part of the collective group experience) changes students' perspective about school. Allowing the girls to feel more comfortable in their clothing, in their own skin, is important in establishing this "safe place" for young adolescent ladies and allowing them to get the most out of their physical education experience.

Finally, we believe the Swing dance is the most valuable dance in the Dancing Classrooms curriculum and has important functions to the fitness, enjoyment, and overall motor learning of students in the program. By learning that the students' favorite dance was the same dance they accurately believed was the most physical activity inducing (Swing), we can therefore suggest that developing a physical education curriculum aimed at eliciting high levels of MVPA is not a barrier to student enjoyment. We would encourage Dancing Classrooms officials to find ways to expand upon this dance and find more time for curricular inclusion.

What Does This Article Add?

This article demonstrates the physical activity effect of an increasingly popular physical education dance program that has been consistently growing nationally and internationally. Although the program has traditionally been targeted at fifth-grade students, there is a growing demand for program expansion into secondary school settings. Because there is a steady decline in physical activity participation among adolescent girls, along with a typically "sports heavy" physical education curriculum in middle scools, the results of this study are timely and support an effort to help create and balance a more activity-varied physical education approach. Additionally, the results of this study confirm the Nelson et al. (2011) findings that showed similar heart rate recordings and dance curriculum patterns with elementary students participating in the Dancing Classrooms program. Last, this study has brought to light some of the social-emotional learning and interactive challenges characteristic of a coed dance curriculum and has offered solutions for improved youth development at the middle school level.

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Appendix

Dancing Classrooms teaching artists are expected to plan out their lessons. The lesson plan is a teacher's standard best practice for tracking the progress of students as well as their own teaching. Underlined text indicates modifications/addition.

Sample Lesson Plan

Subject: Merengue Separation Step, Foxtrot Basic Step and Promenade With Progression, Stomp.

Student Objectives: (by the end of this lesson my students will be able to…

- Review Merengue Step
- Review Dance Frame
- Basic Foxtrot Step
- Learn the Stomp

Prior Knowledge/Motivation/Engagement: Students enter in Pasodoble music. Actors Dancers have to warm up, let's all warm up with a what we know at the studio as "the actor's warm up" (1 minute)

Lesson: Foxtrot Basic Step, 15 minutes

Beginning:

- Today, Ladies and Gentlemen, we are going to learn the Foxtrot. Students are in facing inside the circle and we all take 4 steps forward and four steps back. 1, 2, 3, 4 (3 minutes)
- Ladies and Gentlemen, what word do we hear in foxtrot? Fox! Excellent! And fox are smooth, this is a smooth dance, and we are getting on our planes flying to the United States because that is where Foxtrot comes from.
- Let me see Gentlemen in the inside circle, ladies in the outside circle. Pancake HOLD!
- Pancake hold please! And now we will try it with our partners. 1, 2, 3, 4 Forward and Back
- Back, someone spell back for me, someone spell away for me…wonderful. Ladies and Gentlemen, we are going to go back to the circle (2 minutes)

- Now we will take 1, 2 steps away with our partners and FREEZE! After that second step we will go side together step. Like the Merengue step. Away, away Merengue step (side together), back, back Merengue step
- (Promenade step is introduced – Walking exercise with the "three-legged race." Have ladies and gentlemen face the racetrack – quick explanation of racetrack and in escort position we are walking around the circle/racetrack, stepping with the outside foot first, then the inside. We progress in speed. (without music)
- Reflecting on A step and B step with added Merengue step. Ladies and Gentlemen, listen to my tempo as I clap, then I will ask you to join. (Clapping, "slow, slow, quick quick" tempo shared. Clapping, stamping feet, and chanting.) Add cueing A, away a boom, boom. B, back a boom boom.
- Let's put it together, Thank you Partner, Hello New Partner! Try again and with music! (add up-tempo foxtrot music)
- Now, Ladies and Gentlemen, dance frame please!! WOW, HOW WONDERFUL!!
- Quick Simon Says review of chopsticks, pancake burnt pancake, dance frame, chopsticks! (2 minutes)

Middle: (10 minutes)

- (Progression step of promenade step introduced. Ladies and Gentlemen, remind me: the "C step" we are walking around the racetrack C, C a boom boom).
- Introducing the C+ step progression.
- Explain that the C progression step is when the lady is turning while the gentlemen stays in basic, then adding another C progression "C++" "it's like swimming through the water, having both the Lady and Gentlemen turning at the same time."
- Let's put it together, Thank you Partner, Hello New Partner! Try again and with music! (add up-tempo foxtrot music)
- Let's review our Merengue step, change partners
- Say, together turn!!
- Explain that together turn, "it's like the bicycle belts, where one goes first and the other follows."
- Go over dance frame

End:

- "May I have everyone in escort position please?! And I want you all in order from tall, taller, and tallest!
- We have one more thing to learn, Ladies and Gentlemen! The Stomp! Separate yourselves."
- Teach the Stomp

Review: Merengue

Closing Activity:

- Recap the day's lesson and discussion
- Preview following lesson: Merengue Separation Step and Foxtrot Promenade With Progression Step

The Physical Educator Vol. 77 • pp. 257–270 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9483

PHYSICAL FITNESS

Project Fit America's Effect on Youth Fitness Levels

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Abstract

The Project Fit America (PFA) curriculum was initiated in 1990 with a mission to create and provide quality opportunities for American school children to be active, healthy, and fit. This study assessed the effect of the PFA curriculum and outdoor fitness equipment on fitness testing scores of elementary school students. Participants were 4th- and 5th-grade students including 62 females and 54 males. Students were divided into one of four groups: males experiencing (EM) or not experiencing (NEM) the PFA curriculum and females experiencing (EF) and not experiencing (NEF) the PFA curriculum. Students were tested once in the fall and once in the spring for the following activities: cadence push-ups, cadence curl-ups, sit-and-reach, and the Progressive Aerobic Cardiovascular Endurance Run (PACER) test. EM and EF groups showed significant increases in their push-up, $t(33) = -2.088$, $p = 0.045$, and $t(28) = -2.783$, $p = 0.010$, and curl-up, $t(33) = -2.866$, $p = 0.007$, and $t(28) = -3.08$, $p = 0.005$, posttesting scores. Additionally, NEM showed significant increases in their PACER, $t(19) = -2.202$, $p = 0.04$, posttesting score. The results of this study indicate the implementation of the PFA curriculum may assist in increasing elementary student muscular strength and endurance fitness testing scores.

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The childhood obesity epidemic is a major health concern in the United States (Nguyen, 2018). A 5-year longitudinal study following adolescents into young adulthood found that the proportion of adolescents becoming and remaining obese was 12.7% with only 1.6% shifting from obese to nonobese (Gordon-Larsen, Adair, Nelson, & Popkin, 2004). These findings indicate that those with a higher body mass index (BMI) are more at risk to gain more weight compared to those at a lower BMI. Increased physical activity is a primary method for tackling the obesity epidemic. Swinburn and Egger (2002) identified increasingly "obesogenic" environments as the main driving force for the obesity epidemic; neighborhoods, homes, and schools were identified as primary settings for intervention, with children and adolescents identified as a priority population. The Society of Health and Physical Educators (2013) identifies that preadolescent children (aged 5–12) should accumulate at least 60 min of age-appropriate physical activity on all, or most, days of the week and this daily accumulation should be of the moderate to vigorous variety. Additionally, a 2001 report by the Centers for Disease Control and Prevention (2001) recommended school-based physical education (PE) and curricula policies as primary implementations to increase daily moderate to vigorous physical activity. Therefore, there is a need for increased levels of childhood physical activity and school-based interventions as an optimal strategy for achieving this goal.

Youth profiles of physical fitness, obesity, and physical activity participation may be partially subject to their levels of motivation. When more connected with their peers and given some autonomy to choose their own activities, adolescents will feel more physically competent and motivated to participate (Wang, 2017). Project Fit America (PFA) strives to create this motivating atmosphere for physical activity participation within their sponsor schools. PFA teaches goal setting and responsibility to students in their personal quest toward a fit life. As a result, children partaking in PFA become physically motivated through empowerment and increased self-esteem (PFA, n.d.-b). Perhaps fitness-related PE lessons are not as exciting as traditional sport activities for some students. PFA utilizes a strategy called "disguised fitness" in which activities and equipment provide building blocks for fitness yet are so fun and exciting

that all students will respond (PFA, n.d.-a). The activities and equipment provide opportunities for all ability levels, promoting a feeling of physical competence for the students. Overall, PFA curriculums employ a motivating strategy to educate students about physical activity and fitness.

PFA is a national nonprofit organization that creates and administers exemplary fitness in PE programming in schools, Grades K–8. The mission of PFA is to encourage children to increase their physical activity and fitness, build self-confidence, and create physical activity programs that inspire children to continue to participate in fitness-based activities throughout their lifetime. To assist with the childhood obesity epidemic, PFA developed a PE curriculum and outdoor fitness equipment that are focused on providing more quality opportunities to be active, healthy, and fit. With activities that motivate students to be more active, the PFA curriculum uses intrinsic and extrinsic motivation to promote the five components of fitness: muscular strength, muscular endurance, cardiovascular endurance, flexibility, and body composition. The purpose of this study was to assess the effect of PFA's curriculum and fitness equipment on school-going elementary aged students' fitness testing scores.

Method

Participants

All procedures and instruments used during this study were approved by the university institutional review board and the public school district for which the study took place. The students (N = 116) were in fourth and fifth grade (9–11 years old) from an upper-Midwest elementary school, with 62 females and 54 males participating. Participating students were required to submit parental approval and consent before being included in the study. Any student absent or unable to participate during regular testing was excluded. Of the 54 males who participated, 34 experienced the PFA curriculum (EM) and 20 did not (NEM) and of the 62 females who participated, 31 experienced the PFA curriculum (EF) and 31 did not (NEF). Table 1 shows descriptive statistics for these groups.

Table 1
Descriptive Statistics

BMI	NEM (n = 20) $M \pm SD$	NEF (n = 31) $M \pm SD$	EM (n = 34) $M \pm SD$	EF (n = 31) $M \pm SD$
Pre-BMI (kg/m^2)	17.8 ± 2.9	17.5 ± 2.5	19.7 ± 4.0	18.0 ± 3.5
Post-BMI (kg/m^2)	17.8 ± 2.8	18.1 ± 2.5	20.0 ± 4.2	18.4 ± 4.0

Note. NEM = no experience males; NEF = no experience females; EM = experience males; EF = experience females.

Instrument

PFA's Core Curriculum and outdoor fitness equipment provided all the materials needed for this study as a part of a grant awarded to the school. Beyond the state-of-the-art outdoor ground fitness equipment, the grant included medicine balls, weighted jump ropes, and weighted hula hoops. Also included were $250 in play money and 1,000 fitness cups, along with several certificates, providing extrinsic motivators for activities within the curriculum.

The research goal was to see if experiencing the PFA curriculum and outdoor fitness equipment had any effect on students' fitness levels from the beginning to the end of the year. Reported test results used for this study included cadence push-ups, cadence curl-ups, Progressive Aerobic Capacity Endurance Run (PACER) test, modified sit-and-reach, and calculated BMI (Table 2). These assessments were chosen as they represent the five components of fitness: muscular strength, muscular endurance, cardiovascular endurance, flexibility, and body composition, respectively.

Procedures

Permission was obtained by the school district to seek parental/student consent to use fitness testing scores for analysis. Prior to the use of students' testing scores for the study, each student received a parent/guardian consent form that they were required to take home and have signed before their scores could be used in the study. Once the students returned the signed forms, each student signed a student consent form, agreeing to allow use of their fitness scores.

The school consisted of two PE teachers with an equal number of fourth- and fifth-grade sections of PE. One PE teacher received

Table 2
Student Fitness Assessment Pre- and Posttest Procedures

Fitness test	PFA fitness component (5)	Procedure
Cadence Push-Ups	Muscular Strength & Endurance	Maximal receptions for push-ups, 1 every 3 seconds, performed to a metronome recording, 86 maximum.
Cadence Curl-Ups	Muscular Strength & Endurance	Maximal receptions for curl-ups, 1 every 3 seconds, performed to a metronome recording, 80 maximum.
Sit-and-Reach	Flexibility & Body Composition	Individual measurements (inches) of right and left legs, then averaged for both legs.
PACER	Cardiovascular Endurance	Running from one line to another (20 m apart) while keeping pace with a metronome recording that increases slightly with each round, maximum 241 lines completed.

Note. PACER = Progressive Aerobic Capacity Endurance Run. Testing was completed during regularly scheduled physical education class as a part of biannual fitness assessment. Results were collected and recorded immediately after test completion. Fall testing was completed in October and spring testing in May.

training on the PFA curriculum and implemented it for their fourth- and fifth-grade PE sections, while the other teacher continued their regular curriculum, which involved a twice-weekly rotation of team sport and group activities that did not include the PFA equipment. Therefore, students who did not experience the PFA curriculum were not given scheduled access to the PFA playground equipment; however, this equipment was available for all students outside regular school hours. Students participated in regular fitness testing once during the Fall semester (October) and once during the Spring semester (May). The following metrics were tested and measured: cadence push-ups, cadence curl-ups, modified sit-and-reach, 20-m PACER, and BMI. Student BMI was calculated by dividing their

body weight in kilograms by their height in meters squared (kg/m^2). Body weight and height were measured via a traditional physician's scale.

In the weeks prior to both pre- and posttesting, students were instructed on proper technique and given instructions for completing the tests. Fitness testing scores were collected and recorded immediately after the tests were completed. Occasionally, a student would miss a testing day and would make up the fitness testing on a separate day. Each class was reminded of the proper procedure to perform each test and of the faults for each test. The results were obtained from the PE teacher upon completion of regular spring fitness testing collection.

Statistical Analysis

All analyses were performed via SPSS 24.0 (IBM, Armonk, NY). In the event of missing data, the sequence of data in correlation with the missing piece was not included in the statistics. Anthropometric measurements of participants are presented through descriptive statistics. Paired-sample t tests determined significant differences in pre- to posttest scores, and effect sizes were calculated for pre- to posttesting comparisons. Statistical significance was determined by $p < 0.05$.

Results

Not all students were present for both pre- and posttesting sessions and thus the number of participants for each group is not the same for every test. Any student missing either pre- or posttesting data was not included in final analysis.

The EM group showed significant increases in posttest scores for push-ups, $t(33) = -2.088$, $p = 0.045$ ($d = 0.200$; Table 3), and curl-ups, $t(33) = -2.866$, $p = 0.007$ ($d = 0.227$; Table 4), but no significant increases in posttest scores for average sit-and-reach, $t(33) = 0.319$, $p = 0.752$ ($d = 0.031$; Table 5) and the PACER, $t(31) = -1.925$, $p = 0.063$ ($d = 0.169$; Table 6). Additionally, the NEM group showed significantly greater posttest scores for the PACER, $t(19) = -2.202$, $p = 0.04$ ($d = 0.322$; Table 6), but no significant increases for push-ups, $t(19) = -0.320$, $p = 0.753$ ($d = 0.073$; Table 3); curl-ups, $t(19) = -0.267$, $p = 0.793$ ($d = 0.024$; Table 4); and average sit-and-reach, $t(19) = 1.881$, $p = 0.075$ ($d = 0.308$; Table 5).

The EF group showed significant increases in posttest scores for push-ups, $t(28) = -2.783$, $p = 0.010$ ($d = 0.203$; Table 3); curl-ups, $t(28) = -3.08$, $p = 0.005$ ($d = 0.254$; Table 4); and average sit-and-reach, $t(29) = 2.253$, $p = 0.032$ ($d = 0.246$; Table 5), but no significant increases in posttest scores for the PACER, $t(24) = -1.213$, $p = 0.237$ ($d = 0.133$; Table 6). Additionally, the NEF group showed no significant increases for any of the four tests: push-ups, $t(26) = 0.153$, $p = 0.880$ ($d = 0.018$; Table 3); curl-ups, $t(25) = -0.772$, $p = 0.448$ ($d = 0.108$; Table 4); average sit-and-reach, $t(26) = -0.970$, $p = 0.341$ ($d = 0.139$; Table 5); and the PACER, $t(26) = 0.845$, $p = 0.406$ ($d = 0.093$; Table 6).

Table 3
Pre- and Posttest Scores for Student Cadence Push-Ups (Maximum 86)

Score	NEM ($n = 20$) $M \pm SD$	NEF ($n = 27$) $M \pm SD$	EM ($n = 34$) $M \pm SD$	EF ($n = 29$) $M \pm SD$
Pretest	26.7 ± 11.9	32.4 ± 17.6	22.0 ± 13.1	25.6 ± 18.2
Posttest	27.7 ± 15.4	32.0 ± 18.7	24.8 ± 14.7	29.7 ± 21.8
% Change	3.8	-1.0	12.7*	15.9*

Note. NEM = no experience males; NEF = no experience females; EM = experience males; EF = experience females.

*$p < 0.05$.

Table 4
Pre- and Posttest Scores for Student Curl-Ups (Maximum 80)

Score	NEM ($n = 20$) $M \pm SD$	NEF ($n = 27$) $M \pm SD$	EM ($n = 34$) $M \pm SD$	EF ($n = 29$) $M \pm SD$
Pretest	53.8 ± 25.7	50.3 ± 19.1	37.4 ± 24.9	35.9 ± 22.1
Posttest	54.4 ± 23.4	51.8 ± 22.5	43.0 ± 24.5	41.5 ± 23.6
% Change	1.1	2.9	15.0*	15.7*

Note. NEM = no experience males; NEF = no experience females; EM = experience males; EF = experience females.

*$p < 0.05$.

Table 5
Pre- and Posttest Scores for Student Average Sit-and-Reach (Inches)

Score	NEM (n = 20) $M \pm SD$	NEF (n = 27) $M \pm SD$	EM (n = 34) $M \pm SD$	EF (n = 30) $M \pm SD$
Pretest	9.8 ± 1.6	10.8 ± 1.4	7.9 ± 2.8	10.2 ± 1.7
Posttest	9.3 ± 1.5	10.9 ± 1.3	7.8 ± 2.9	9.7 ± 2.0
% Change	−4.7	1.7	−1.1	−4.5*

Note. NEM = no experience males; NEF = no experience females; EM = experience males; EF = experience females.

*$p < 0.05$.

Table 6
Pre- and Posttest Scores (Lines With Maximum 241) for Student PACER

Score	NEM (n = 20) $M \pm SD$	NEF (n = 27) $M \pm SD$	EM (n = 32) $M \pm SD$	EF (n = 25) $M \pm SD$
Pretest (laps)	47.3 ± 21.8	42.6 ± 18.9	39.2 ± 23.7	33.1 ± 13.1
Posttest (laps)	54.4 ± 22.6	41.0 ± 14.1	42.9 ± 20.6	34.9 ± 13.4
% Change	15.1*	−3.7	9.6	5.2

Note. NEM = no experience males; NEF = no experience females; EM = experience males; EF = experience females.

*$p < 0.05$.

Discussion

The purpose of this study was to determine if exposure to the PFA supplemental curriculum had any effect on elementary students' fitness testing scores. The findings demonstrate students who experienced the PFA curriculum and equipment improved muscular strength and endurance fitness testing scores to a greater extent than students who did not experience the PFA curriculum. Both groups did not show improvements in their BMI or flexibility, with EF showing a significant decrease in modified sit-and-reach scores during posttesting. The lack of significant change in BMI was likely contributed to natural childhood development and was therefore beyond the scope of this study. Further, NEM demonstrated greater

cardiovascular fitness during posttesting compared to their EM counterparts. Together, these findings suggest the PFA curriculum activities place a significant emphasis on muscular strength and endurance activities, and careful consideration must be used in the selection of activities for already existing PE curricula.

The Five Components of Project Fit America

The PFA curriculum is a supplemental intervention that can be added to already existing PE curricula and focuses on broad-based fitness orientation, core motion-movement development, sportsmanship, leadership development, and an empowerment toward understanding healthy and active lifestyles (PFA, 2015). Regular physical activity and fitness are key indicators of health outcomes and have been shown to enhance one another (Chen, Hammond-Bennett, Hypnar, & Mason, 2018; Stodden et al., 2008). Children with low fitness levels are more likely to become overweight or obese over time and physical fitness has been shown as a stronger predictor of total and abdominal obesity for children and adolescents than has physical activity (Chen et al., 2018). Additionally, Chen et al. (2018) showed that elementary-aged students' overall performance on FitnessGram testing was significantly associated with them being physically active during PE and recess and not with their participation in nonorganized physical play outside school.

Project Fit America Curriculum and Motivation

While assessment of motivation was not implemented in this study, individual student motivation may have played an important role during fitness testing. Research has demonstrated students show more intrinsic motivation during activities they enjoy and require more extrinsic motivation during activities they do not enjoy (Pannekoek, Piek, & Hagger, 2013). Additionally, Huang and Gao (2011) reported intrinsic motivation was positively and significantly related to physical activity enjoyment—a critical factor when children attempt to achieve higher levels of daily physical activity. As the implementation of the PFA curriculum was a new addition to the PE program, students may have perceived the new activities as exciting and new, possibly leading to increased motivation to participate.

Students are more motivated when they have something to work toward, such as an incentive or a personal goal (Taylor, 2017).

Barney and Deutsch (2009) found that when students enjoy a curriculum in PE, it can positively affect their feelings toward physical activity for the rest of their life. The PFA curriculum contains a variety of exciting activities for students and incorporates the five fitness components, giving the students the opportunity to enjoy physical activity while improving their fitness levels (Fu et al., 2013). The PFA curriculum also does an excellent job of using a system of incentives (cup, bean bag, etc.) as extrinsic motivation and students are often motivated to participate in activities on their own (Cerasoli & Ford, 2014). The more the students earn, the more competent they feel in their abilities and PE class. Along with receiving feedback from their teachers, students can enjoy their PE environment and will always have a source of motivation (Koka & Hein, 2003). Harter's perceived competence motivation theory described by Davies et al. (2015) emphasizes that when students have greater self-esteem in regard to their physical abilities, they enjoy participating in physical activity.

Limitations and Future Research

This study was limited in its ability to measure the exact mechanisms for the increases in fitness testing scores for those who experienced the PFA curriculum. Motivation has been shown to be an important factor in determining student interest and participation in PE classes (Huang & Gao, 2011). Future research on the PFA curriculum should focus on evaluating the influence of student motivation during PFA activities and PE fitness testing. Activities chosen from the PFA curriculum to be used during PE classes should be well documented to standardize the influence of the curriculum on student fitness testing scores. Additionally, careful considerations should be taken in attempts to draw conclusions from body composition data in elementary-aged students. Changes in BMI may be attributed to natural development and independent from PE curriculum.

Suggestions for Teachers

Activity balance and equipment use. Teachers should remain cognizant that the activities chosen in any curriculum may affect their students' fitness skill development. Students who only experience cardiovascular-based activities may suffer when testing upper body strength. It is important students experience a variety

of activities early and often during the school year. Mahar and Rowe (2008) stated that it is important to provide students with an introduction to the fitness tests weeks prior to the testing date so they have the chance to practice and prepare—allowing them to execute the tests properly. Additionally, the majority of equipment used in the PFA curriculum can be found in many PE storage rooms and on school playgrounds. With the larger pieces of equipment being a part of the outdoor playground, children may be motivated to use the equipment outside of school as well (Shen, 2014).

Student motivation. Teachers know that not all of their activities are enjoyed by their students, especially activities that are specifically focused on fitness (Gao, 2009). The PFA curriculum contains activities that intrinsically motivate students, and for activities that may not be perceived as enjoyable in their simplest form, it provides extrinsic incentives to encourage students to work harder. It is also important that students receive encouragement to set personal goals that focus on improving their own performances. When students focus on outcomes or the performances of their peers, they are sometimes easily discouraged. Kirkpatrick, Gu, Chen, and Zhang (2016) found that students are more physically active when they are focused on improving their own results rather than focused on the results of others.

Conclusion

Students who experienced the PFA curriculum had a positive effect in their muscular strength and muscular endurance fitness testing scores but did not demonstrate increases in cardiovascular endurance, flexibility, or body composition. The PFA curriculum has potential to effect student physical activity and fitness levels positively—both of which are predictors of obesity throughout the life span (Chen et al., 2018). With society trending toward a less active lifestyle (Timo, Sami, Anthony, & Jarmo, 2016), the PFA curriculum is a great addition to any existing PE curriculum and could help reverse this trend. The PFA curriculum also uses incentives as motivation strategies to encourage students to set goals and constantly improve their fitness levels. Using motivation to encourage physical activity is a positive way to build fitness, relationships, and confidence in students and that is what the curriculum is striving to achieve. With childhood obesity trends on the rise, the PFA

curriculum is a great addition to any existing PE program and could help reverse this trend.

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The Physical Educator Vol. 77 • pp. 271–293 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9569

PEDAGOGY

Utilizing Documentary Film as a Pedagogical Methodology: Exploring the Student Experience Through Writing to Learn After Viewing *The Rebound: A Wheelchair Basketball Story*

Cathy McKay, Justin Haegele, Jenna McMahon

Abstract

This study explored the effect of a documentary film on college students through the write-to-learn (WTL) process, including how students experience the film, their feelings about the experience, and the manner in which the film informed perceptions of or actions toward inclusion and disability sport. A convenience sample of 204 undergraduate students enrolled in a general education lifetime fitness and wellness kinesiology course (M_{age} = 19.89; 55.4% female, 81.8% Caucasian) completed a short questionnaire. After data collection was complete, long-format responses were compiled into a spreadsheet and open coded by the first and third authors independently. In total, participants' responses were coded into 332, 258, and 240 codes for the first, second, and third long-format questions,

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respectively. The most common response categories were gained new knowledge, inspirational, power of personal stories, emotional, I learned a lot, and people with disabilities are able. Disability sport experiences, including the viewing of a disability-focused documentary film, can offer a platform from which students can examine dispositions toward disability, evaluate the effect of their dispositions on other people, and potentially experience a change in perspective.

Film has been used as an educational tool to pose questions about important social issues, to evolve consciousness through storytelling, and to offer an avenue for critical thinking (Brown, 2011). Using film in the classroom offers a blend of visual and audible learning opportunities for the student (Miller, 2009) and brings complex concepts to life (Kuzma & Haney, 2001). The power of film to address sociocultural topics is manifested through a film's ability to stimulate action, change perceptions, and cultivate social transformation (McKay, 2017).

Documentary film as a teaching tool has been used in numerous academic disciplines. Educators have used science fiction movies to examine how students learn science (Barnett et al., 2006), educational films to examine future teachers' perceptions of their careers (Kontas, 2016), and films about culture to examine students' multicultural awareness (Rorrer & Furr, 2009) and attitudes toward race relations (Loewen, 1991). Additionally, films have been and can be used as a stimulating means for teaching students about disability (Safran, 1998). According to Schwartz et al. (2010), using film as a pedagogical methodology can have a "profound impact" on students' perceptions of disability (p. 846). Students have reported that viewing films on disability in which real people engage in daily living activities (e.g., school, work, relationships, and entertainment) dispels stereotypes (Schwartz et al., 2010). Thus, screening a film as part of the educational experience in the classroom can offer an appealing pedagogical approach for millennial students to learn about disability.

Writing has been used to increase student engagement, critical thinking, reflection, and knowledge transformation (Bean, 2011). Goldenberg, Lee, and O'Bannon (2010) found that most college professors who use film for educational purposes also require reflective

writing so students can carefully consider the learned knowledge in a safe and thoughtful environment. In-class write-to-learn (WTL) is a technique utilized to increase understanding of material through writing and to facilitate engagement with materials in an active and thoughtful manner (Bean, 2011; Gingerich et al., 2014). When employing a WTL strategy, instructors may ask students to evaluate a topic or experience, apply a topic or experience to their own life to derive deeper connections and meaning, unpack the content of a topic or experience, or summarize the benefits of a topic or experience. The usefulness of WTL is highlighted through the countless ways that it can be introduced in a learning environment. Gingerich et al. (2014) identified numerous benefits of WTL activities, including the ability to be completed in a short time frame, the focus on the learning process (not the product), and the ability for students to use higher level thinking skills such as evaluation, application, and integration. While the tangible learning benefits (e.g., performance on a final test) are mixed in regard to WTL activities (Butler, Phillmann, & Smart, 2001; Gingerich et al., 2014; Nevid, Pastva, & McClellan, 2012), the promotion of active learning processes that support deep engagement with the material, as well as application and integration of concepts, has been documented (Bean, 2011; McDaniel, Waddill, & Einstein, 1988; Reynolds, Thaiss, Katkin, & Thompson, 2012). Interventions utilizing written activities have improved knowledge, perceptions, and acceptance of disability (Lindsay & Edwards, 2013). Thus, this study explored the effect of a documentary film on college students through the WTL process, including how students experience the film, their feelings about the experience, and the manner in which the film informed perceptions of or actions toward inclusion and disability sport.

Method

Research Approach

This study was situated in a transformative approach (Banks & McGee-Banks, 2004). According to Banks and McGee-Banks (2004), research on the use of film in the development of culturally responsive attitudes is rooted in the transformative approach. This approach supports the viewer in experiencing a variety of perspectives and cultural vantage points, with characters and story

lines representing the point of view of minority cultures (Banks & McGee-Banks, 2004). When viewing film, students can understand and relate to the characters with whom they may have little in common, allowing perspectives and thoughts on marginalization and identity development to form (Bluestone, 2000). Students are transformed by moving through an empathetic identification with the characters from the story, reflecting on their own personal values and experiences, and challenging the lens through which they view the characters (Brown, 2011).

Participants

Participants were a convenience sample of 204 undergraduate students enrolled in a general education lifetime fitness and wellness kinesiology course (M_{age} = 19.89; 55.4% female, 81.8% Caucasian) at a university in a Mid-Atlantic state. Two of the participants (< 1.0%) identified with having a disability. Eighty-two participants (40%) identified with having a friend or family member with a disability. The treatment of participants was in accordance with the ethical standards of the American Psychological Association. Permission to conduct the study was granted by the Institutional Review Board at the primary researcher's university.

Intervention

Implementation of the intervention involved screening the 76-min documentary film *The Rebound: A Wheelchair Basketball Documentary*. The film is an award-winning documentary intended to raise awareness about adapted sport. *The Rebound* depicts the journey of three athletes as they work, with their teammates, to earn a national wheelchair basketball title. Participants viewed the film during a typical class meeting. The researcher was not the instructor of record for the course but was present for the documentary screening to introduce the documentary and invite students to participate in the study.

Data Collection

A nine-item questionnaire was used in this study. Participants completed the questionnaire at the conclusion of the class meeting in which they viewed the film. The questionnaire included six demographic questions (age, gender, race, year in school, do you identify

with having a physical disability, and do you know any friends or family who are living with a physical disability) and three WTL questions that were intended to elicit the participants' experiences during and after the viewing experience. The questions were created by the researchers, who utilized them alone and within a larger set of questions in a variety of studies related to the documentary. The three WTL questions were (a) describe your experience watching the documentary, (b) describe how you feel about your experience watching the documentary, and (c) how does watching the film shape your attitudes or actions toward inclusion, adapted athletes, and disability sport? The collected data were used to identify topics for further exploration and were not intended to replicate the richness of data that could be derived from other qualitative methodologies (Shields & Synnot, 2014).

Data Coding and Analysis

Data coding was done in a two-step inductive approach that has been used in previous research (Haegele, Zhu, & Davis, 2018; Shields & Synnot, 2014). This approach is recommended when researchers want to code specifically in relation to several categories (Strauss & Corbin, 1998).

After data collection was complete, data were compiled into a spreadsheet and the first and third authors independently open coded each long-format question. First, for each long-format question response, whether it included a few words or a sentence, the coders had to grasp the major idea that the students reported. Next, the coders assigned a code (i.e., short name) to each response. Responses that spanned several content areas were assigned more than one code. Following, codes were reassembled and grouped into broader categories. Broader categories were derived from the coders and were discussed until 100% agreement was reached on the broad categories and the placement of the codes into each broad category. In total, 10 categories (unique to this study) were used across questions including (a) changed attitude (participants altered their mental outlook), (b) people with disabilities are able (participants reflected on ability instead of disability), (c) equality (participants felt a sense of parallelism), (d) emotional (participants demonstrated a variety of feelings), (e) gained new knowledge (participants increased their understanding and cognition), (f) inclusion and disability sport are

important (participants saw the value of inclusion and adapted sport programs), (g) inspirational (participants were filled with thoughts of inspirit and encouragement), (h) not interesting (participants were unstimulated or bored), (i) power of personal studies (participants were moved by the depth of influence the individual narratives advanced), and (j) respect for people with disabilities (participants held individuals with disabilities in high esteem).

To ensure reliability and consistency, the codes were only entered into categories when both coders agreed on them. In instances when disagreements emerged, a third coder (the second author) read the response and assigned it to one of the two codes provided by the two coders. Subsequent to the coding procedure, descriptive statistics, such as frequency counts of codes, were found and presented for each code and category.

Results

In total, participants' responses were coded into 332, 258, and 240 codes for the first, second, and third long-format questions, respectively. As Table 1 shows, responses categorized as gained new knowledge (n = 80; 24%), inspirational (n = 80; 24%), and power of personal stories (n = 71; 21%) were the most commonly reported responses to Question 1 (i.e., Can you describe your experience watching the documentary?). Among codes, inspirational (n = 80; 24%), gained new awareness (n = 29; 9%), and emotional (n = 25, 8%) were the most common for Question 1. For Question 2 (i.e., Describe how you feel about your experience watching the documentary), inspirational (n = 67; 26%), emotional (n = 66; 26%), and I learned a lot (n = 63; 24%) were the most commonly entered categories, whereas inspirational (n = 56; 22%) and new knowledge (n = 27; 10%) were the most commonly used codes (see Table 2). Finally, for Question 3 (i.e., How does watching the film shape your attitudes or actions toward inclusion, adapted athletes, and disability sport?), people with disabilities are able (n = 58; 24%), gained new knowledge (n = 47; 20%), and inclusion and disability sport are important (n = 44; 18%) were the most commonly used categories (see Table 3). Among the codes used in this question, people with disabilities are able (n = 32; 13%), new knowledge (n = 32; 13%), and inclusion is important (n = 26; 11%) were the most commonly used.

Table 1
Coded and Categorized Responses for Question 1

Category	Code	Response example
Gained New Knowledge (80)	Gained new awareness (29)	"I didn't realize there was an entire league."
	Eye-opening (18)	"It was very eye-opening."
	People with disabilities are able (10)	"They are just as capable as anyone without a disability."
	People with disabilities are resilient (10)	"The individuals in the movie were incredibly resilient."
	Enlightening (7)	"I found the documentary to be very enlightening."
	I appreciate being able-bodied more (3)	"It made me realize how grateful I am to have my legs."
	Disability sport is intense (1)	"It was cool to see the training program and intensity of the team."
	Empathy (1)	"Empathy, but also admiration."
	Training is intense (1)	"Knowing that people train just as hard, if not harder as athletes without disabilities."
Inspirational (80)	Inspirational (80)	"It was very inspiring to see what they went through."

Table 1 (cont.)

Category	Code	Response example
Power of Personal Stories (71)	Interesting personal stories (15)	"I was very engaged and interested in the biographies of the players."
	Interesting (12)	"It was interesting to see them have such a great attitude."
	People with disabilities are like everyone else (6)	"I feel as if the film aimed to establish that these people are human beings before they are wheelchair bound."
	Connections (6)	"I felt myself wanting them to succeed."
	Uplifting (6)	"It was moving, very uplifting to see that people don't limit themselves."
	Overcoming barriers (5)	"I was able to see the sides of living with a disability and the strength that it takes to overcome certain obstacles."
	Powerful messages/moments (4)	"Makes me realized that life's a game and the only way to lose is by giving up."
	Self-reflective (4)	"It reminded me of when I had to spend 4 years in a wheelchair."
	Perseverance (3)	"Seeing these guys not stop doing what they love because of a setback makes me realize to never give up."
	Hard work pays off (3)	"Seeing all the men being out into something they love, even though there are difficulties and how they motivate themselves was a happy piece and I really enjoyed it."
	Entertaining (2)	"Documentary was entertaining and inspiring."
	Anything is possible (2)	"This documentary was a reminder that you can do anything, and the only thing stopping you, is you."
	Holistic portrayal (1)	"I was able to see the sides of living with a disability and the strength that it takes to overcome certain obstacles."
	Intriguing (1)	"It was very eye opening and intriguing to see all that they can do, but also how some of them changed their lives around."
	Humbling (1)	"It was humbling and I really appreciated getting the insight."

Table 1 (cont.)

Category	Code	Response example
Emotional (63)	Emotional (25)	"A very emotional movie."
	Enjoyment (15)	"I really enjoyed watching since I have no previous experience with people with disabilities."
	Love (3)	"I loved it."
	Surprised people with disabilities are happy (3)	"It was interesting to see them have such a great attitude given their life challenges."
	Happy about (their) achievements (2)	"How they motivate themselves was a happy piece and I really enjoyed it."
	Hopeful (2)	"It's remarkable to see the human spirit shine through difficult situations and gives me hope that there is good spirits in the world."
	Empowering (2)	"It was definitely emotional and empowering to see people with something so seemingly huge taken away from them, but they see themselves as more than able."
	Sympathy (2)	"Sympathy, but also admiration for the Paralympic basketball players."
	Positive (2)	"It was cool."
	Touching (2)	"The documentary was very touching and it was amazing to see how determined the people were."
	Sadness (2)	"I felt really bad for everyone involved."
	Ableism (1)	"We should care more about disabled people. Life it tough for them."
	Awesome (1)	"It was awesome, made me think about my own life and direction and what I"m living for."
	Amazed (1)	"I really was amazed about what people can do when they really set their mind to do something."

Table 1 (cont.)

Category	Code	Response example
Changed Attitude (15)	Changed attitude (10)	"The documentary gave me a new perspective."
	Impressive (4)	"It was really good. I could not do what they do. I have no upper body strength and suck at basketball so it was really impressive especially with everything they've been through."
	Transformative (1)	"Transformative of thoughts and ideas regarding those living with disabilities."
Not Interesting (1)	Not Interesting (1)	"I lost interest in the personal stories that weren't related directly to their abilities to participate in athletics."

Table 2
Coded and Categorized Responses for Question 2

Category	Code	Response example
Inspirational (67)	Inspirational (56)	"The film was very inspirational."
	Happy about achievement (9)	"I felt inspired and my spirits uplifted. Just because you have a disability, you can still achieve any goal."
	Impressive (2)	"It was very inspiring to see what they did with their situations."
Emotional (66)	Motivation (12)	"I feel motivated to achieve anything I put my mind to. If they can, why can't I?"
	Emotional (9)	"I teared up during many parts of the movie."
	Enjoyment (8)	"I enjoyed watching."
	Uplifting (7)	"I really enjoyed watching it. It was uplifting."
	Hopeful (4)	"I thought it was awesome and hopeful."
	Awesome (3)	"Very uplifting and awesome experience."
	Love (3)	"I loved it and was honestly one of the best documentaries I have watched."
	Lack of connection (3)	"I found it hard to connect with. I have so little in common with the people."
	Interesting (2)	"It was interesting watching their everyday lives."
	Empathy (2)	"I feel for them because I have a family member who is in a wheelchair."
	Touching (2)	"The documentary was very touching."
	Amazed (2)	"I felt moments of excitement, amazement, and being perplexed throughout the different scenes of the film."
	Mixed feelings (2)	"I have mixed feelings about it. I feel bad for some of the players, but some say their life was better after the injury."
	Neutral (2)	"Overall the experience was neutral."
	Proud (2)	"Proud that [individuals with disabilities] have an outlet like NWBA."
	Thought-provoking (1)	"It made me appreciate all they do much more and would make me more likely to include them."
	Perplexed (1)	"I felt moments of excitement, amazement, and being perplexed throughout the different scenes of the film."
	Sadness (1)	"Sad, but a very interesting and well-made video."

Table 2 (cont.)

Category	Code	Response example
I Learned a Lot (63)	New knowledge (27)	"I feel like I learned a lot about life."
	I appreciate being able-bodied more (13)	"Makes me realize how lucky I am and to not take things for granted."
	Enlightening (6)	"The documentary is very enlightening. It made me feel good watching all of them achieve their goals."
	People with disabilities are just like us (5)	"I feel hopeful for those with disabilities; they can still have careers, education, a family, etc."
	Resilience (4)	"I feel like this film did a good job of showing that life isn't over."
	Anything is possible (3)	"It made me happy to see those guys win their championship and follow their dreams; lets the audience know that anything is possible."
	Perseverance (2)	"They chose not to let this stop them."
	Worthwhile (1)	"I thought it was very worthwhile."
	Rewarding (1)	"It is very humbling and rewarding."

Table 2 (cont.)

Category	Code	Response example
Changed Attitude (44)	Changed attitude (9)	"It made me want to look past people's outside appearance because that totally doesn't mean anything."
	Opened my eyes (7)	"Eye-opening experience."
	Inclusion is important (4)	"I felt proud of those in the movie who found such confidence and hope through basketball. I have a cousin with severe cerebral palsy, and I think it is great to see inclusive, engaging options."
	Personal stories (3)	"I think this experience was extremely positive and it was interesting getting to see all the hardships each one of them endured and still found a way to push through."
	Strength of mind (3)	"It makes me think no matter your pain/disability, you can do anything."
	People with disabilities are able (2)	"I felt inspired and my spirits uplifted. Just because you have a disability, you can still achieve any goal."
	People with disabilities are athletes too (2)	"I feel like after watching these athletes, that nobody should have an excuse to [not] do anything."
	Self-reflective (2)	"I feel changed from watching this film because I feel more culturally aware."
	Respect (2)	"It makes me respect athletes with disabilities more and reminds me to be more adaptive in my own life."
	Importance of sports (2)	"This experience has led me to feel a sense that sports are a completely inclusive activity."
	Disproving stereotypes (2)	"I know I needed it—the only way to overcome stereotypes is to humbly learn about new situations."
	Desire to do more (2)	"I would have liked to learn more about the history of the sport and other athletes."
	Equality (1)	"Fine, I see the people as people, not disabled."
	Focus on ability (1)	"I feel that more recognition should be made about all of the things people with disabilities CAN do."

Table 3
Coded and Categorized Responses for Question 3

Category	Code	Response example
People With Disabilities Are Able (58)	People with disabilities are able (32)	"They can do it all and even more than us."
	People with disabilities are just like everyone else (9)	"They can do everything like me. Just adapted differently."
	Strength of mind (6)	"These people can so whatever they set their minds to."
	People with disabilities are athletes too (4)	"It made me realize that the people playing disability sports are just regular people."
	Impressive (3)	"What they do is so impressive."
	Everyone is able (2)	"People shouldn't feel less capable to play or be active. Just because you [have a disability] does not mean you're incapable."
	Anything is possible (2)	"I've always known that people can do what they want if they keep their mind to it. Watching this just made me really emphasize this."
Gained New Knowledge (47)	New knowledge (32)	"I was aware of disability sport, but it was pleasant to see that it exists in adulthood too."
	Funding (8)	"Programs like theirs should have more funding."
	Importance of sport (5)	"It makes me love that they have sports for those with disabilities, to keep their confidence up."
	Overcoming barriers (1)	"I feel even though they have limits, they have learned to overcome them."
	Personal stories (1)	"It leads me to believe how each and every one has a story as well as an incredible dedication to the sport."

Table 3 (cont.)

Category	Code	Response example
Inclusion and Disability Sport Are Important (44)	Inclusion is important (26)	"Inclusion is so important. It is so often that people with disabilities are told they can't do something and that's not true."
	Support (5)	"I feel the same because I was very inclusive and now my feelings are regenerated."
	Lack of knowledge (4)	"People don't know enough about this."
	Disability sport is important (2)	"It definitely makes me wish opportunities for disability sport were more widespread and advertised."
	Desire to do more (2)	"We should do more to include adaptive athletes into sports and erase the stigma that they can't do what individuals without physical disabilities can."
	Need for attention (2)	"I think there was too little attention/funding/value placed in these programs. I'm not a huge sports fan but I would be more interested in watching sports on TV if diversity of abilities were portrayed as publicly as the men's teams."
	Appreciation of disability sport (1)	"It gives me a better appreciation for all sports and [athletes with disabilities]."
Respect for People With Disabilities (34)	Respect for people with disabilities (17)	"Same attitude since I've always had respect for Paralympics."
	No change (9)	"I have always had the utmost respect for these type of people."
	Persistence (3)	"I have always had the utmost respect for people who don't stop doing what they love."
	I appreciate being able-bodied more (2)	"Enjoy the life I have right now. Respect [people with disabilities], especially [athletes with disabilities]."
	Disproving stereotypes (2)	"It hasn't changed it. These people still have fully functioning bones to use their determination to disprove a stereotype."
	Reinforced feelings (1)	"Just reinforced it."

Table 3 (cont.)

Category	Code	Response example
Equality (22)	Equality (18)	"It's important for people with a disability to be able to do what they love."
	Opened my eyes (3)	"It opens my eyes to their strength and abilities. I am very welcoming person, but this showed me that everyone has their own story and own strength for determination."
	Tolerance (1)	"It makes me more open to them."
	Opportunity (1)	"I believe that everyone should have equal opportunity—disabled or not."
Change in Attitude (18)	Changed my attitude (16)	"It changed my attitude because I had no idea how much they could do."
	Exclusion (1)	"They just need a place to feel welcome and accepted, like everyone else. I think sharing this experience with others of similar ability offers much more than trying to integrate them into normal sports/gym life."
	People with disabilities are different	"It is clear that they have as much potential as everyone else, it's just different."
Inspiration (14)	Inspiration (8)	'They have been through so much and have come so far'
	Resilience (3)	'It just reminds me that people can make the most of any situation'
	Ableism guilt (3)	'I feel bad for judging/thinking less of people in wheel chairs.'
	Motivation (1)	'It makes me motivated to do whatever I want to do.'

Discussion

The purpose of this study was to explore the effect of a documentary film through the WTL process, including how students experience the film, their feelings about the experience, and the manner in which the film informed perceptions of or actions toward inclusion and disability sport. Utilizing the transformative approach, this study provides data indicating the formation of culturally responsive attitudes, as students come to understand the point of view of individuals with physical disabilities and the adapted sport culture through viewing a documentary film. The formation of culturally responsive attitudes, as well as the understanding of a new perspective, aligns with the work of Bluestone (2000), Banks and McGee-Banks (2004), and Brown (2011). For example, results of this study indicate that viewing the documentary film influences participants to adopt a different lens through which to view persons with disabilities.

Research suggests that education and awareness activities aid in the formation of new knowledge and can have a positive effect on attitudes and perceptions toward adapted sport and individuals with disabilities (Grenier, Collins, Wright, & Kearns, 2014; Lindsay & Edwards, 2013; Lundberg, Zabriskie, Smith, & Barney, 2008; McKay, Block, & Park, 2015; McKay, Haegele, & Block, 2019). Consistent with the existing research, among the most commonly reported experiences related to viewing the documentary included "gained new knowledge" and "I learned a lot." Similar to the McKay et al.'s (2019) qualitative study utilizing the Paralympic School Day (PSD) awareness program, this documentary experience provided participants with a platform to find meaning in their own beliefs and experiences, by delivering a realistic and holistic portrayal of disability sport and the athletes who participate in disability sport. Specific to the university level, connections can be drawn to the Lundberg et al. (2008) study that supported the notion that institutes of higher education are appropriate and logical locations to influence social attitudes and attitude change through disability awareness programming.

A goal of the documentary film, as listed on the film's website, is to inspire—inspire action, inspire communities, and inspire inclusive thought. Consistent with the goal of the documentary, "inspiration" was a commonly reported experience, which brings to life the power of personal stories to inspire (a positive). On the other hand, the

theme "inspiration" may also highlight the power of societal norms that promote disability as inferior, creating a culture that expects the least and in turn considers success or apparent normalcy as inspirational (a negative). The responses in this study related to inspiration are consistent with existing research on disability sport awareness activities, especially as it relates to the negative aspect of the word. For example, participants responded with "It was very inspiring to see what they did with their situations," "It just reminds me that people can make the most of any situation," and "It was very inspiring to see what they went through." These comments stem from a lens of ability (Evans, Bright, & Brown, 2015), where perceptions toward individuals with disabilities are unfavorable and perceptions toward being able-bodied are superior (Hehir, 2002). Societal beliefs often hold individuals with disabilities as inferior to individuals without disabilities (Hunt & Hunt, 2000). As such, disability is considered a negative attribute, and the bodies of individuals with disabilities are considered faulty or nonconforming (Haegele & Hodge, 2016). Watching characters whom society perceives to have faulty or nonconforming bodies succeed in tasks of everyday living and go above and beyond on the basketball court sparks the inspiration response predominantly from participants who are able-bodied. McKay et al. (2019) unpacked the idealized notion of normal that is often ascribed to individuals who are able-bodied, and noted that awareness interventions have the ability to support participants in challenging the idealized and exclusive notion of able-bodied superiority.

In addition to gaining new knowledge and shifting paradigms, this study also demonstrates the importance of emotions in the experience of viewing a documentary film. Participant responses included emotions as a recurrent theme, overwhelmingly reflecting positive emotions. This aligns with research that indicates the emotional connections inherent in documentary film viewing experiences (Kavan & Burne, 2009; Kuzma & Haney, 2001). Donahue and Miller (2016) reported that emotional engagement creates an improved understanding of course concepts. The film's power is found in the emotions it stimulates, as these emotions leave a lasting effect, which may result in motivation (Kontas, 2016) or a call to action to cultivate social transformation (McKay, 2017).

Many themes and categories in this study have been commonly reported in disability sport research, as indicated in the aforementioned paragraphs. However, disconfirming themes and categories emerged that, while less frequently reported, are interesting to bring to the discussion. For example, "people with disabilities are different," "sadness," "lack of connection," and "exclusion" were limited in number and reflect a more negative response. These categories may be underrepresented because of social desirability, which often leads to the underreporting of negative perceptions and thoughts on survey measures, whereby the participants give what they think is the most socially acceptable or desirable response (Fisher, 1993) instead of answering in an honest, truthful manner. McKay et al. (2015) surmised social desirability to be a factor in the underreporting of negative thoughts or experiences. These disconfirming cases provide evidence that although the documentary film was a powerful experience for many participants, other more powerful interventions may be required to elicit attitudinal changes among those with deeply rooted conceptions of disability as a negative attribute. For example, an intervention could couple the film with a hands-on skill practice session in which participants learn wheelchair basketball skills and participate in a scrimmage, ideally alongside athletes who regularly participate in the sport.

A final interesting group of categories focused on access, awareness, and equity, and the need for adapted athletics to be more integrated in society. The mission of the documentary is to promote a world where all people, regardless of ability, have equal opportunities to participate in sport (Rebound the Film, n.d.). The documentary utilizes awareness as its avenue for creating change. Culture and change are inextricably linked, and documentaries help create culture by building deep empathy, directly involving the audience by immersing them in the lives of others, and prompting the audience to act and engage (Doc Society, n.d.). Much of the data in this study reflect this empathy, immersion, and perspective on engagement.

Documentary film offers an avenue for enlightenment toward disability and inclusion. Disability sport experiences, including the viewing of a disability-focused documentary film, offer a platform from which students can examine dispositions toward disability, evaluate the effect of their dispositions on other people, and

potentially experience a change in perspective. WTL helps students develop greater control of the concepts, conceptual frameworks, skills, processes, and issues addressed in the film and deepens the learning from the documentary film experience. Several limitations should be considered in interpretation of the findings. First, the participants in this study may not be representative of the college student population; participants were enrolled at a public, comprehensive university. Second, experiences related to viewing the documentary were self-reported and therefore may not be accurate; students may give responses based on what they think is socially acceptable rather than indicating their actual experiences. Finally, it cannot be assumed that the findings will generalize across all adapted sport-focused documentary films, as each film may elicit different experiences. Future research should extend the use of the documentary film as a teaching and learning tool, to gain a comprehensive understanding of its effect. This includes replicating the research with focus group interviews, utilizing quantitative pre–post surveys, and extending the WTL prompts for enhanced critical thinking, analysis, and evaluation.

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The Physical Educator Vol. 77 • pp. 294–312 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9200

PEDAGOGY

Cooperative Learning in Physical Education and Its Effects on Student Reading Comprehension Scores

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Abstract

Some states require physical education (PE) to be in a school's curriculum. Some people feel that it is a time to play and it is not an important subject in a school's curriculum. This study aims to shed light on the potential effects of PE on students' performance in language arts as subject matter. The purpose of this study was to examine the effects of the cooperative learning skills used during a adventure education unit in PE on students' reading comprehension scores. This study exposed participants to adventure education classes with challenging developmentally appropriate tasks and other PE classes with nonstructured tasks. After the PE classes, the participants read a passage and answered 10 questions about the passage as related to language arts. Data for this study were placed into a Microsoft Excel spreadsheet and the averages were analyzed via a linear regression in Microsoft Excel. The results showed an increase in student reading comprehension scores for fifth grade and sixth grade on several of the

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days and the same or lower scores on other days. One limitation of the study was its length of time, which suggests that further research needs to come to a complete conclusion on the effects of cooperative learning in PE on students' reading comprehension scores.

There are still multiple barriers in the field of physical education (PE). Two of these barriers deal with the status of physical activity time required in schools and accountability systems established across the United States. According to the *Shape of the Nation Report* (Society of Health and Physical Educators, 2016), "a minority of states require school districts or schools to have a minimum weekly amount of physical activity time for students; almost one-third (32.7 percent, 16 of 49 states) require student assessment directly related to state physical education standards" (pp. 20–21). The combination of these realities, among others, makes it a problem for many physical educators to be effective in getting their students to become literate individuals in PE. This is important to note since physical educators across the United States need the instructional time and effective formal and informal assessment strategies to meet standards. The National PE Standards (Society of Health and Physical Educators, 2013) are clear in their definition of a physically literate individual in all domains.

The area of interdisciplinary PE can assist that literacy component of benchmarks in the National Standards, as well as make connections with other subject matter areas and make other teachers aware of the connection between their area of study and PE in schools. In the area of language skills, "the movement components of physical education can be used as a medium through which children are provided with opportunities to practice and strengthen language skills" (Griffin & Morgan, 1998, p. 34). Physical educators can integrate any given subject area into PE as a method to reinforce the knowledge students gain in other areas of study. However, this interdisciplinary approach needs more research into the benefits students gain from the integration of different subjects into PE. This study looked at the effects PE has on language arts as an academic subject. Its purpose was to examine the effects of the cooperative learning skills used during an adventure education unit in PE on students' reading comprehension scores and to show the effects of PE on students' academic success.

Four sections compose the literature review: (a) physical activities effects on the brain, (b) PE in schools, (c) PE and language arts, and (d) cooperative learning/adventure education.

PE covers all three learning domains. Because of this, physical activity has been researched in relation to the effects on the human brain, specifically its effect on the mind and on social skills. Knowledge from this line of research can reinforce the association of PE to the human brain, reconfirming its need in schools.

Physical activity has many benefits. Consistent physical activity can help improve and maintain thinking, learning, and judgment skills as a person ages (Centers for Disease Control and Prevention [CDC], 2011). Concerning psychological effects, studies have suggested that physical activity can increase cognitive function (Keely & Fox, 2009), whereas exercise can improve mental health and increase psychological well-being (Keely & Fox, 2009). In Keely and Fox (2009), one result showed that exercise helps maintain brain function and blood supply in the brain, as well as increases the production of endorphins in the brain and stimulates neural growth and efficiency during maturation in children (Keely & Fox, 2009).

People seem happier and some people become more productive when physically active. The neurotransmitters in the brain increase when the person exercises regularly (Chaddock, Voss, & Kramer, 2012). Participation in exercise, especially higher levels of aerobic fitness, has been associated with an increase in academic achievement (Chaddock et al., 2012). This explains why so many students enjoy an effective and dynamic PE lesson.

Concerning neurological effects, Reed et al. (2010) stated that movement can influence fluid intelligence and that fluid intelligence should be considered to promote cognitive development in elementary-age children. Fluid intelligence is defined as the "ability to think abstractly, reason, identify patterns, solve problems, and discern relationships" (Chegg Study, n.d., para. 1). Scientists at Salk Institute for Biological Studies used mice to study the effects of exercise on the brain. Their study showed mice that exercised by running produced and activated more cells in the area of the brain that controls memory than those that did not run (Reynolds, 2013). The area of the brain that controls memory is the hippocampus, in which there is a positive relationship between physical activity and

hippocampal structure and function. Chaddock et al. (2012) stated that greater-fit children were found to have larger hippocampi than the less-fit children, which suggests that exercise can increase the size of the hippocampus and its functions (Chaddock et al., 2012). Physical activity has had not only neurological effects but also physiological effects on the brain. When hippocampal function is increased, there should be an increase of memory. Memory plays a big role in students' academic achievement

With so many benefits of physical activity to overall well-being combined with the increase of obesity in children, PE holds an important role in schools (Graham, Holt/Hale, & Parker, 2007). A quality PE program guides children in the direction to become physically active for a lifetime. So many children do not get adequate physical activity outside of school (Graham et al., 2007). PE in schools allows the student to get the health benefits of physical activity, as well as gain knowledge concerning the importance of a lifetime of regular fitness. Of the major approaches to teaching PE, some programs teach students tactical skills that can be used in everyday situations. These types of programs develop modified play, which provides a developmentally appropriate environment for students. Increasing time allotted to play provides a more enjoyable and motivational experience for children (Mitchell, Oslin, & Griffin, 2003).

With all the benefits of PE in schools, it is clear why it is an integral part of the school curriculum. Even though PE programs have strong benefits, some people feel that the subject is not important enough and should be eliminated from the school schedule.

Several cross-sectional studies and intervention studies have examined the relationship between physical activity and academic achievement. The influence of U.S. elementary school PE programs on direct measures of academic achievement has been examined. Carlson et al. (2008) used data from the Early Childhood Longitudinal Study, which focused on kindergarten classes from 1998 to 1999, to examine the influence of PE programs. They used a multistage probability design to select students for the study. Results showed a small but significant benefit for academic achievement in girls with higher amounts of PE. A higher amount of PE was not positively or negatively associated with academic achievement in boys (Carlson et al., 2008).

The relationship between objectively measured and self-reported physical activity, sedentary behavior, and academic achievement has also been examined. Children from five Finland schools participated in the study and answered questions from the WHO Health Behavior in School-Aged Children study, which measures self-reported PE. Children's physical activity and sedentary behavior were measured via an ActiGraph GTIM/GT3X accelerometer. Grade point averages were collected from the education services of the city. A linear regression analysis showed the relationship between physical activity, sedentary behavior, and academic achievement. Results showed no relationship between sedentary behavior and academic performance, but a relationship between the self-reported physical activity and student GPA (Syvaoja et al., 2013)

In a literature review, the CDC (2011) examined several studies to help develop a connection between school-based physical activity and academic performance. The CDC used nine electronic databases and physical activity– and academic-related search terms to collect research articles and reports on physical activity and academic performance. The CDC also used coded data from articles to categorize studies by their physical activity context and then by the type of academic performance outcome. The results showed that through all 50 studies, there were 251 relations between physical activity and academic performance, academic behavior, cognitive skill, and attitude (CDC, 2011).

Regardless of the strength of the relationship between physical activity and cognitive skill, there is a direct association with physical activity and academic achievement. It is evident physical activities in PE influence a child's learning process. One core academic that plays a key role in a child's academic success is language arts.

English as language art studies systems and structures of language and language conventions includes grammar, punctuation, and spelling. In English, students learn how language conventions change from one context to another. Language guides visual, spoken, and written communication. This is all according to the *English Standards for Language Arts* (Gutierrez, Baquedano-Lopez, & Turner, 1997). The ability to read and comprehend information that was just read is a necessary part of a child's educational experience (Antilla, 2013).

According to Myers, "Every teacher who stands in front of a classroom faces many years of historical assumptions about how literacy should be defined. A teacher is not just teaching reading and writing, they are teaching contingent definitions and constructions of reading and writing" (as cited in Cadiero-Kaplan, 2002, p. 374). Language arts education supports all other subjects in school. If a child was unable to read, write, comprehend, and spell, all other subjects would be difficult for educators to teach. In social studies, a child must be able to read and comprehend what happened in history. Students need to be able to read and follow directions when experimenting in science class. They need to follow the instructions to solve a math problem. To go through their daily educational routine, students must be able to communicate verbally, nonverbally, or in written form. Language arts education is key to a school's educational stability and success.

In PE, any student must be able to comprehend the rules of the activities. Physical educators also use different forms of reading and writing to assess their students. Examples are journals, portfolios, written tests, and comprehension of articles to support the lesson being taught. Students need to be able to read signs explaining how to perform fitness skills at fitness stations. In a PE cooperative learning unit, communication is the key component for students to succeed in the challenges given. If students do not have the skills they learned from language arts education programs, they would have a difficult time participating in certain aspects of a PE program.

The Common Core State Standards are on the rise in schools, and PE teachers are required to incorporate language arts into their lessons. This means, depending on the physical educator and their administration, there is going to be written forms of assessment, readings, homework, and vocabulary used in PE classes. As teachers, we are responsible for the success of our students in language arts. Incorporation of language arts in a physical educator's lesson must be proven to an administrator and shown when being observed. Language arts education plays a bigger role now in many subjects than it has in the past.

Physical activity and PE have many health benefits and many benefits to improving cognitive function. With an increase in cognitive function, there is an increase in academic achievement in stu-

dents. Since language arts education plays a big role in standardized test scores and in students' overall academic achievement, several studies have focused on the effect of physical activity and PE on language arts abilities. These studies examined the four major areas of language arts (spelling, grammar, writing, and reading).

Carlson et al. (2008) examined the influence of U.S. elementary school PE programs on direct measures of academic achievement. The Early Childhood Longitudinal Study that focused on kindergarten classes from 1998 to 1999 was used for data collection. In another part of the study, the researchers focused on direct measures of academic achievement in mathematics and reading from kindergarten to fifth grade. Results showed a small but significant benefit for academic achievement in girls with higher amounts of PE. A higher amount of PE was not positively or negatively associated with academic achievement in boys (Carlson et al., 2008).

Tremarche, Robinson, and Graham (2007) determined the effect of quality PE time on Massachusetts Comprehensive Assessment System standardized scores. This standardized test was given to 311 fourth-grade students from two schools within a 2-month period. These fourth graders were tested on English and Language Arts and on Math. The results of this study showed that the mean scores from the first school were different from those of the second school in the English and Language Arts section of the test. There was no significant difference with the mean math scores between both schools. The researchers concluded that students who received more hours of quality PE received a higher score on the English and Language Arts area of the standardized test (Tremarche et al., 2007). There are several units in a PE curriculum and each affects academic achievement.

PE offers an abundance of opportunities for group involvement, leisure skills, personal commitment, risk, unique environments, and social relationships. All of these opportunities are offered throughout a PE program, but one unit offers all these opportunities and that is the cooperative/adventure education unit. A cooperative learning/adventure education unit allows students to develop outdoor sports and survival skills, live within the limits of personal ability, derive pleasure in accepting the challenge and risk of stressful situations, develop awareness of dependency on themselves, share experiences

and learning in cooperation with one another, and develop problem-solving skills (Kelly & Melograno, 2004).

Adventure education programming turns PE classes into an adventure for students. A sense of adventure exists for the students as long as the element of surprise exists within the activity. These activities entice students into performing tasks that they have never imagined possible (Faulkingham Hunt, Kohut, & Rheingold, 2003). The sense of adventure includes challenges at moments when students are on the brink of both success and failure (Faulkingham Hunt et al., 2003).

Physical educators and classroom teachers can use an assortment of cooperative learning activities and adventure curriculums. One adventure curriculum that is most commonly used among physical educators was developed by an international nonprofit organization call Project Adventure. According to Faulkingham Hunt et al. (2003), if students participate in a Project Adventure curriculum, they will be able to (1) demonstrate an understanding of movement concepts and the use of motor skills; (2) demonstrate responsible personal and social behavior; (3) demonstrate the ability to use effective interpersonal skills; (4) demonstrate the ability to use the decision-making skills of appropriate goal setting, risk taking, and problem solving; (5) understand that challenges, enjoyment, creativity, self-expression, and social interaction are important, life-enhancing experiences; and (6) demonstrate an understanding of and respect for differences. These six learning objectives of the adventure curriculum closely align to the National PE Standards (Society of Health and Physical Educators, 2013).

In a cooperative learning/adventure education unit, students are given an assortment of tasks and work together to solve the problem and achieve the task. This requires students to use a higher order of thinking. This unit affects learning because students develop different ways of thinking and enhanced problem-solving skills. These problem-solving skills can be used in life and in other educational situations. Problem-solving skills can be used in a variety of academic subjects, one of which is language arts. Some language arts abilities allow for communication and help a child develop social skills.

Whether PE has a slight effect or a significant effect, the program improves students' language arts abilities. The effects can be

shown through a student's standardized test score or educational action plan, a plan created by classroom teachers to show a student's growth in specific academic subjects. If a classroom teacher and a physical educator collaborated, evidence would show improvement in students who have more PE than those who have less PE.

Physical activity and PE can affect learning when cognitive function increases. When learning is affected, the area of language arts is also affected. Language arts abilities play a key role in a student's academic achievement. With these playing such a key role in a student's educational success, it is important for educators to find ways to improve students' language arts abilities. The effects of a PE program, whether big or small, have been shown to increase and improve language arts abilities. Evidence of these effects can be seen through standardized test scores and a student's educational action plan. This evidence shows that physical activity, PE, and a healthy lifestyle can have a significant effect on a student's educational success, and that will lead to an increase in a student's language arts skills and reading comprehension scores.

Method

Participants and Settings

This study was designed and applied at an elementary school in northern New Jersey. This small school has about 150 students and is located in a rural area of New Jersey. The participants were male and female students aged 10 to 12 years. Two groups of students participated in the study. One group of fifth graders consisted of 20 participants and one group of sixth graders consisted of 13 participants. Multiple formsfor conducting the study were submitted to different individuals. Approvals were received from the principal of the school, the superintendent of the school district, and the board of education of the school district. Once approval was granted, the researcher distributed active consent and assent forms for the administration of the school, the participants, and their parents/guardians. All active consent and assent forms were received by the researcher with signatures from the school's administration, the participants, and their parents/guardians, allowing their participation in this study. Due to the participants being children, parent/guardian permission was needed.

Achieve 3000 reading levels were obtained from the fifth- and sixth-grade teachers. This information was gathered so reading passages and questions were collected to match each participant's reading level. As mentioned, all reading passages and questions were gathered from ReadWorks (2016). The fifth-grade data collection was conducted for 2 weeks in December 2016 and the sixth-grade data collection was conducted for 2 weeks in January 2017.

Data Collection

During the 2 weeks for data collection of each grade, the participants had PE eight times and each class was 45 min long. The classes consisted of 30 min of activity and 15 min of assessment. Each PE class alternated between a low structure, low thinking PE class and a high structure, high thinking PE class.

The low structure, low thinking PE classes consisted of recreational physical activities. Those recreational activities included using a Hula Hoop, jumping rope, shooting a basketball, kicking and passing a soccer ball, and throwing a football with a partner. On these days, the researcher had the participants enter the gymnasium and instructed them to warm up and stretch out on their own. After the warm-up, the participants chose a recreational activity to do that day. For safety reasons, the researcher designated specific areas of the gym for each recreational activity. After the allotted PE class time, the participants were instructed to line up to leave the gym and travel back to their classroom. Once participants were back in the classroom, the researcher passed out a reading passage and questions to participants based on their reading level. Once finished, participants handed their reading passage and answers to the researcher.

The high structure, high thinking PE classes consisted of planned adventure education activities. These activities were adopted from Project Adventure textbooks. All of the activities chosen from these textbooks were grade appropriate. On these days, the researcher had the participants enter the gymnasium and go to their warm-up spots. The researcher conducted the warm-ups and stretches on these days and then explained the activity and its rules to the participants. The participants were given a specific amount of time to discuss their strategy to solve the challenge given to them and were allowed to perform the strategy created. While participants performed the activity, the researcher gave verbal cues to remind the participants of

the activity rules. After each round of the activity, or if the researcher saw the participants struggling, he would have the students stop and discuss what was and was not working. The researcher focused on three main skills: teamwork, communication, and thinking about all solutions that can be used to solve the problem. How can they improve what they are doing? At the end of the activity, the participants would go back to their warm-up spots and discuss the activity with the researcher. What could have been done differently? What worked to solve the challenge given to them? At the end of the allotted PE class time, the participants were asked to line up to leave the gym. The reading passage and questions were done in the classroom and the same procedure as the low structure, low thinking reading passage days was conducted.

The answers to the reading passage questions were graded by the researcher on the same day the participants completed them. The scores were recorded in a Microsoft Excel spreadsheet. The researcher used answer sheets supplied by ReadWorks (2016) to grade questions for each passage.

Variables

In a study of this nature, a variety of uncontrolled variables could affect the results. The physical, social, and emotional states of children are always changing, especially in a school setting. These changes are greater with the age group in this study due to increase of hormone levels caused by puberty. These constant changes could affect students' focus throughout the school day and reading comprehension scores.

Another variable is the changes throughout the school day. As teachers, teachers need to be prepared for any changes that could happen throughout the scheduled school day. Emergency drills, disruptive students, assemblies, delayed opening, and sudden schedule changes are some of those changes. These changes have an effect not only on teaching but also on the students.These changes can influence their focus, attitude, and behavior, which can affect reading comprehension scores.

The uncontrolled variable that could affect the results of this study is the instruction of the classroom teacher. The classroom teacher is required to teach two periods every day of language arts and within those two periods reading comprehension could be a focus. With

this variable being recognized, are cooperative learning activities in PE truly affecting students' reading comprehension scores or are they just supporting the skills being taught by the classroom teacher? This variable could be ruled out if the classroom teachers were to not teach language arts during the study and not have the students read throughout the school day. This would be a challenging task for a researcher and a school district. A suggestion is for such a study to be performed during the summer months, when the classroom teacher is not teaching the students. A summer PE program would need to be developed for this suggestion to be executed.

Results

During this study, the researcher asked the classroom teachers to help him observe the attitude and focus of the students when students took the reading comprehension assessments. The researcher asked this after observing a change in the students' behavior, attitude, and focus on low structure, low thinking days compared to high structure, high thinking days.

At the end of the 8 days of data collection for the fifth and sixth grades, the researcher sat down with the classroom teachers to discuss what they observed during the reading comprehension assessments. There are two classroom teachers for each grade in the school where the study was conducted. All four classroom teachers and the researcher observed an increase in most of the students' focus on the days of the cooperative learning activities.

On the cooperative learning days, after the PE class the students entered the class ready to take the assessment. They grabbed their folder with their student number on it, sat at their desk, and quickly began to complete the assessment for that day. While the students were taking the assessment, it was observed that they were focused and concentrating on the task at hand. More students were seen looking back at the text to help them with an assessment problem. This is a problem-solving strategy taught to the students by the classroom teacher to help with reading assessments. It was also observed on these days that the students took a slightly longer time to complete the assessment and the researcher noticed that the students wrote more for the writing questions in the assessment.

On the recreational activity days, after PE class the students did not seem ready to take the assessment. Several students asked to use

the bathroom before the assessment, students were walking around the classroom before they sat down, and there was some confusion on some of these days caused by students forgetting their student number. This was different on the cooperative learning days, when the students remembered their student numbers and quickly sat down to take the assessment. While taking the assessment, many students slouched down in their seats and stared off into space. The assessments were handed in quicker and some students wrote less for the writing questions in the assessment.

This study started with 35 participants, but as the study went on two participants' data were removed due to the number of absences and injury, which occurred outside the study. This caused the number of participants to drop to 33 children (20 fifth graders, 13 sixth graders).

Table 1 shows the average reading comprehension scores per grade and per day of activities. There was an increase in students' reading comprehension scores for fifth grade between Days 1 and 2, 5 and 6, and 7 and 8 of low and high structure/thinking days. Furthermore, there was an increase in scores for sixth grade between Days 1 and 2, 3 and 4, and 7 and 8 for low and high structure/thinking days. Figure 1 shows a decrease in students' reading comprehension scores between Days 5 and 6 for sixth grade and no change in reading comprehension scores between Days 3 and 4 for fifth grade. On the days when there was a decrease or no change in reading comprehension scores, it is believed that the uncontrolled variable of a student's emotional state could have affected the scores on that day. Those scores could have been affected by the level of thinking and effort the students put into the activity on that day. Table 1 shows that some students' reading comprehension scores increased between low and high structure/thinking days and other students' scores decreased between low and high structure/thinking days.

Table 1
Reading Comprehension Scores After Low and High Structure/ Thinking Activities in Physical Education Class

		Day							
		1	2	3	4	5	6	7	8
Student	Grade	Low	High	Low	High	Low	High	Low	High
1	5	60	100	90	80	100	90	90	60
2	5	80	80	70	60	40	60	70	60
3	5	80	50	80	100	100	80	90	80
4	5	50	90	50	80	90	80	80	100
5	5	60	90	90	80	80	80	80	90
6	5	60	60	70	80	30	40	20	80
7	5	100	70	80	70	60	90	90	70
8	5	100	90	100	100	100	100	70	90
9	5	100	90	80	80	90	90	70	70
10	5	80	70	80	80	50	90	60	60
11	5	80	100	90	90	80	100	60	100
12	5	90	70	80	90	70	40	90	60
13	5	50	90	60	60	40	70	60	50
14	5	70	90	80	80	90	90	90	100
15	5	80	100	100	90	100	100	100	100
16	5	40	80	30	80	40	80	40	80
17	5	50	100	70	20	60	80	90	30
18	5	100	30	70	60	90	90	80	60
19	5	70	60	80	90	80	70	60	70
20	5	80	70	100	90	100	80	80	90
Average	5	74	79	78	78	75	80	74	75

Table 1 (cont.)

		Day							
		1	2	3	4	5	6	7	8
Student	Grade	Low	High	Low	High	Low	High	Low	High
21	6	100	100	90	100	100	90	100	100
22	6	90	100	100	80	100	100	100	100
23	6	90	100	90	70	80	100	90	80
24	6	80	90	70	80	80	70	80	100
25	6	90	90	90	70	70	70	60	90
26	6	80	100	100	100	90	100	100	90
27	6	50	60	50	70	70	70	70	30
28	6	80	100	90	100	80	70	90	80
29	6	50	70	60	60	60	50	70	60
30	6	70	80	60	100	100	90	100	80
31	6	100	100	80	100	90	100	70	90
32	6	60	90	40	80	90	70	90	100
33	6	90	80	70	90	70	80	60	90
Average	6	79	89	76	85	83	82	83	84

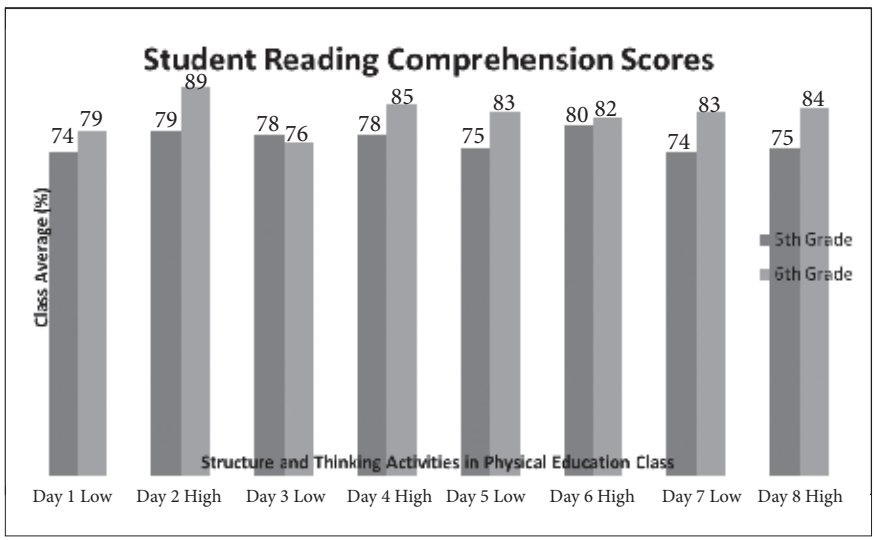

Figure 1. Class average of students' reading comprehension scores after high and low structure/thinking activities in physical education class.

Discussion

The purpose of this study was not to attempt to resolve the barriers of limited instructional time and application of assessment strategies in PE. The study attempted to show how high structured PE can positively affect the cognitive domain in students via interdisciplinary PE. The simple coordination of language arts content and cooperative learning in PE increased the reading comprehension scores of the participants. Even though the study has limitations, it was evident that the participants showed improvements in reading comprehension scores after a high thinking, problem-solving PE class. The increase in reading comprehension scores could be due to the increase in brain activity during the PE classes and due to the practice of problem solving during the activities.

According to the literature, consistent physical activity can help improve and maintain thinking, learning, depression, and judgment skills. Research also shows that specific exercise can increase mental health by increasing blood flow to the brain. When there is a constant blood flow, it helps maintain thinking (CDC, 2011). An increase in student focus was observed during this study, which could also lead to an increase in reading comprehension scores. Reed et al. (2010) stated that movement can influence fluid intelligence. Fluid intelligence is defined as the "ability to think abstractly, reason, identify patterns, solve problems, and discern relationships" (Chegg Study, n.d., para. 1).

On the days when there was a decrease or no change in reading comprehension scores, it is believed that the uncontrolled variable of a student's emotional state could have affected the scores on that day. A child's and adult's emotional state changes day by day due to multiple variables. The researcher observed on the days of no change and decreased reading comprehension scores students' attitude toward the study and activity was different from the other days. The students seemed to put less effort into the activity during the PE time. This could be due to students' interest level in the activity on that day. Some students sighed or complained about having to take an assessment on that day.

Conclusion

PE in schools allows students to gain the health benefits of physical activity, as well as knowledge concerning the importance of a lifetime of regular fitness. PE programs teach students skills that can be used in everyday situations. Examples of these skills are teamwork, problem solving, and communication. These types of programs develop modified play, which provides a developmentally appropriate environment for students. Increasing time allotted to play provides a more enjoyable and motivational experience for children (Mitchell et al., 2003).

This study focused on the cooperative learning skills that students learned during the adventure education unit in PE class and how the students applied those skills to a reading comprehension assessment. The data showed that the class average of the students' reading comprehension scores increased on the days of the higher level thinking and higher structured activities (cooperative learning activities). It was also observed that students' focus was greater on the higher thinking and higher structured days.

In many schools, the aforementioned barriers could be difficult to change and/or overcome. However, even when available PE instructional time is minimal, physical educators can still find ways to use that time effectively to meet physical activity standards. The cognitive domain was evident in the interdisciplinary version of this study. The application of interdisciplinary PE is another method to maintain the quality of PE lessons and to continue working toward the education of physically literate individuals. Nevertheless, further research is needed on the effects of cooperative learning in PE on students' reading comprehension scores over an extended time.

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The Physical Educator Vol. 77 • pp. 313–331 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9173

PEDAGOGY

The Veteran and the Novice: Investigating Teacher–Coach Role Conflict From Two Perspectives

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Abstract

This study examined two physical educators/coaches' (one veteran and one induction) perceptions of their two roles. Role socialization theory (Richards, 2015) was used to determine how different roles are socially constructed and contextually bound, how individuals are socialized into their roles, and how socialization affects others' view of the participants. Triangulation, peer debriefing, member checking, and an audit trial ensured trustworthiness. Data analysis was conducted following Merriam and Tisdell (2016). Analysis revealed three major themes: time conflicts, relationship conflicts, and the value of the role was dependent on the environmental context.

Teachers face multiple socialization issues throughout their careers in schools. Socialization issues in teaching are an inextricable situation that is unavoidable, but some teachers will encounter more difficult situations than others. Many teachers will find these issues difficult to combat and will have little background in handling different conflicts that arise. Richards, Templin, and Gaudreault (2013)

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discussed the multifaceted nature of teaching and how extra responsibilities, such as coaching, are often added to a teacher's regular workload. They argued that many teachers may feel obligated to fulfill these ancillary roles to maintain their teaching positions.

With added work obligations come added stress, and this can lead to teacher burnout. Burnout is often characterized by a teacher's inability to cope with the responsibilities and stressors of the workplace, and this can often lead to an early separation from the profession. Early exit from the profession may become increasingly more problematic as scholars have estimated that teaching vacancies may reach upwards of 1.9 million openings (Vilorio, 2016). Many of these teachers will be ready to teach their particular subjects but will not be ready for some of the role conflicts, socialization problems, and time conflicts of teaching and coaching. At the end of the first year, many induction teachers decide to depart from their career because of stress and conflicts (Carver & Katz, 2004).

Many socialization issues can lead to stress and burnout. This study investigated the issues and conflicts of physical educators with a specific focus on teacher–coach role conflict. Additional factors can act on physical educators' work including isolation and marginalization, teaching and coaching orientations, and specific work environment and school context factors.

Studies have consistently found physical educators to report feelings of isolation and marginalization. Given the hierarchical nature of subject matter in schools, physical education has often been viewed as an inferior subject to other "core" subject matter. Only recently has physical education begun to see a change, as federal legislators have passed the Every Student Succeeds Act. Within this piece of legislation, physical education is now included as a core subject. Despite this, physical education still has general outdated stereotypes that threaten its legitimacy. Marginality can lead physical educators to feel like "second-class citizens" and as if they are not considered "real" teachers by individuals in their workplace. Compounding this is the physical location of the gymnasium being away from "academic" classrooms. This can render feelings of isolation and can limit professional collaboration and development activities.

The roles of teaching and coaching are often viewed as very similar; however, the expectations, status, goals, and overall behavior in each role are very different. Because of this, when deciding to enter the profession, an individual often has a preference for one over the other. Richards, Templin, and Graber (2014) described this as a role orientation. A role orientation leads a professional to tipping the scales unevenly with respect to effort, time, and commitment, which can lead to the undesired role becoming less enjoyable. Stress, anxiety, and ultimately burnout are products of having a highly significant role orientation.

Theoretical Framework

Occupational socialization theory, role theory, and role socialization theory provided the theoretical framework for this case study.

Occupational Socialization Theory

Lawson (1986) described occupational socialization as "all of the kinds of socialization that initially influence persons to enter the field of physical education and that later are responsible for their perceptions and actions as teacher educators" (p. 107). Occupational socialization theory describes experiences that have shaped an individual's viewpoint about an occupation and occurs in three stages that all professionals will encounter in a chronological order: acculturation, professional socialization, and organizational socialization (Curtner-Smith, Hastie, & Kinchin, 2008).

Acculturation refers to the K–12 experiences that the teachers had when they were children in schools, which is commonly considered the most influential time for influencing orientations. Professional socialization is the college or university experience in a PETE program. Organizational socialization refers to socialization that occurs within the context of working as a teacher in schools.

Role Theory

"Role theory concerns one of the most important features of social life, characteristic behavior patterns or roles. It explains roles by presuming that persons are members of social positions and hold expectations for their own behaviors and those other persons" (Biddle, 1986, p. 67). There is a predictable nature about how people interact within their roles and how they expect others to interact within

their roles. Biddle (1986) described these expectations as scripts that actors are expected to perform, and similarly social behaviors are scripted patterns that people expect to see within the given context or role. Perceptions developed during occupational socialization theory lead to two important characteristics of role theory: consensus and conformity. Consensus deals with the common expectations of the role; however, many of the consensus ideologies are not always agreed upon. The disagreed consensus could lead to an individual not conforming to comply with the general ideology. Conformity occurs when an individual complies with expectations for modeled behavior in that social context (Biddle, 1986). Richards and Templin (2012) discussed how an interaction with conformity could occur: "When individuals are socialized to view the responsibilities of a role in a particular way, they are more likely to enact those beliefs in their own portrayal of that role" (p. 165).

Role theory provides the foundation for behavioral expectations within different occupations. These role behaviors are predictable in nature, and there are often widespread common expectations for teacher and coach roles. While some of the expectations for teaching and coaching share a middle ground, many are uniquely individualized to each profession. Sharing these differing expectations can lead to role conflict. Role conflict is a time when two roles collide and expectations for these roles make it difficult to navigate separating the two.

Occupational socialization theory and role theory can contribute to the understanding of the socialization process of teachers and coaches. Richards (2015) argued that the relationship between these two is critical and outlined a united theory called role socialization theory:

> [Occupational socialization theory] examines factors that socialize PE teachers into work roles, but fails to explain adequately how work roles are socially constructed and contextually bound. Role theory, on the other hand, provides insight into the social construction of the role of teacher and stressors resulting from incongruences in expectations for role performance, but fails to account adequately for the way in which the socialization process contributes to these definitions. (p. 383)

It is through the combination of these that teacher–coach role conflict and how these individuals develop their own perceptions of the two roles can be understood.

Role Socialization Theory

Richards (2015) defined role socialization theory:

> Role Socialization Theory seeks to explore: (a) the ways in which the occupational role of the PE teacher is socially constructed and contextually bound in a school setting; (b) how individuals are attracted to, prepared for, and socialized into PE teaching and coaching roles; and (c) how socialization influences the ways in which role-sets view the role of the PE teacher as a member of the school community. (p. 379)

Role socialization theory provided the theoretical underpinning for this study. Because of its ability to make meaning of how physical educators' roles are built through the dialectic relationship between individual, context, and ideology, role socialization theory was used to understand the perceptions of two teachers regarding their roles as teacher and coach and the conflict between these roles and the effect of this on their work life.

Teacher–coach role conflict is an ever changing dynamic topic within socialization issues. Richards and Templin (2012) noted a need for new and constant research with teacher–coach role conflict, because of the constant societal changes within the expectations of teaching and coaching. They also suggested that teacher–coach role conflict has not been examined to the extent it should, and further research should be conducted to understand the complexities more clearly. To better understand how teachers experience teacher–coach role conflict at different stages of their career, additional studies can examine teacher–coach role conflict under the lens of time in the profession and stage in the career. Findings from this study may provide preservice teachers insights into possible socialization problems with this particular conflict. This study might also provide induction teachers with a look into perceptions that are similar to their own.

This study examined two physical educators/coaches' (one veteran and one novice) perceptions of their roles through the lens of

role socialization theory. Research questions guiding the study were (a) How does the veteran teacher–coach describe his roles and how do these affect one another and his work life? and (b) How does the novice teacher–coach describe her roles and how do these affect one another and her work life?

Method

This research aimed to look deeper into the perceptions of two physical education teachers in the teacher–coach role who thus could be experiencing teacher–coach role conflict. Specifically, the researcher was most interested in how teacher–coach role conflict personally affects these two individuals and how the teachers felt they are perceived in both roles. Further, this study sought to examine differences that may occur as a result of different career stages. For the purpose of this study, the stage of induction was defined within the first two years of teaching and the veteran stage marks 10 or more years of teaching.

Case Study

This study employed a case study design. Case studies are described as complex bounded systems that are analyzed and intensely explored to produce in-depth descriptions of the entity being studied (Merriam & Tisdell, 2016). This study looked at two teachers' case studies to capture the essence of what it means to be experiencing teacher–coach role conflict and what their perceptions tell about how they manage to combat or struggle with this conflict. Breslin and Buchanan (2008) described case studies as having "a rich history for exploring the space between the world of theory and the experience of practice. It is one thing to have an idea and another thing to make that idea concrete and real" (p. 36).

Participants and Selection

Following institutional review board approval, two teacher–coaches currently teaching and coaching in a rural Mountain West state agreed to participate in the study. Purposeful sampling was chosen as the technique to acquire the participants. "The logic and power of purposeful sampling lie in selecting information-rich cases for study in depth. Information-rich cases are those from which

one can learn a great deal about issues of central importance to the purpose of the inquiry, thus the term purposeful sampling" (Patton, 2002, p. 230). Purposeful selection was employed, as the two teacher–coaches were identified as information-rich cases that could fulfill the purpose of the study and answer the research questions.

Data Collection

Data from this study came from individual interviews (telephone and face-to-face), participant journal entries, and critical incident accounts. Data collection occurred in multiple locations. Participants completed journal entries during the school year during respective sport seasons and at their convenience. Interviews took place over the phone in a convenient place of each participant's choosing and the researcher conducted the interviews from the university.

Individual interviews. Three interviews were conducted with each teacher throughout the study via a semistructured interview guide. Interview questions aimed to gain the teachers' perceptions about teaching, coaching, fulfilling these roles concurrently, time requirements, perceived mattering, and stressors from both roles. As different themes emerged, the interview questions were adapted to facilitate the most information-rich substance for learning more about the participants' perceptions and enrich the data set. Interviews were audio-recorded and transcribed verbatim for analysis.

Journal entries. Participants kept a journal describing their thoughts and experiences both at school as a PE teacher and outside of school in their role as coach for one academic year. Participants chose to journal electronically (in a word-processing document) or paper and pencil at their convenience and shared journal entries with the researcher throughout the study. Journal prompts were aligned with interview questions to triangulate and support interview data.

Critical incident accounts. The critical incident accounts developed from aspects of the interviews and journals. Tripp (1993) described,

> The term 'critical incident' comes from history where it refers to some event or situation which marked a significant turning-point or change in the life of a person or an institution (such as a political party) or in some social phenomenon. (p. 24)

This event was identified within the interviews and journals by the researchers as a significant situation that helped answer the research questions.

Data Analysis

Data were analyzed inductively following the process presented by Merriam and Tisdell (2016) including open coding, axial coding, and theme development. After open and axial coding, codes were grouped into analogous themes. Codes and themes were constantly compared to one another and considered relative to role socialization theory (Richards, 2015).

Trustworthiness

Triangulation, peer debriefing, member checking, and an audit trail ensured trustworthiness, validity, and quality of the data and findings. Mays and Pope (2000) described triangulation as "the researcher [looking] for patterns of convergence to develop or corroborate an overall interpretation" (p. 51). A credible professional researcher assisted with all peer debriefing and provided feedback about methodological choices and accuracy of data collection techniques (Spillett, 2003). Member checks were conducted as the researchers shared the findings with the participants to ensure and validate the researchers' work to be true (Merriam & Tisdell, 2016). An audit trail documenting the steps in the research process was kept.

Results and Discussion

This study examined two physical educators/coaches' (one veteran and one induction) perceptions of their roles through the lens of role socialization theory.

Data revealed three themes for the veteran and novice teacher: time, relationships, and the value of the role was dependent on the environmental context. While occupying and fulfilling two roles, both teachers found that time proved difficult. Consequently, this presented a similar conflict for both teacher–coaches. Relationship difficulties and value of roles were both themes for each teacher–coach; however, their experiences were different due to the differences in context between the two teachers. The teachers' philosophy and view of their roles will be discussed first, followed by the themes.

Mike: The Veteran

Mike (pseudonym) was a 40-year-old husband and father of three children. He had been teaching for 14 years. Mike was fortunate enough to play football and be a member of the rodeo team at the collegiate level. Directly after graduating with his physical education degree from a North Dakota university, Mike started working at North High School (pseudonym) located in a rural Wyoming community. He has remained in the same position for all 14 years of his teaching career while also coaching basketball, football, and track. Mike indicated that his early PE experiences (K–12), while filled with a variety of activities, were mostly a roll-out-the-ball curriculum.

Mike described his teaching as an opportunity to be a prominent role model in his high schooler's lives and that the most important part of teaching is to be passionate and enthusiastic. Mike described his coaching as a platform to develop the holistic young adult and to treat them as students first. While he was passionate about teaching, coaching seemed to be placed at higher level than teaching.

Cindy: The Novice

Cindy (pseudonym) was 24 and taught for 2 years in a larger town (in respect to Wyoming) as a traveling physical education/health elementary teacher to three schools. Cindy played college basketball and transferred to a Wyoming university physical education teacher education (PETE) program and finished her degree during her second year of college. After graduating, Cindy began teaching at Black River School District (pseudonym) and coached basketball. Similar to Mike, Cindy has indicated that her early PE experiences were filled with a plethora of activities but had been limited to a roll-out-the-ball technique.

Cindy described her teaching as a platform to advocate lifelong activity in her students. Building meaningful relationships is something she strives to do with all of her students and those she coaches. Skill development and work ethic are the most important things she strives to instill in her players.

Themes

Time. Cindy and Mike faced daunting tasks to stay current and successful within roles of teacher and coach. While Cindy and Mike

expressed conflicts relative to limited time, their perceptions of how to respond to this conflict and its effect on their work lives were different.

Cindy described her 20-min ride to work as a disadvantage and reported teaching and coaching required a commitment of roughly 60 to 75 hr/week. She collaborated during her lunch hour with colleagues for future units, describing it as a positive experience to collectively create new units and to save time, become closer to her colleagues, and free up her weekends to enjoy her personal life. Cindy described that her teaching schedule did not allow much time for proper practice planning for coaching and hence she often used planning periods designed for teaching for coaching preparations.

> At the beginning I did not think that coaching and teaching would be that hard to do both. It is not hard to do both, but the preparation and time is what is starting to get to me a little bit. It is hard to plan out a good practice plan when you are teaching all day. There have been several occasions where I have had to use planning time to write out a practice plan. (Journal Entry)

This quote presents a very clear conflict between her two roles of teacher and coach. She also discussed that her coaching negatively affected teaching time, as she was required to be gone regularly throughout the season.

Cindy elaborated on the negative effect of coaching on her teaching, saying,

> At times I felt it did affect me as a teacher. Coming home from a late-night basketball trip. I have school bright and early in the morning and I am tired. I might not be on my game today. I might just let a few things fly. (First Interview)

Clearly, the time required to fulfill her coaching role presents a conflict with her teaching responsibilities and teaching effectiveness.

Mike reported spending approximately 70 to 80 hr teaching and coaching. Though Mike was the head coach of the football team, he reported that the basketball season, when he is an assistant coach, requires more time because of additional away games. Mike described

that his school required teachers to stay until about 4 o'clock, with the exception of those with coaching commitments. Many teachers at his school used that time for grading and planning. Mike discussed how coaching affected his ability to utilize time after school for planning and grading, like other teachers:

> Well, when I wasn't coaching . . . that spring, it was different, you stay there, you put in grades, do some stuff, and then when you leave at 4 that's it, you don't have to go anywhere. So it was different in that aspect. (Second Interview)

Since Mike did not have that time available because of his coaching responsibilities, he used out-of-school hours to complete his teaching obligations.

> So then you're geared up to doing your unit lessons at home. So you kind of line out the week of what you're going to get and all of that. So you probably do a little bit more than just the average hours during the day. You probably spend some more time in the morning or at night, putting lessons together or printing out what you want to go over. (First Interview)

Coaching responsibilities required Mike to plan at home and spend time away from his family to meet his teaching responsibilities, which presents a clear conflict between his teaching and coaching roles with respect to time.

Relationships. Cindy and Mike stated they felt a great deal of support from administration in both roles but that parents, colleagues, and community sometimes provided difficult situations within their roles as teacher–coach inside and outside of their respective schools.

Cindy was concerned with her interactions with colleagues and with parents. In particular, she had a more difficult situation with a colleague who was also a parent of one of her athletes on the team. Cindy first described the relationship, saying,

> I have had one parent that is a colleague that is another PE teacher in the district. I was really good friends with her and she kind of took me in a little bit when I first started here. Her daughter was a freshman on my team. (First Interview)

Cindy later described how this ultimately presented a difficult situation:

> She thought her daughter deserved to play more than I did . . . Through the season, her daughter just didn't progress. She wasn't really getting any better. Everybody else was getting better. So they played more. She would play less and less. I didn't see any changes in practice. This girl came to me one time and asked me what she could do better. I told her those things, and I never saw that response or change. So I didn't change anything. It was our last game, we were playing Southeast and we were winning. That usually doesn't happen. So I put in my best players and those who were trying hard. I just got that pretty nasty email from that parent. I didn't treat their daughter right, or I wouldn't answer any of their questions. They're pretty angry and upset. (First Interview)

She also discussed that collaborating with colleagues helped her save time:

> I feel more relaxed as a teacher. So just being able to work with somebody. And plan together, I mean in our field you have to, like right now where our district is, you have to be together. (Second Interview)

To this response the interviewer asked, "Which is a positive advantage for you?" Cindy answered, "Super positive, I would be losing my mind, like without the teamwork and collaboration" (Second Interview).

Mike felt that it was sometimes difficult to navigate the head–assistant coach relationship, especially when that relationship was with not only another coach but also a school colleague. Mike also expressed feeling he was looked at more as a coach in the community, which made some regular tasks in the area difficult. Mike discussed a story about one community conflict:

> If the [team] is doing good, I think everything is good. If the team is not doing so good, then you can kind of feel it out in the community a little bit, I would say. I'll tell you this story but it was my first year as a head coach. So I took over. We

had a decent team. They've struggled throughout the years. They just haven't had a lot of winning season. So we had that first game with North and it's a zero-win game. So it doesn't count towards your schedule. So we actually went to double overtime and we won. So I went down to the [store], I was going to go get a grocery list on Saturday morning from my wife. I went down the grocery store and then everybody's come up and talking to me and different things. I come back and she goes: "How was the store?" I said: "Well, I think I'm going to become a mayor now." Just everybody was up and ready to go. So then we continued to have a rough go. We were in games but we didn't win any other game of that season. So week five I went down there [store] after losing the first four and I went down there the grocery store again and came back. I told my wife: "I think you're on grocery detail now for Saturday morning. The only way I'm going to go is if we get a win." (First Interview)

Value of role depends on context. The final theme to emerge from the data was that the value the teacher–coaches felt was dependent upon on the environmental context. Mike's perceptions of his value as a teacher and as a coach were different than Cindy's. Further, this was dictated by the differences in the context of their work lives. Cindy was coaching and teaching at different schools and Mike was coaching and teaching at the same school. While it might seem that teaching and coaching at different schools would result in greater conflict for Cindy, it resulted in enhanced perceived value.

Cindy felt that her experience at the elementary teaching garnered respect in her teaching profession. The administration and her colleagues knew her as a teacher and this was how she was viewed. Conversely, the administration and colleagues at the high school knew her as a coach and consequently respected her as a coach. It was because these two professional sites were separate that Cindy was able to separate some status conflicts that happen to many teacher–coaches.

Mike coached and taught at the same high school and this resulted in him feeling there were more indications that his value was as a coach, not as a physical education teacher.

> I would say maybe a little bit more value on the coaching side because Friday nights or Friday to Saturday is with basketball . . . the community comes out and gets to see that. So you're right there, whereas in the classroom it's just me and the kids. There isn't any other person around here that's watching us. So I think you probably get a little bit [value] more to coaching. (Second Interview)

Mike felt that he was not respected for his role as teacher as much as for his coaching role.

Discussion

The results yielded three themes: time conflicts, relationship conflicts, and the value of the participants' roles was dependent on the context. These findings of time and relationship challenges support those of previous studies; however, the finding that perceived value of different roles may be affected by variations in context may present additional information relative to understanding the nuances of the contextually bound teacher–coach role conflict.

Throughout the research process, findings were constantly compared to the purpose and research questions through the lens of role socialization theory. Richards (2015) conceptualized role socialization theory to explain how occupational socialization theory is informed by the different roles of physical education teachers and how these roles are contextually bound by teachers' specific working environment.

Socially Constructed and Contextually Bound

Findings indicate that the two participants' roles were socially constructed and contextually bound by two factors: time and relationships. Being contextually bound by time constraints forced both participants to give time and attention to coaching and away from teaching. This is consistent with existing literature and is one difficulty in teacher–coach role conflict that is unavoidable (Templin & Anthrop, 1981). Strategies exist for time conflicts, but these strategies do not change the large amount of time required for teacher–coaches to complete both roles successfully. Often, the teaching role will suffer significantly with added obligations.

Both participants were confronted with difficult relationship complications, yet their roles were socially constructed through relationships in two different ways. Cindy's relationships were positive and meaningful through positive interactions within both roles. Cindy perceived teaching and coaching in different schools was an asset to both roles. She was viewed as a teacher in the elementary school and a coach in the high school. As a result, Cindy received positive messages about her worth and value as both a teacher and a coach. This conflicts with some existing literature in which teacher–coaches are valued as coaches but not in their role as teacher when occupying both roles in the same context (the same school). This was an excellent situation for Cindy to be in, because Metzler (1990) described this time in Cindy's career as the most critical time when she learns about "being a teacher." There are few examples of this in the literature, as teacher–coach role conflict research often examines individuals in one context (like Mike). This finding offers new knowledge in that when teachers teach and coach in two schools, they may experience feelings of value and worth for both roles.

Mike's philosophy for coaching aimed to develop the student athlete, yet his overall concern was the athlete's performance, which ultimately is why Mike prioritized coaching over teaching, as did other teachers in the same building. It would be difficult movement to change when other individuals are displacing the same characteristics. This is reflective of Richards and Templin's (2012) discussion on consensus and conformity: "When individuals are socialized to view the responsibilities of a role in a particular way, they are more likely to enact those beliefs in their own portrayal of that role" (p. 165).

Socialization Into the Profession

Many first- and second-year teachers are at risk for burnout as a result of a variety of socializing factors. Veenman (1984) discussed this as "the collapse of the missionary ideals formed during teacher training by the harsh and rude realities of everyday classroom life" (p. 143). Unfortunately, it is difficult for PETE students to gain practical experience with these socialization issues because the teacher needs to step into the organizational socialization stage to experience difficulties firsthand and within their specific context. A primary challenge throughout the socialization process for Cindy was the time that coaching took away from teaching. Cindy valued

teaching over coaching and it was apparent that she was conflicted about coaching taking away from the time she could be planning and teaching her students. Cindy developed coping strategies in the second year, but these strategies cannot replace lost time with students.

Preservice and novice teachers may think that they will find solutions to most of their initial problems after a few years of experience, but teachers are continually socialized into their profession throughout their career. Richards et al. (2013) discussed the multifaceted nature of teaching and how teaching and coaching are constantly changing to adapt to new students with different needs. Further, socialization is a multifaceted, dynamic, and dialectic process that is highly influenced by the contextual environment. Mike's community continually demonstrated their interest rested with athletes, not with academics. One week Mike felt on top of the world and like the mayor and conversely after a loss felt like he mattered less. This type of response from community was a reaction to his performance in his coaching role, not his teaching role. Mike described that parents would only discuss academics with him when their student needed to get out of swimming or possibly needed to raise a grade. This is another reason why Mike gave more attention to his coaching profession.

Others' Views of the Teacher–Coach

Cindy taught and coached at two schools and was viewed differently at both, which was dependent upon the context. She was respected in both roles, which shows how the context separated the two. Cindy was only viewed by each school as occupying one role. This finding may provide new insights into understanding teacher–coach role conflict, because previous studies often examined teacher–coaches who occupied roles at the same school.

For Mike, teaching and coaching at the same school resulted in a great deal of pressure on how the roles were socially constructed, how he was socialized into the role, and ultimately how others viewed him. All three of the role socialization theory categories negatively weighed on Mike; one of the roles had to give. People viewed Mike as occupying two roles; however, coaching was more important to them. The community, school, and parents viewed Mike as a coach, a common trend seen in teacher–coach role conflict. Templin and Anthrop (1981) discussed that community members do not often

see the full picture of what is happening in the classroom, which can result in a lack of awareness of quality physical education. Given this, it is not surprising that parents identify Mike as a coach, because they only see him performing his coaching duties.

Limitations

Three limitations to this study should be noted. First, because of the nature of the participant selection and convenience, field work and observations of both teachers was not possible. Cindy was living and teaching several hours away from the researcher and travel to and from this location for the primary researcher was unlikely or difficult at best. Second, approximately halfway through data collection, it became clear that Mike seemed to want to help the researcher further his career and thus provided answers to questions that he thought would be helpful. This may have limited the responses. Third, some of the critical incident accounts and journal entries lacked depth and did not provide the richness the researchers had intended.

Finally, it is important to mention that generalizability of findings is not an intention of case study. Case study design is most effective for gaining an in-depth understanding of a social phenomenon, such as teacher–coach role conflict, and this study sought to provide thick, rich description for readers to interpret and make meaning of the application of these findings to their own personal circumstances and situations.

Implications for Practice

Dealing with socialization issues in teaching and coaching is challenging, multifaceted, and complex. PETE programs are responsible for developing the foundational pedagogical knowledge necessary for preservice teachers to enter the field successfully.

The findings of this study seem to indicate that PETE programs would benefit from including socialization coursework as a way to formally include the knowledge and skills necessary for students to navigate sociopolitical factors affecting their development. If that is not possible, hypothetical socialization issues could be integrated into curriculum when appropriate. PETE programs might also consider including an interview that is solely focused on socialization issues for preservice teachers to conduct with their cooperating

teacher during student teaching. Finally, PETE programs could consider including a coaching experience during student teaching, as physical education teachers are often recruited to coach (during the hiring process and once hired). Doing so would allow preservice teachers to experience teaching and coaching and the occupation of both roles prior to entering the profession.

Taken together, findings from this study confirm the multifaceted and contextually bound nature of teacher–coach role conflict. The addition of a coaching commitment is a challenge not only because of the time constraints on physical education teachers but also because of the additional difficulties of added complexities in relationships and the possibility of receiving mixed messages for the roles of teaching and coaching. Future studies should explore the unique circumstances surrounding coaching at one school and teaching at another, as the findings in this study seem to indicate that this may be a situation in which teacher–coaches might find meaning and that might minimize teacher–coach conflict through enhanced perceptions of mattering.

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The Physical Educator Vol. 77 • pp. 332–356 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9489

PEDAGOGY

The Effect of a Goal-Setting Program in Physical Education on Cognitive and Affective Outcomes of the Lesson

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Abstract

This study investigated the effects of a goal-setting intervention on students' physical education and leisure-time physical activity motivation cognition. One hundred sixty-nine primary school pupils in fifth and sixth grades (11–12 years old) participated in the study and were randomly divided into two groups. Ninety-four students participated in a goal-setting intervention program that lasted five physical education lessons, and seventy-five students served as a control group. Perceived autonomy support in physical education classes, autonomous motivation in physical education, enjoyment during physical education, vitality, attitudes, perceived behavioral control, and intention toward out-of-school physical activity were measured at the beginning and end

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Acknowledgment: The study was part of the "Pupil Health & Well-Being - An Education Priority for Europe's Schools" project co-financed by the Erasmus+ action (Key Action 2).

of the intervention program through anonymous questionnaires. The results indicated that goal setting served as a useful strategy for the promotion of autonomy support in physical education lessons, producing positive effects on leisure-time physical activity–related cognition.

Recent evidence suggests that modern lifestyle hinders physical activity and a majority of children and adolescents have fewer opportunities for exercise. Physical education has been proliferated as a school subject that can provide opportunities for physical activity and positively influence public health (Hills, Dengel, & Lubans, 2015). Current educational curricula, though, provide physical education lessons that do not satisfy the World Health Organization criteria for exercise in children and adolescents (Brener et al., 2017). Thus, the lesson needs to be as effective as possible for maximum effect on students and, in addition, for promotion of lifelong participation in physical activity. To address this need, this study investigated the effect of a goal-setting intervention on students' physical education and leisure-time physical activity motivation and cognition.

Self-Determination Theory

Self-determination theory (SDT) is a theory of human motivation and personality that deals with people's inherent growth tendencies (Deci & Ryan, 2000). More precisely, SDT focuses on the motivation behind the choices people make and the degree to which an individual's behavior is self-motivated and self-determined (Deci & Ryan, 2000; Ryan & Deci, 2002, 2017; Van den Berghe, Vansteenkiste, Cardon, Kirk, & Haerens, 2014). Central in SDT is the distinction of three main types of motivational regulations, namely, intrinsic motivation, extrinsic motivation, and amotivation (Deci & Ryan, 1985, 2000). An *intrinsically* motivated behavior reflects involvement in an activity for the satisfaction and pleasure derived from the activity itself. Intrinsically motivated behaviors are accompanied by feelings of competence and self-determination. On the other hand, extrinsic motivation refers to activity involvement for rewards or avoidance of punishments. This type of motivation is operated through four motivational regulations that vary on self-determination. These motivational regulations include *integrated* regulation, which signifies the complete internalization of this value together with the existing values of the individual, and *identified* regulation, which

indicates that a person takes part in an activity because they recognize and accept the underlying value of this behavior. These two types of extrinsic motivation represent relative high levels of self-determination. On the other hand, an *introjected* regulated behavior represents the involvement of an individual in action with the intention of gaining self-worth or avoiding feelings of guilt or shame. Last, an *externally* regulated behavior involves engagement in an activity for external rewards or avoidance of threats and punishments, and involvement is characterized by the absence of feelings of autonomy and fun. These two types of extrinsic motivation are characterized by relatively low levels of self-determination. The last type of motivation, *amotivation,* has been described as a behavioral regulation that is characterized by the absence of motivation and, therefore, self-determination (Deci & Ryan, 2008).

Intrinsic motivation and identified regulation form autonomous motivation, whereas introjected and external regulations form controlled motivation. Autonomous motivation results in more adaptive behaviors and positive outcomes in comparison to controlled motivation. These outcomes can be affective, such as higher sense of well-being, vitality, and positive affect; cognitive, such as higher attention and deep processing during a task; and behavioral, such as more effort, persistence, and greater activity levels (Boiché, Sarrazin, Grouzet, Pelletier, & Chanal, 2008; Standage, Duda, & Ntoumanis, 2005). On the other hand, controlled forms of regulated behaviors may produce internal pressure and fear of looking incapable, surface processing during a task, and avoidance or quitting of the task at hand (Deci & Ryan, 2008).

A basic premise of SDT is that the social environment produced by social agents, such as parents, teachers, and coaches, influences the formation of motivational regulations. The theory identifies two types of interpersonal interactions that form the so-called motivational climate, namely, autonomy-supportive and controlling climates (Deci & Ryan, 2012). An autonomy-supportive climate provides opportunities to students to identify, nurture, and develop their inner motivational resources, whereas a controlling climate puts pressure on students to think, feel, or behave in a specific way (Reeve, 2009; Reeve & Jang, 2006). In SDT tradition, it is expected that an autonomy-supportive climate will foster autonomous

motivation, whereas a controlling climate will undermine autonomous motivation and promote controlled motivation (Deci & Ryan, 2000; Ryan & Deci, 2002; Vallerand, 2007).

In the context of physical education, SDT has been widely adopted and used to explain students' motivation. Past evidence consistently shows that an autonomy-supportive climate during PE lessons can assist students in endorsing autonomous motivation and achieving positive outcomes from participation, such as high levels of interest, effort and concentration, positive self-esteem, vitality, and higher levels of students' intention to be physically active in leisure-time settings (e.g., Barkoukis, Hagger, Lambropoulos, & Tsorbatzoudis, 2010; Hagger, Chatzisarantis, Barkoukis, Wang, & Baranowski, 2005; Krijgsman et al., 2017; Ntoumanis, 2012; Ntoumanis & Standage, 2009; Sebire, Jago, Fox, Edwards, & Thompson, 2013; Taylor & Ntoumanis, 2007; Van den Berghe et al., 2014; Vlachopoulos, 2012).

Theory of Planned Behavior

A set of outcomes related to the physical education lesson has been derived from the theory of planned behavior (TPB), a theoretical model that attempts to predict and explain human behavior in specific contexts (Ajzen, 1991). According to this approach, the core component of human behavior is the individual's *intention* to perform a given activity. Intention is supposed to reflect the individual's levels of motivation, whereas it reveals how much the person will try to achieve their goal. Three independent critical factors determine an individual's intention toward behavior. The first is the individual's *attitude* toward the behavior, which refers to positive or negative evaluations of the behavior per se. The second determinant is named *subjective norm,* which describes the person's beliefs about whether or not a behavior is approved by significant others. The third is the individual's *perceived behavioral control,* which denotes the extent to which the person believes that they have the ability to control the behavior at hand. In general, positive judgments about the behavior, strong social influences, and greater levels of perceived behavioral control lead to stronger intention to engage in the desired behavior. The effect of these three determinants on the prediction of intention has been proved in several studies and varies across different areas and behaviors (e.g., Davide, Sogari, & Mora, 2015; De Bruijn & Rhodes, 2010; Flack & Morris, 2017; Jiang, Ling, Feng, & Shao, 2017;

Londono, Davies, & Elms, 2017; Rhodes et al., 2014; Xu, Ling, Lu, & Shen, 2017).

With respect to the application of the TPB on the prediction of people's physical activity, a large body of research confirming the predictive utility of the model already exists. TPB has been extensively studied in association with SDT and there is consistent evidence that autonomous motivation is associated with more positive attitudes toward the behavior at hand and subjective norms, higher scores of perceived behavioral control and intentions, and higher actual behavior (see Hagger & Chatzisarantis, 2009, for a meta-analysis). Evidence suggests that an autonomy-supportive climate in physical education lessons can promote positive cognition toward leisure-time physical activity and actual physical activity behavior. More specifically, perceptions of autonomy-supportive climate foster autonomous motivation in physical education, which in turn promotes autonomous motivation in leisure-time physical activity and positive attitudes toward physical activity participation (Barkoukis & Hagger, 2009, 2013; Barkoukis, Hagger, et al., 2010; Hagger & Chatzisarantis, 2009; Hagger et al., 2005; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003; Hamilton & White, 2008; Mok & Lee, 2013; Plotnikoff, Lubans, Costigan, & McCargar, 2012). Overall, an autonomy-supportive climate can produce positive outcomes with respect to the physical education lesson itself (e.g., enjoyment and vitality) and the leisure-time physical activity (e.g., attitudes and intentions).

Goal Setting

The abovementioned evidence has consistently supported that an autonomy-supportive climate can foster autonomous motivation, which in turn positively influences proximal to the behavior variables, such as attitudes, subjective norms, perceived behavioral control, and intentions (Barkoukis & Hagger, 2009, 2013; Barkoukis, Hagger, et al., 2010; Hagger & Chatzisarantis, 2009; Hagger et al., 2003). Hence, the promotion of an autonomy-supportive climate has been considered an important avenue for fostering positive experiences during activity engagement (Reeve, 2009; Reeve & Jang, 2006). Among the more useful strategies of promoting adaptive motivation is appropriate goal setting (Duda, 2004; Locke & Latham, 2002).

Goal setting involves the development of a personal action plan that directs individuals' actions, not only helping them to monitor and evaluate its performance but also motivating them (Grant, 2012). It is generally accepted that goal setting can produce positive effects on personal development and self-management. More precisely, according to goal-setting theory, people who set difficult but attainable and specific goals and also know how to monitor and evaluate their progress perform better than those who set vague, easy, or do-your-best goals and do not monitor and evaluate their actions. Locke and Latham (1990) suggested that to be effective, goals have to be SMART, meaning that they must be Specific, Measurable, Attainable, Realistic, and Time-bound. Furthermore, investigating in what way goals affect performance, they proposed four mechanisms that underlie goal setting. The first mechanism is that goals help individuals to direct their attention toward activities relevant to the set goal. The second is that goals activate individuals, leading the person to put more effort to attain the goals. The third is that goals increase individuals' persistence, as people are likely to persist until the goal is met, and the fourth is that goals lead individuals to discover and use new task-applicable methods and strategies (Locke & Latham, 1990). In addition, goal setting includes several aspects that reflect an autonomy-supportive motivational climate. More specifically, it allows students to work at their own pace, provides opportunities for students to work on personal development and for the teacher to recognize personal improvement, promotes self-evaluation, allows students to make choices (e.g., define their personal goal) and take initiatives (e.g., define the strategy to achieve the goal), and fosters personal involvement, self-efficacy, and commitment to the activity (Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Papacharisis, Theofanidis, & Danish, 2007).

In the field of sports and physical education, the application of goal setting has been proved beneficial (see Horn, 2009, for an extensive review). Several studies support the positive effects of goal setting on performance (e.g., Barnett, 1977; Papaioannou, Ballon, Theodorakis, & Auwelle, 2004; Theodorakis, 1996; Theodorakis, Laparidis, Kioumourtzoglou, & Goudas, 1998), goal attainment (e.g., Johnson, Ostrow, Perna, & Etzel, 1997; Theodorakis, 1996), and motivational-related variables (e.g., Digelidis, Papaioannou,

Laparidis, & Christodoulidis, 2003; Duda, 2004; Giannini, Weinberg, & Jackson, 1988; Papacharisis, Goudas, Danish, & Theodorakis, 2005). The results of these studies support the notion that goal setting has the potential to promote achievement and sustain motivation. Thus, goal setting has been included in various interventions aiming to facilitate the positive development of students through adaptive motivation (e.g., Digelidis et al., 2003; Goudas & Giannoudis, 2008; Papacharisis et al., 2005).

This study investigated the effect of goal setting in physical education lessons on motivation indicators and outcomes related to the lesson. Goal setting can serve as an autonomy-supportive strategy in physical education lessons. So far, there is only limited evidence on whether goal setting in physical education can influence students' cognition and motivation in physical education (e.g., Digelidis et al., 2003; Papacharisis et al., 2005). Furthermore, there is a dearth of research linking goal setting in physical education with students' cognition about leisure-time physical activity. Based on the aforementioned review of the literature, it was hypothesized that students in a goal-setting group will report higher perception of autonomy-supportive motivational climate, higher levels of autonomous motivation, and lower levels of controlled motivation as compared with students in the control group. In addition, compared with control group students, intervention group students will report more positive outcomes from participating in the physical education lesson, namely, higher enjoyment and vitality. Finally, it was hypothesized that students in the goal-setting group will report more positive attitudes and subjective norms toward leisure-time physical activity and higher perceived behavioral control and intentions toward leisure-time physical activity.

Method

Participants

One hundred sixty-nine primary school pupils (92 boys, 76 girls, 1 did not declare gender) participated in the study. The students were fifth and sixth graders (11–12 years old) of two public schools in an urban area of Northern Greece.

Design and Procedure

The study design was in line with the Code of Ethics in Research of the Aristotle University of Thessaloniki. From the list of schools in the broader area of Thessaloniki, schools eligible to take part in the study were screened (i.e, typical coeducational schools, having two classes per grade, flexible in implementing innovative teaching approaches) and two were randomly selected. School principals and physical education teachers were informed about the purpose of the study, and they agreed to take part in it. The two physical education teachers (1 male, 1 female) selected were MSc holders and had written dissertations on sport psychology. As part of their studies, they had attended courses related to goal setting. Still, two one-hour sessions were conducted between the research team and the physical education teachers to establish the protocol of the intervention. In these sessions, the particularities of the intervention were discussed and decisions were made. More specifically, an intervention protocol was developed including (a) the information that would be presented to students with respect to the goal setting, (b) the exercises to be used and the time spent in each one, and (c) the principles of the goal-setting approach that would be used by the students. Based on this protocol, a self-monitoring checklist was developed. Following each lesson, the physical education teachers ticked in the checklist whether the predefined tasks were completed. With some minor differences in the time spent in some activities, the protocol was implemented as planned.

Following the institutional ethics committee rules, the researchers obtained consent forms from both students and parents/carers. The students were randomly assigned into intervention and control groups. The class of the students served as the unit of selection. Four classes were assigned into the intervention group and another four classes into the control group. Overall, 94 students (46 boys, 48 girls) participated in a goal-setting intervention program, whereas 75 students (46 boys, 28 girls, 1 did not declare gender) served as a control group. Students in the intervention group attended a five-lesson program linking basketball motor skills to goal setting. All lessons lasted 45 min. In addition to the practical skills of basketball, intervention group participants were introduced to goal-setting procedures. Through group learning and written worksheets, they

learned about the importance of setting goals. The SMART approach was used with respect to the goal-setting procedures (Cross & Lynch, 1988). More precisely, the first lesson of the intervention group was devoted to explaining to the students the principles of SMART goals. Students were informed about how to set Specific, Measurable, Attainable, Realistic, and Time-bound goals in physical education tasks. In this lesson, students also completed examples of SMART goals with respect to taught tasks (e.g., ball-shooting: number of successful shoots; ball-dribbling: time to complete a route between cones). Finally, in this first lesson, students performed a test in each basketball drill, which was used as the reference point. In the second lesson, students set SMART goals based on their performance on this test. Students were free to set their personal goals by themselves. Furthermore, to fully integrate goal-setting steps, students prepared at home a goal-setting plan for an aspect of their life (nutrition, physical conditioning, studying, etc.) and brought it back for discussion with the physical education teacher in the next lesson. This activity was optional and only students interested in this activity provided the plan to the teacher. Approximately half of the students of the intervention group engaged in this activity. In the following lessons, the teachers taught an exercise on a specific drill and then students worked on their goal for that drill. This process was repeated for all basketball drills tested in this study across the lessons. The same five-lesson basketball program without goal setting was taught to the control group. The practice teaching style (Mosston & Ashworth, 1986) was used as the teaching approach in the delivery of the basketball drills in both groups. At the beginning and end of the program, both groups responded to questionnaires concerning (a) perceived autonomy support in physical education classes, (b) autonomous motivation in physical education, (c) enjoyment during physical education, (d) vitality, and (e) intention, attitudes, and perceived behavioral control toward out-of-school physical activity. The participants were assured that their answers would remain confidential and that the data of the study would be used only for research purposes.

Measures

Perceived autonomy support in physical education classes. The Greek version of the Perceived Autonomy Support Scale for

Exercise Settings (Barkoukis & Hagger, 2009, 2013) was used to measure students' perceived autonomy support provided by their physical education teachers. This measure consists of 15 items and the Greek version has shown adequate psychometric properties (α = .82; Hagger et al., 2005). An example item is "I feel that my PE teacher provides me with choices, options, and opportunities to do active sports and/or vigorous exercise." Participants responded on a 7-point scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*).

Autonomous motivation in physical education. A modified for physical education version of the Perceived Locus of Causality Scale by Ryan and Connell (1989; Barkoukis & Hagger, 2009, 2013) was used to measure autonomous motivation in physical education. The scale measures four types of motivation through two items each: intrinsic motivation (e.g., "I participate in PE because it is fun"), identified regulation (e.g., "I participate in PE because I value PE"), introjected regulation (e.g., "because I will feel ashamed if I do not do PE"), and external regulation (e.g., "I participate in PE because important others want me to do PE"). Responses were anchored on a 4-point scale from 1 (*not true at all*) to 4 (*very true*).

Enjoyment in physical education. The respective dimension of the Greek version of the Intrinsic Motivation Inventory (IMI; McAuley, Duncan, & Tammen, 1989; Tsigilis & Theodosiou, 2003) was used to assess students' responses in physical education lessons. The enjoyment subscale comprises four items (e.g., what we do in physical education is very interesting) and the Greek version has shown acceptable internal consistency (α = .83–.88). Students responded on 5-point scales from 1 (*strongly disagree*) to 5 (*strongly agree*).

Vitality. Students' subjective vitality was used as an indicator of well-being. The Subjective Vitality Scale (Ryan & Frederick, 1997) was used. The scale comprised seven items (e.g., I feel energized) and the Greek version showed adequate internal consistency (α = .75; Vasileiadis, 2017). Participants rated their vitality on a 7-point scale (1 = *strongly disagree*; 7 = *strongly agree*).

Theory of planned behavior variables. The variables of the TPB were assessed based on Ajzen's (2002) recommendations. More specifically, intentions were estimated via two items (e.g., "I intend to do active sports and/or vigorous physical activities during my

leisure-time in the next 5 weeks"). Students responded on a 7-point scale from 1 (*strongly disagree*) to 7 (*strongly agree*). Attitudes were assessed with four semantic differential bipolar adjectives (i.e., *bad–good*, *not enjoyable–enjoyable*, *useful–useless*, and *boring–interesting*). Students responded to the stem question, "Participating in active sports and/or vigorous physical activities during my leisure-time in the next five weeks is. . . ." Responses were anchored on 7-point scales from 1 (negative pole) to 7 (positive pole). Two items were used to measure subjective norms (e.g., "People important to me think that I should do active sports and/or vigorous physical activities during my leisure-time in the next 5 weeks"). Students rated their responses on 7-point scales from 1 (*strongly disagree*) to 7 (*strongly agree*). Perceived behavioral control was assessed via three items (e.g., "I feel in complete control over whether I do active sports and/or vigorous physical activities in my leisure-time in the next 5 weeks") on 7-point scales from 1 (*no control*) to 7 (*complete control*).

Statistical Analysis

Pearson's *r* correlation analyses were conducted to assess the relationships between all the dependent variables in the pre- and postintervention measurements. For the inspection of the intervention effects, a series of analyses of covariance (ANCOVA) with repeated measures were performed. In each analysis, the score of the first measurement was used as the covariate, the score of the second measurement was used as the dependent variable, and the group *(intervention-control)* was the independent variable.

Results

Descriptive Statistics

Table 1 shows the means, standard deviations, and internal consistency scores of the study variables. Based on SDT and TPB, almost all the correlations found in both measurements were expected (Table 2). Overall, there were positive associations among scales measuring "perceived autonomy support in physical education," "identified" and "internal regulation in physical education," "enjoyment" and "vitality in physical education," and "attitude," "intention," and "perceived behavioral control in physical activity." The strongest positive association was noticed in the postintervention

measurement between "intention" and "perceived behavioral control toward physical education" ($r = .69$, $p < .001$), whereas the strongest negative correlation was noticed between "perceived autonomy support in physical education" and "subjective norms toward physical education" ($r = -.24$, $p < .001$), also in the postintervention measurement (Table 1).

Effect of the Intervention on the Motivational Variables

In perceived autonomy support in physical education, after the adjustment for differences in the preintervention measurement, $F(1, 135) = 29.15$, $p < .001$, there were significant differences between the two groups in the postintervention measurement, $F(1, 135) = 8.99$, $p < .01$. The adjusted means showed that the intervention group students ($M = 5.46$, $SE = .09$) felt more autonomous in physical education classes than the control group students ($M = 5.01$, $SE = .11$).

For the motivational regulations, no differences were found between the two groups with regard to introjected and external regulations, and intrinsic motivation in physical education. Only for identified regulation in physical education, after the adjustment for differences in the preintervention measurement, $F(1, 166) = 4.34$, $p < .05$, were significant differences between the two groups found, $F(1, 166) = 17.98$, $p < .001$. The intervention group students reported higher scores in this scale ($M = 3.76$, $SE = .05$) than the control group students ($M = 5.42$, $SE = .06$).

Effect of the Intervention on the Outcomes of the Lesson

Regarding enjoyment in physical education, after the adjustment for initial differences, $F(1, 156) = 28.66$, $p < .001$), there were still significant differences between the two groups, $F(1, 156) = 26.09$, $p < .001$. The intervention group students declared that they enjoyed the lesson more ($M = 6.31$, $SE = .11$) than did the control group students ($M = 5.46$, $SE = .12$).

Regarding vitality, after the adjustment for possible differences in the preintervention measurement, $F(1, 133) = 12.33$, $p < .01$, there were still significant differences between the intervention and control groups, $F(1, 133) = 11.60$, $p < .01$. The intervention group students scored higher in this construct ($M = 5.67$, $SE = .09$) than the control group students ($M = 5.18$, $SE = .11$).

Table 1
Means, Standard Deviations, and Internal Consistency Scores

	Pre					Post				
	Intervention group		Control group			Intervention group		Control group		
Variable	***M***	***SD***	***M***	***SD***	**Alpha**	***M***	***SD***	***M***	***SD***	**Alpha**
1. Perceived autonomy support in PE	5.51	.64	4.95	.98	.86	5.55	.78	4.83	1.15	.89
2. Introjected regulation in PE	2.76	.66	2.82	.81	-	2.90	.61	2.74	.87	-
3. External regulation in PE	2.36	.74	2.78	.80	-	2.44	.60	2.75	.93	-
4. Identified regulation in PE	3.58	.55	3.64	.50	-	3.75	.39	3.43	.62	-
5. Internal regulation in PE	3.65	.55	3.44	.83	-	3.71	.40	3.51	.77	-
6. Enjoyment in PE	5.80	1.01	5.84	1.37	.84	6.30	.71	5.42	1.14	.87
7. Vitality in PE	6.09	.73	5.84	.95	.81	5.68	.75	5.03	1.05	.76
8. Attitude toward PA	6.46	.85	6.39	.88	.85	6.31	1.07	6.13	1.15	.81
9. Intention toward PA	5.82	1.40	5.76	1.44	-	6.11	1.09	5.52	1.57	-
10. Perceived behavioral control toward PA	6.04	1.02	5.90	1.08	.73	6.27	.96	5.63	1.16	.66
11. Subjective norms toward PA	3.06	1.31	4.13	1.67	-	2.96	1.62	4.32	1.66	-

Table 2
Correlations Between All the Dependent Variables Before (Upper Row) and After (Bottom Row) the Intervention

Variable	1	2	3	4	5	7	8	9	10	11	12
1. Perceived autonomy support in PE											
2. Introjected regulation in PE	−.03										
	.13										
3. External regulation in PE	−.18*	.34**									
	−.07	.43**									
4. Identified regulation in PE	.21**	.15	−.01								
	.35**	.40**	.18*								
5. Internal regulation in PE	.44**	.10	−.15	.46**							
	.39**	.02	−.17*	.42**							
6. Enjoyment in PE	.57**	−.07	−.05	.50**	.59**						
	.67**	.12	−.05	.47**	.68**						
7. Vitality in PE	.60**	.08	−.08	.47**	.58**	.74**					
	.63**	.27**	−.04	.55**	.57**	.74**					
8. Attitude toward PA	.51**	.11	.03	.37**	.44**	.47**	.63**				
	.32**	.10	.01	.31**	.19**	.34**	.34**				
9. Intention toward PA	.27**	.19*	−.04	.25**	.29**	.20**	.46**	.57**			
	.26**	.06	−.05	.28**	.18*	.29**	.41**	.65**			
10. Perceived behavioral control toward PA	.37**	.23**	.01	.22**	.24**	.18**	.38**	.60**	.62**		
	.33**	.06	−.08	.28**	.19*	.39**	.49**	.56**	.69**		
11. Subjective norms toward PA	−.17*	.17**	.28**	.03	−.16*	−.06	−.15	.09	.08	.15	
	−.24**	.18*	.25**	−.18*	−.11	−.13	−.18*	−.20*	−.20*	−.22*	

Note. PE = physical education; PA = physical activity.
*$p < .05$. **$p < .001$.

Effect of the Intervention on Leisure-Time Physical Activity Cognition

Similarly, with attitude toward physical activity in out-of-school settings in the postintervention measurement as the dependent variable, the analysis of covariance showed no differences between the two groups. In contrast, with no adjustment necessary for initial differences, $F(1, 168) = .65$, $p = .42$, the intervention group students scored significantly higher, $F(1, 168) = 8.02$, $p < .01$ ($M = 6.11$, $SE = .14$), in the scale measuring intention toward physical activity in out-of-school settings than the control group students ($M = 5.53$, $SE = .15$). Also, as expected, the intervention group students scored significantly higher, $F(1, 163) = 14.38$, $p < .001$, in the postintervention measurement ($M = 6.26$, $SE = .11$) regarding behavioral control toward physical activity in out-of-school settings than the control group students ($M = 5.63$, $SE = .12$). Adjustment for possible initial differences also was not necessary for this variable, $F(1, 163) = 3.48$, $p = .06$. Finally, with subjective norms in the postintervention measurement as the dependent variable, the analysis of covariance revealed that after the adjustment for possible differences preintervention, $F(1, 168) = 6.32$, $p < .05$, there were still statistically significant differences between the two groups, $F(1, 168) = 17.64$, $p < .001$. Control group students felt more pressure by significant others ($M = 4.19$, $SE = .19$) with respect to physical activity in out-of-school settings than did the intervention group students ($M = 3.07$, $SE = .17$).

Discussion

This study set out to examine the effect of a goal-setting intervention in physical education lessons. Guided from SDT and PBT and their integration, this study investigated the effect of goal setting on motivation indicators, students' experiences during physical education lessons, and students' beliefs toward leisure-time physical activity. The results of the analyses confirmed the study hypotheses about the positive effect of goal setting on the examined variables.

With respect to the first hypothesis, the results of the analyses support the positive effect of goal setting on perceptions of autonomy-supportive climate and autonomous motivation. Intervention group students reported higher perceptions of autonomy-supportive climate

and autonomous motivation in the postintervention measurement compared with the control group students. More specifically, differences between the groups were observed in identified regulation but not in intrinsic motivation. No significant differences were revealed for controlled motivation. Goal setting has been considered to involve processes that promote an autonomy-supportive climate (Vansteenkiste et al., 2004). This finding might be ascribed to the fact that goal setting allows students to work at their own pace and to make decisions during the learning process (see Grant, 2012). Therefore, students become more active agents during the lesson and have more opportunities for self-development. As a result, a lesson promoting these types of activities is perceived by students as highly autonomy supportive. The results of the study support this notion and indicate that goal setting can be used as a teaching practice and can effectively foster an autonomy-supportive climate.

With respect to motivation, goal setting can positively influence identified regulation. The increase on this motivational regulation can be ascribed to the fact that through the goal-setting lessons students were able to identify the benefits of physical education for personal improvement. Hence, students perceived that participating in the physical education lessons would help them achieve their personal goals. No effect was found on intrinsic motivation. This lack of effect is difficult to explain. It was expected that satisfaction of autonomy and competence needs through goal setting would produce an effect on intrinsic motivation. A plausible explanation for this lack of effect might be the reduced time students played during the lesson, which may counterbalance the need satisfaction effects. Still, this warrants more evidence, as need satisfaction was not measured in this study and students' playing time was not recorded. Furthermore, no intervention effects were found on extrinsic motivation regulations. This is consistent with Barkoukis, Tsorbatzoudis, and Grouios (2008) and Barkoukis, Koidou, Tsorbatzoudis, and Grouios (2012), who suggested that autonomous and controlled motivation are independent forms of motivation and an intervention fostering autonomous motivation may not influence controlled motivation. Instead, specific actions aiming to undermine controlled motivation should be implemented. In this sense, goal setting was not expected to influence controlled motivation being an autonomy-

supportive strategy. Nevertheless, the findings on the effect of the intervention on motivational regulations signal an important effect of the intervention on autonomous motivation, which is consistent with prior research. The findings also suggest that the use of autonomy-supportive strategies, such as goal setting, can promote autonomous forms of motivation (Barkoukis, Koidou, Tsorbatzoudis, & Grouios, 2010; Hagger & Chatzisarantis, 2009; Hagger et al., 2003).

Consistent findings were revealed with respect to the outcomes from physical education participation. Intervention group students reported higher enjoyment and vitality compared with control group students. Using goal setting seems to make the lesson more enjoyable as students work at their own pace and do not feel pressure due to social comparison. This is an inherent benefit of the goal-setting process, where according to goal-setting theory, when people set goals they demonstrate higher commitment toward the activity (Papacharisis et al., 2007; Vansteenkiste et al., 2004). The goal-setting approach increased students' perceptions of vitality. This finding illustrates that when students experience a new approach of teaching physical education that allows them to have choices and work at their own pace, they foster their own improvement, and their interest toward the lesson and physical activity renews. Overall, these findings align with SDT and goal-setting theory about the positive effects of goal setting, as an autonomy-supportive strategy, on cognitive, affective, and behavioral outcomes from lesson participation (Papacharisis et al., 2007; Vansteenkiste et al., 2004). The findings of this study clearly support previous theoretical evidence and suggest the use of goal setting can produce positive outcomes in physical education lessons.

The results of this study indicate that an autonomy-supportive strategy could increase leisure-time physical activity–related cognition. These findings align with the trans-contextual model of motivation (Barkoukis & Hagger, 2009, 2013; Barkoukis, Hagger, et al., 2010; Hagger & Chatzisarantis, 2009; Hagger et al., 2003), which suggests that the physical education lesson affects students' beliefs regarding leisure-time physical activity. The increase of leisure-time physical activity cognition can be ascribed to the increase in key motivation indices and affective responses during the lesson. More specifically, the increase in perceptions of autonomy-

supportive climate has been associated with increased leisure-time motivation and related cognition (Barkoukis & Hagger, 2013; Barkoukis, Hagger, et al., 2010). Furthermore, enjoyment has been found to influence such cognitions (Jaakkola, Yli-Piipari, Barkoukis, & Liukkonen, 2017; Yli-Piipari, Barkoukis, Jaakkola, & Liukkonen, 2013). Therefore, an increase in these variables induced by the intervention might have resulted in the increase on the scores of leisure-time physical activity cognition.

Overall, the findings of this study align with theoretical predictions and highlight the usefulness of goal setting as a strategy to promote autonomy support in physical education lessons. Despite the results being pretty robust, the study is not free of limitations. First, data were based on self-reports. Given the age of the participants, it is possible that they misunderstood questions or completed the survey in a socially desirable way. Although participants received instructions and were allowed to ask questions during survey completion and they were reassured about the anonymity of their responses, there is the possibility that they inflated the questions in a socially desirable way or were ashamed to ask for clarifications. Second, a follow-up measurement to examine the sustainability of the intervention effects was not performed. Nevertheless, the findings align with previous research and clearly demonstrate that the use of goal setting in physical education classes can improve students' perceptions of autonomy and lead to positive outcomes with respect to the lesson (i.e., can result in improved motor skill and fitness, motivation, and enjoyment and vitality) and leisure-time physical activity (attitudes, subjective norm, and perceived behavioral control and intentions).

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The Physical Educator Vol. 77 • pp. 357–383 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9485

PEDAGOGY

Physical Education Cooperating Teachers' Perceptions of Preparedness for the Student Teaching Experience

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Abstract

The culmination of teacher education programs is the student teaching experience, an extended field experience under the guidance of a cooperating teacher (CT), as well as a university supervisor. Student teachers consider CTs to be one of the most important providers to their preparation program. The role of a CT is influential; however, there is little done to prepare these individuals for this undertaking and minimal support from the teacher preparation program. The purpose of this study was to determine physical education CTs' (PECTs) awareness of and preparedness for responsibilities during the student teaching experience and their beliefs regarding training to become a PECT. This mixed methods study involved the collection of survey data from 26 PECTs, and interviews from four PECTs related to experiences and preparedness for the role as a PECT. Survey results revealed inconsistent perceptions of their roles as PECTs, even though 85% of PECTs reported feeling cognizant and prepared for their responsibilities at the start of their PECT experience. Of the 15% of PECTs who did not feel prepared, 75% were first-time PECTs. The qualitative data revealed four major themes surrounding preparedness for their role: (a) importance of communication, (b) knowledge of student teacher preparation

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program, (c) student teachers' preparedness for the student teaching experience, (d) and professional development opportunities. Findings suggest that despite feeling prepared overall, PECTs could benefit from formal training that clarifies their roles and responsibilities within the student teaching triad.

The culmination of teacher education programs is the student teaching experience. The student teaching experience is an extended field experience under the guidance of an experienced teacher who is often referred to as a cooperating teacher (CT), as well as a university supervisor. The principal objective of student teaching is to provide the opportunity for execution and demonstration of instructional competence for beginning educators before entry into the teaching profession. The significance of the student teaching experience within teacher preparation programs is well documented. As well, the student teaching experience has been identified as "a central component of nearly every U.S. teacher education program" (Rozelle & Wilson, 2012, p. 1196). This extended field experience provides opportunities for preservice teachers to collaborate and be actively mentored by a CT. Generally, the teacher preparation program selects experienced teachers to serve as CTs based on factors such as availability and willingness to work as a CT, credentials, and prior collaboration (Russell & Russell, 2011). CTs principally focus on mentoring and supervising the preservice teacher. Typically, the CTs are eager and willing to facilitate in this supervisory role but are often ill-prepared to serve as effective mentors (He, 2010).

Literature reveals a strong justification that CTs lack specific preparation to enable high-quality and developmentally appropriate support for student teachers, as they tend to be underprepared for their work as mentors. CTs have consented "to assume one of the most responsible, influential, and exciting roles in teacher education" (Henry & Weber, 2010, p. 2). Therefore, it is imperative for teacher preparation programs to prepare them for this role. In fact, student teachers consider CTs to be one of the most important providers to their teacher preparation program (Clarke, Triggs, & Nielsen, 2014; Rodgers & Keil, 2007). Unfortunately, many CTs continue to receive negligible training from the university to prepare them for their new roles as CTs (Kent, 2001), and as a result, the quality of the student teaching experience can vary greatly.

The purpose of this study was to identify the perceptions of preparedness for the role of a physical education CT (PECT) during the student teaching experience of a physical education teacher education (PETE) program. This study showcases the voices and opinions of PECTs to gain knowledge and insight on how to better prepare future PECTs for their role as a vital member of the student teaching experience.

Student Teaching Triad

The relationship between the student teacher, PECT, and the university supervisor is triadic. The basic role of the triad is to work as a collaborative team employing constant communication to support, enhance, and prepare the student teacher to become a reflective professional (Zeichner, 2002) and successfully enter into the teaching profession. Each member of the student teaching triad has a specific set of responsibilities usually outlined in the university's student teaching handbook. The roles and relationships of the triadic members entail complex interactions, which can greatly vary (He & Levin, 2008; Slick, 1998; Valencia, Martin, Place, & Grossman, 2009).

Role of the Physical Education Cooperating Teacher

As a member of the student teaching triad, the PECT fulfills many roles while overseeing the student teacher. One of the most important is the role of a provider of context for the student teacher. Without a PECT, there would be no school, no K–12 students, and no student teaching experience. The student teaching experience is multifaceted and often overwhelming for most student teachers. Consequently, PECTs have an important job in managing that context and introducing student teachers to the readily apparent and often-hidden dimensions of teaching, as appropriate to and in light of a student teacher's stage of readiness. Equally, mentoring is one of the major aspects of the CT role, which is often a collaborative effort between the university supervisor, faculty, and CTs (He, 2010; Schwille, 2008).

Lack of Preparation for the Physical Education Cooperating Teacher Role

Despite the agreed acknowledgment of the importance of the student teaching experience, efforts to guarantee quality and

consistency across student teaching placement sites have been criticized for being disjointed and appearing disconnected from other components of teacher preparation programs (Feiman-Nemser, 2001; Guyton & Byrd, 2000; Richardson, 1996; Wilson, Floden, & Ferrini-Mundy, 2001; Zeichner, 1990). Efforts to ensure that CTs are properly prepared for their work remain inadequate and fail to address some of the most basic issues associated with their supervisory work (Glickman & Bey, 1990; Knowles & Cole, 1996). The role of a CT is exceptionally influential; however, there is little done to prepare these individuals for this undertaking and minimal support from the teacher preparation program (Hoffman et al., 2015; Young & MacPhail, 2015).

While research surrounding student teaching experiences has been employed, there is a still a lack of clarity and definition of roles and responsibilities of CTs. This lack of definition explains the wide variance in the ways CTs, supervisors, and student teachers interact (Koerner, Rust, & Baumgartner, 2002). CTs must have a clear understanding and knowledge of their role within the supervision triad, and together these roles can contribute to the development of consistent, cohesive systems for supporting progressive teachers (Freidus, 2002). When the teacher education faculty, university supervisor, CT, and student teacher hold different meanings and notions of the expectations and role of the CT, it can become problematic (Clark, 2002). Further, the American Association of Colleges for Teacher Education (2013) recommends that CTs be "trained as mentors and highly skilled in supporting the learning of adult candidates as well as that of children" (p. 5). Opportunely, CTs' understanding of their role can change with specialized training (Crasborn, Hennissen, Brouwer, Korthagen, & Bergen, 2011; Giebelhaus & Bowman, 2002; Lesley, Hamman, Olivarez, Button, & Griffith, 2009), and professional development may serve to widen CTs' perspective on working with student teachers (Kent, 2001).

Cooperating Teacher Training

Research over the past several decades surrounding CT training illustrates the positive effects of trainings such as changed or adopted behaviors. In university-based training programs for CTs, Coulon (1988), McIntyre and Killian (1987), O'Cansey (1988), Rikard and

Veal (1996), and Tannehill and Zakrajsek (1990) reported significant positive behavior changes of trained CTs in performing supervisory and mentor practices. Similarly, a PETE program in Ireland designed a cooperating physical education (COPET) program to maximize the learning opportunities for student teachers when on placement. The pilot program included a cohort of 26 PECTs supervising 28 student teachers. The program consisted of a 2-week teaching practice placement. Focus group interviews evaluated the effectiveness of the COPET program. Findings indicated the PECTs found the COPET program very useful in defining their role on teaching practice, and the PECTs felt that all future PECTs should have to participate in the COPET training before taking on a student teacher (Belton, Woods, Dunning, & Meegan, 2010). The benefit of university-based training programs for PECTs is apparent. Which raises the question, why is this not a common effort by all teacher education programs?

Currently, a handful of PETE programs in the United States provide training for PECTS to outline and define their roles and responsibilities. For example, the University of Tennessee at Knoxville, University of Texas at Austin, Grand Canyon University, and Texas State University require PECTs to attend or complete a training to serve in the PECT role. The trainings offered by these PETE programs differ in format, which include in-person trainings, online training courses, and seminar-style training. It is unknown which training is most effective in helping PECTs become informed about their role. However, an effectively designed, implemented, and evaluated training program designed for CTs could help to better prepare them for their critical role of working with preservice teachers (He, 2010; Schwille, 2008). Little work has been done to identify or develop quality training models for teacher education programs to implement with their CTs (Giebelhaus & Bowman, 2002). The limited research available supports the premise that formal CT preparation increases CTs' effectiveness in their role (Iancu-Haddad & Oplatka, 2009; Kennedy, 1991).

Developing better understandings of how PECTs perceive their preparedness for their role with student teachers is critical. It is equally important for PETE programs to understand how to effectively and efficiently inform and prepare PECTs for the significant role. The purpose of this study was to determine PECTs' awareness

of their role and perceptions of preparedness for responsibilities during the student teaching experience.

Method

This study employed a sequential explanatory design (Creswell, 2013), which included the collection and analysis of quantitative and qualitative data. First, quantitative data were collected and analyzed, followed by and informing the collection of qualitative data. The addition of the qualitative data provided richer and more context-specific insights into the PECTs' experiences than what might have been possible with a strictly quantitative study design. Mixed methods provide the means to "grasp and sense the lived experience" of participants on the nature of participation in teacher education (Creswell, 2012). The qualitative phase of this sequential explanatory design used a phenomenological research approach to describe the PECTs' perceptions and lived experiences of their preparedness for their role during the student teaching experience. In a phenomenological study, the researcher gains insight of the phenomenon of interest through interviewing knowledgeable participants (Creswell, 2013). Specifically, this study explored the lived experiences of PECTs to understand the nature of their preparedness for their role. This study was approved by the researchers' university institutional review boards.

Participants

The participants in this study included 26 PECTs (M_{age} = 41.7 years; 54% female, 46% male; 54% secondary level, 46% elementary level) associated with a mid-sized PETE program in the Western United States. PECTs had an average of 16.5 years of teaching experience and had supervised an average of 4.26 student teachers prior to the survey. After analysis of the survey data, four PECTs (3 female, 1 male) were interviewed based on their unique survey data and willingness to participate in the interview portion of the study. Table 1 represents demographic information for the four interviewed PECTs. Pseudonyms were used to report the PECTs interview remarks.

Table 1
Summary of Demographic Characteristics of PECT Interviewees

PECT	Age	Years of experience	Grade level taught	Number of student teachers	Felt prepared for CT role?	Received formal CT training
Laura	39	15	6–8	1	Thought was prepared; realized was not prepared	No
Jack	28	6	K–5	1	Prepared	Yes
Tamara	36	14	K–8	6	Prepared	No
Cheryl	59	33	K–5	20+	Prepared	No

Note. PECT = physical education cooperating teacher; CT = cooperating teacher.

Instrumentation and Data Collection

The researchers first collected descriptive data from PECTs through an 18-item online survey. The survey included questions related to demographics, their training and background to become a PECT, their perceived preparedness for their role as a PECT, and what they believed their roles and responsibilities were as a PECT. Prior to dissemination to PECTs, the survey was reviewed by two in-service physical education teachers who have served as PECTs before, for evidence of face and content validity (DeVellis, 1991). One of the two PECTs had formal training for their role as a PECT, while the other did not have training for their role. The PECTs critiqued the readability, clarity, conciseness, and layout of each section of the survey. Based on their feedback, the survey was revised as appropriate. The revisions included changing formatting, providing definitions to words, and giving clearer instructions on some of the questions. The survey questionnaire was developed to elicit the perspective of PECTs about their preparedness for their role as a mentor for student teachers.

The second instrument used for data collection was a semistructured interview script. The interview consisted of questions related to experiences, training, and preparation for the role of the PECT. The interview questions provided a more in-depth description, although

exploratory, of the experiences of the PECTs. The interview guide included 10 open-ended questions. The interview followed a framework that allowed respondents to answer questions directly as well as to dialogue with the interviewer with minimal restriction (Kerlinger, 1986). To discover the unique perceptions of the PECTs preparedness, the interviewer asked the PECTs several questions about their experiences in this role. The interviewer asked the PECTs to discuss their experiences of their supervisory roles, questions about prior PECT training, and questions about the type of training they think would have been helpful prior to their first PECT occurrence, among others. Probes delivered a platform for respondents to expand upon remarks and clarify the meaning of their answers. Much of the time the PECTs discussed their experiences in detail, without prompting, and spoke beyond the scope of the question at hand. All interviews were audio recorded and transcribed.

Data Analysis

Quantitative survey data were analyzed via IBM SPSS 23.0. Descriptive statistics were used in the analysis of demographic and individual response item data. Participants were selected for the second phase of the study after analysis of the quantitative survey. The second phase included interviews with four PECTs. A purposive sample of PECTs was selected for the qualitative phase of the study based on their willingness to volunteer and their unique survey responses, specifically the responses to the questions of years of teaching experience, the number of student teachers they had supervised, whether or not they received formal training, and their reported level of preparedness.

The interview transcriptions were analyzed via two processes of analysis derived from grounded theoretical perspective: open (develop categories of concepts and themes) and axial (building connections within categories) coding (Strauss & Corbin, 1998). Qualitative analysis began with the identification of keywords and phrases in the data. Next, the keywords and phrases were coded and grouped into like categories. Common themes were then identified and organized into common categories, resulting in the emergence of four themes. Categories remained flexible throughout the peer debriefing process. To ensure data trustworthiness, researchers independently and then collaboratively analyzed the transcriptions

to establish investigator triangulation and reduce potential bias (Patton, 2002). Member checking followed to confirm the findings. An e-mail was sent to the Phase 2 interview participants for verification that the essence of their remarks was captured. Internal validity was achieved through the provision of rich descriptions through direct quotes from the PECTs (Merriam, 1998).

Results

Quantitative Results

Table 2 shows quantitative results from the survey. Of the PECTs, 85% felt cognizant and prepared for their role and responsibilities at the start of their PECT experience. Of the 15% of PECTs who did not feel prepared, 75% were first-time PECTs and had 10.5 years of teaching experience, on average. Participants' preferred types of training to become highly effective mentors for student teachers included online modules/videos (45%), online course packet (34%), and on-campus seminars (17%). When asked if a more selective and involved process was required, 80% of the PECTs answered they would still participate.

Table 2
Summary of Demographic Characteristics for Online Survey

Characteristic	*n*	%
Gender		
Male	12	46
Female	14	54
Age		
20–29	6	23.1
30–39	7	27
40–49	8	30.7
50–59	5	19.2
60–65	0	0
Teaching Level		
Elementary School	11	42.3
Middle School	9	34.6
High School	6	23.1

Table 2 (cont.)

Characteristic	*n*	%
Years of Teaching Experience		
> 6 years	3	11.5
6–10 years	3	11.5
11–20 years	14	54
21–30 years	5	19.2
31–40 years	1	3.8
> 40 years	0	0
Number of Student Teachers		
1	6	23.1
2–5	15	57.8
6–10	3	11.5
11–15	1	3.8
16–20	1	3.8
> 20	0	0
Felt prepared for role as PECT		
Yes	22	85
No	4	15

Note. Valid percentage is reported for each demographic characteristic.

Qualitative Results

The qualitative results provided a better understanding of PECTs' perceptions of preparedness for their role during the student teaching experience. Four themes emerged as PECTs described their experiences in their role: (a) communication between student teacher, PECT, university supervisor, and PETE faculty; (b) knowledge of student teacher preparation program; (c) knowledge of student teachers' readiness; and (d) self-guided discovery. Each theme is accompanied with a brief discussion, subthemes, and identified quotes from the interviews to support the paradigm.

Communication between student teacher, PECT, university supervisor, and PETE Faculty. This theme explores the role of communication between the members of the student teaching triad and the PETE faculty. The four interviewees acknowledged

the significant role of communication during the student teaching experience. The four PECTs offered examples of their experiences of uncertainty in their role when a lack of communication existed between one or more of the triad members. Each interviewee also disclosed that they had requested communication in some form with the student teacher prior to the placement beginning. The communication would ideally occur face-to-face, but if that was not an option, a phone call could be an alternative solution to communicating prior to the first day. Similarly, 18 PECTs' open-ended survey responses indicated the importance of communication for them to feel prepared and confident for their role.

Communication during the student teaching placement. All four of the PECTs acknowledged the need for solid communication lines between their student teacher, university supervisor, and the PETE program faculty. For example, Tamara wished the PETE program coordinator in charge of student teaching placements would connect throughout the placement to check in on how things were going. This line of communication would offer a chance for each person to converse and for both to stay on the same page throughout the extended field experience:

> A check-in point from them [PETE faculty coordinator] saying 'Hey did you get everything that we sent you? Is your student teacher on it? How is it going?' I know the university supervisor would be or are supposed to be doing that. But sometimes I feel like there's a disconnect between the university supervisor and the cooperating teacher and student teacher . . . Like all four of us need to be on the same page.

Equally, Cheryl stated that she would have appreciated some type of a check-in from the faculty or university supervisor making sure she fully understood her expectations during her first PECT experience. She mentioned that after supervising several students, she felt much more confident about what she was supposed to be doing during the field experience. However, Cheryl said if changes were ever made to her PECT expectations during the student teaching experience, she would appreciate some direct contact with someone from the university:

> Maybe it is an email from the university supervising teacher or the professor checking in and saying look for this . . . And the expectation on what the student teacher is supposed to turn in and making sure the instructions are very clear for the first time [serving as a PECT], or if things [PECT expectations] ever change.

Likewise, survey data reinforced the prominence of open and ongoing communication lines. The open-ended question of "How could you have been better prepared and aware of your role and responsibilities as a cooperating teacher?" delivered 21 responses that fall within the theme of communication. One PECT wrote on the survey, "I would have liked more communication throughout the entire process other than just sending in the evaluation forms I filled out at the end." Other PECTs stated that "continued communication with the university" and "easy ways to communicate with the supervisors on a more regular basis" would better prepare them for their role as a PECT. Additionally, another PECT responded that "working directly with the assigned university supervisor and the student teacher prior to the teaching assignment to set consistent expectations would be helpful." Overall, PECTs identified the need for quality and constant lines of communication with the university supervisor and/or PETE faculty throughout the placement to fulfill and provide the best supervisory practices for the student teacher.

Communication with student teachers prior to student teaching placement. All four of the PECTs said communication should begin before the student teaching placement begins. Each PECT made known that building a relationship with their student teacher is a useful indicator of how they can prepare to mentor and supervise their student teacher. During his interview, Jack shared that while he received "standard information" about his student teacher via e-mail from the placement coordinator, he would have liked the opportunity to get to know his student teacher on a more personal level:

> Maybe interactions before we got started would have helped or might have made it [the student teaching experience] better. Maybe a phone conference or Skype or Google Hangout or whatever prior to actually meeting him [student teacher] that first time would have been helpful.

Tamara shared her experiences of meeting her student teachers prior to placements beginning. She was able to use these meetings to determine whether she felt the student teacher would be a good match for her as a PECT:

> I was able to meet the students prior to the student teaching semester and know if we had a connection or not . . . Being able to handpick [student teachers] without having to say "Hey I'm getting a student teacher, and all I know is them on paper." We [PECTs] would rather be able to interview student teachers before just being handed one by the university. I want to know if we are going to mesh. You [PECTs] need to get students in here [your classroom] so you [PECTs] can figure out who you [PECTs] get along with. It matters; relationships are huge when you spend so much time together with your student teacher.

Differing from Tamara, Laura did not meet her student teacher prior to the placement beginning. She felt that if she had met with her student teacher beforehand, she could have been more prepared to supervise and mentor her student teacher:

> I think going through the handbook before time with him, like before he even started student teaching, would have helped. Had he come in and we had time to sit down and go through what was expected of him, what I would look for, I think that would have helped tremendously.

Survey responses aligned with this theme, as numerous PECTs (n = 9) also indicated the benefits of communicating or interacting before the placement began for both the PECT and the student teacher. Suggested lines of communication from survey responses included e-mails, phone calls, video call (Skype or FaceTime), and in-person visits.

Knowledge of student teacher preparation program. During interviews, all four PECTS said they wished they had more information and knowledge about their student teachers' education. They were curious about the PETE program curriculum, students' previous teaching experience, and students' content knowledge. Specifically, the PECTs wanted to know how many hours the student

teachers had spent observing or teaching children at the elementary and/or secondary level, if they had taken an adapted physical education course, and if the student teachers knew what an Individualized Education Program (IEP) was. The PECTs reiterated one another's remarks about their request for more information about the preparation program:

> I did not know how many hours he had actually spent teaching. I did not know if he had even taught by himself before, or if he had created lesson plans before . . . so I did not know what to expect from him. I also was not sure about any experience he had had with students with disabilities, if any. And with it being my first student teaching, I wasn't sure if he was supposed to tell me that, or if I was supposed to dig that out, or how it happens. It was a little confusing. (Laura)

The survey data parallel this disconnection between the PETE program and PECT awareness of their student teachers' educational preparation leading up to the student teaching experience. The open-ended survey question provided a platform for PECTs to express their request for becoming familiar with the PETE program courses, learning about the PETE program teaching and learning philosophy, and developing an awareness of the types of teaching experiences and opportunities the student teachers had experienced. Specifically, numerous PECTs ($n = 12$) reported on the survey that they had little to no knowledge of the courses their student teachers had taken, the student teacher's ability to write lesson plans or assess student learning, and the amount of contact/teaching hours the student teacher had had with K–12 learners. For example, one PECT wrote in a survey response, "It would be nice to know what the PE program is having the student do so I can make sure we are all aligned." Another PECT wrote, "I needed to better understand the requirements of the cumulative portfolio to be of any help" and "knowing the expectations that the college has for their student teacher would be helpful." The survey data reiterate the importance of providing PECTs with information about the PETE program prior to the student teaching experience commencing. Prior knowledge could lead to a more comprehensive understanding of their student teacher's preparation, thus allowing PECTs to better mentor and supervise.

Knowledge of student teachers' readiness for the student teaching experience. During interviews, all four PECTs expressed their feelings of preparedness were affected by their student teacher's perceived level of preparedness and understanding of the role and responsibilities for student teachers during the placement. Meaning, when the student teacher was not fully prepared and aware of the expectations for student teachers during the student teaching experience, the PECT also did not feel entirely prepared. The opposite was also true. If the PECT perceived that their student teacher was prepared and confident in understanding the expectations for student teachers during the student teaching experience, the PECT was more likely to feel prepared and competent to fulfill their role as CT. During his interview, Jack articulated an example of how his feeling prepared for his role was due in part to his student teacher's own preparedness:

> My student teacher was very prepared; I mean he was on top of it. He was very organized and was always ahead of the paperwork, which helped me. He [student teacher] was able to inform me of all the extra things, because he knew everything so well of what he had to do, and how we needed to do it and everything like that.

This statement from Jack supports several survey responses from PECTs ($n = 6$) who stated if their student teacher had a good understanding of the expectations of student teachers, it manifested for a better overall experience. One PECT wrote on the survey response, "The second student teacher assigned to me was very thorough and well prepared. She knew what we had to get done. It went very well that time." Similar responses to the survey question "How could you have been better prepared and aware of your role and responsibilities as a cooperating teacher?" emphasized this idea that if PECTs are to feel fully prepared for their role, the other triad members, specifically the student teacher, must also be prepared. Tamara shared her experience with one of her student teachers who was not cognizant of the expectations for students teachers or the PECT:

> Sometimes they [student teacher] do not disseminate that information [placement expectations] very well. . . And the

> student [teacher] doesn't know. When I ask them, they say, "I don't know, there's something online, [program coordinator] should email you. They just do not know how to communicate that information sometimes or they wait to last minute to figure it out.

In a similar scenario, Laura shared a negative experience with her first student teacher who did not provide her with relevant and vital information for her to fulfill her job as a PECT. She shared some frustrations about working with a student teacher who did not take initiative for his responsibilities during the experience:

> He didn't give me all the information up front, so all I had was the handbook in an email, but I guess he was supposed to give me other information, and I never actually got that, so it was late getting done.

This theme highlights that the student teacher's level of preparedness and competence affects their PECT's feelings of being prepared for the student teaching experience. It may be as important for the student teacher as for the PECT to understand the role of the PECT and the role of other triad members to ensure a successful student teaching experience. If student teachers enter the placement without a clear understanding of the expectations for student teachers and have poor lines of communication with the PECT, it could have a rippling effect throughout the experience. Likewise, PECTs and university supervisors need to take responsibility in doing their part to be wholly prepared for their role and awareness of the other's role. While the PECTs in this study indicated a perceived reliance on their student teachers, much of the "nuts and bolts" information outlining the responsibilities of the PECT is likely outlined in the student teacher handbook. It is possible that some PECTs do not take the time to read it fully. It is important to acknowledge that the student teacher does not shoulder the weight of reminding their PECT of the duties of the PECT when it is available in the handbook.

Self-guided discovery. This theme unpacks the implications for PECTs' self-guided discovery of the necessary knowledge and understanding for fulfilling their role. All four PECTs stated that they learned a lot about mentoring and supervising teacher candidates

by taking initiative to learn about different aspects of their supervisory role and about mentoring novice teachers into the profession. Examples from interviewees included three of the PECTs having to educate themselves on the different types of observation forms they needed to complete. Specifically, Cheryl shared that she was unaware of what some of the language meant on the Teacher Observation Form and had to do some research on her own to learn about it. In the same way, two PECTs mentioned during phone interviews that they learned different types of feedback to provide to their student teachers during their supervisory period as a PECT from the associated PETE program. Cheryl spoke to this concept, sharing that when her student teacher was struggling, she looked up how to provide appropriate feedback: "It [feedback] changes depending on their [student teachers'] level of readiness, and I was trying to give too much to him." Another example of self-guided discovery of new information was from Laura, who shared her experience of independently educating herself on her student teachers' Feedback Form to fulfill her supervisory tasks:

> I had to do some homework, look up some things and, I felt like it did help me to understand how to complete it [student teacher feedback form] because I had to do some homework for my own understanding.

One more example of self-guided discovery was from Cheryl, who mentioned doing some "homework" on her own to learn about the forms she was tasked with completing as a PECT:

> I did not have to do them when I was student teaching. I have been removed from the college setting or university setting for quite a while. Some of those [student teacher paperwork], I am looking at it going 'what the heck is that?' So I had to do some homework and look up some things on my own.

To summarize, the four PECTs provided examples of how they self-initiated learning to prepare and fulfill their PECT role. There were numerous survey responses to the survey question "How could you have been better prepared and aware of your role and responsibilities as a cooperating teacher?" that echoed this construct of PECTs having to independently seek understanding to achieve their

role and expectations as a PECT. Samples of these responses include "I did not understand requirements of the portfolio and requirements of the school. I had to send several emails to find it out" and

> I did not go there [student teachers' PETE program university] and did not have any history of the program. I had to learn what they [PETE program] wanted from their student teacher so I could better prepare my evaluations and feedback for the student teacher.

These responses illustrate the ways in which PECTs self-guide the discovery and learning of essential information and knowledge to fulfill their role throughout the student teaching experience. The data exemplify that PECTs will educate themselves, rather than remain unaware and incompetent about their responsibilities.

Discussion

The findings from this study provide further confirmation that the current level of preparedness of PECTs varies and is inadequate for this integral component of PETE preparation. While much research about the student teaching experience has ensued, this study reiterates the lack of clarity and defining roles and responsibilities of PECTs. Christenson and Barney (2011) called for more congruency and communication among CTs and teacher preparation programs for a better definition of the role and supervisory tasks of the CT, aligning with the findings from this study. The results from this study show inconsistences between PECTs' perceptions of preparedness and the veracity of their preparedness for their role. While many PECTs (n = 22) indicated feeling prepared for their role at the start of the student teaching experience, the data contradict their perceptions. The PECTs in this study were unable to identify and articulate all of their roles and responsibilities on the open-ended survey question. The responses PECTs did disclose were inconsistent with the expectations that the associated PETE program identified—thus highlighting the importance for PETE programs to inform their PECTs of the PETE program curriculum and the expectations throughout the student teaching experience.

Equally important, the university faculty teaching the campus courses often know very little about the specific practices used in the

K–12 classrooms where their students are placed (Zeichner, 2011). This suggests that PETE faculty members should work to become familiar with and aware of the teaching practices that are being employed in the K–12 schools by the PECTs. Subsequently, this could lead to a more holistic understanding of what the PECTs are already doing and what they are not doing. This understanding may help PETE programs better prepare and educate the PECTs with whom they work, before becoming participating members of the student teaching experience. Additionally, the theme surrounding the student teachers readiness was similar to the findings by Ronfeldt, Brockman, and Campbell (2018), who reported CTs' perceptions of student teachers' preparedness positively predicted the PECTs' observation ratings of the student teacher. Meaning, the less prepared the student teacher is for the field experience, the lower their observation ratings compared to that of their prepared student teaching counterparts.

Teacher educators and university faculty need to persist with current efforts or begin to make efforts to involve CTs as partners in teacher education programs (Zeichner, 2002). The triad members should work together to create experiences that support and further the development of student teachers (McEntyre, Baxter, & Richards, 2018). Without a shared understanding of expectations between all members of the triad, the potential for confusion, frustration, and negative experiences greatly increases. Improved efforts to inform PECTS of the PETE program will allow them to feel more prepared and confident for their dynamic role.

Improving congruency between PECTs and PETE programs will require consistent and effective communication. The communication could include several methods such as face-to-face meetings, phone calls, video conferencing, and e-mails. The communication should be ongoing and begin well before the student teaching experience commences, thereby generating PECTs who are better prepared before the placement begins and lasting through the conclusion of the placement. Specifically, the communication should include information on the student teachers' educational training and experience before the placement begins (Gurl, 2019). This will help PECTs to hold similar expectations and to provide comparative supervision as the PETE program. Consequently, this will better

align the student teachers' schooling with the practicalities and endeavors during their final field experience, ideally leading to an increased potential for a positive experience for all triad members. When the PECT does not reinforce practices and expectations of PETE programs, a complicated situation can arise for all members in the student teaching triad (Young & MacPhail, 2015). Therefore, it is critical for preparation programs to provide PECTs with the necessary preparation to serve as effective mentors and with the knowledge of various supervisory approaches within a university-based teacher preparation program (Bernhardt & Koester, 2015).

For all PECTs to have the knowledge and appropriate skills and training to serve as effective mentors and facilitators during the student teaching experience, training endorsed by the PETE program needs to be required. The results from this study echo Smalley, Retallick, and Paulsen (2015), who stated, "It is critical to provide training for CTs to emphasize and instill the importance of skills and activities required during the capstone student teaching experience" (p. 135). Similarly, Belton et al. (2010) found in their study of the evaluation of a PECT training program in Ireland that the participant PECTs felt that all PECTs should have to attend the training workshop before they take on a student teacher. CTs who have had adequate preparation are better able to support their student teachers with different aspects of teaching, including classroom management, problem solving, and lesson planning expertise (Evertson & Smithey, 2000). Another strategy when PECT training is not feasible is screening potential PECTs for compatibility (Kahan, 2001). The screening could look at the attitudes, beliefs, and practices toward various aspects of supervision. Results of "a simple screen strategy could be used to identify CTs who match up well with the program goals" (Coleman & Mitchell, 2000, p. 42).

A PETE program considering providing PECT training would need to pursue easily accessible and readily available types of training that would be suitable for the busy schedule of a K–12 PE teacher. Unfortunately, PETE programs may not have the time or workforce to create PECT trainings from scratch and to identify the ways to best assess PECTs' supervisory effectiveness. Implementing existing frameworks for supervision training would be the most ideal for a PETE program. However, developing and using frameworks

effectively can involve considerable time and energy, depending on (a) the complexity of the domain; (b) the maturity of existing frameworks; (c) the availability of good documentation; (d) the willingness of other users who can help (e.g., university supervisor, administration); and (e) the ability of CTs to master key concepts, patterns, features, and tools associated with frameworks (Schmidt, Gokhale, & Natarajan, 2004). It would be ideal for a PECT supervision training framework to be vetted and disseminated for ease of use and implementation in PETE programs. The framework could include trainings for PECTs in several formats such as in-person seminar training, online video module trainings, or an online training course packet. These aforementioned training styles are the types of frameworks and formats employed in previous literature surrounding CT training.

Further investigation into the preparedness of the student teacher and the university supervisors during the student teaching experience is recommended. Studies continuing to investigate the practices, characteristics, and features of the student teaching experience to fully understand what makes a quality student teaching placement could enhance the current knowledge base surrounding the student teaching experience. The opportunity to compare the effectiveness of different training formats for PECTs would provide valid and reliable frameworks that PETE programs could easily adopt and implement. As the PECTs in this study were associated with one PETE program at a university in the Western United States, future research could examine PECT preparedness nationwide.

Conclusion

The student teaching placement is one of the most anticipated and crucial teaching opportunities offered in a teacher education program (Clarke, Trigg, & Nielsen, 2012; Guyton & McIntyre, 1990). This appraisal reveals a strong sense that PECTs lack specific preparation to enable high-quality and developmentally appropriate support for their student teachers. The PECTs in this study tended to have a false perception of preparedness that is inconsistent with the goals of the PETE programs. This could result in PECTs who are likely to be underprepared and improperly trained for their work as supervisors and mentors for their student teachers. Professional development and training is imperative for PECTs to fulfill their

roles and responsibilities fully during the experience. The information available to PETE programs about the prominence of training PECTs for their role is significant. Therefore, PETE programs should commit to providing bountiful opportunities to inform and prepare PECTs to best equip them for their essential role within the student teaching experience.

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The Physical Educator Vol. 77 • pp. 384–403 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9606

PEDAGOGY

The Role of Perceived Competence in Determining Teacher Support in Upper Secondary School Physical Education

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Abstract

Physical education remains one of the most liked school subjects, irrespective of grade level or geography. Nevertheless, sections of the student body dislike the subject immensely and even more think it should be organized differently. Students who are less competent have long claimed that physical education teachers and the curriculum favor the competent. Despite clear refusals of any conscious favoritism from the teachers, perceived competence is one of the premier predictors of students liking and being motivated to participate in the subject, the other being participation in organized sport. The purpose of this study was therefore to refute or confirm the veracity of the aforementioned claims through an investigation of the relationship between perceived competence and teacher-dependent support in upper secondary school physical education. One thousand one hundred thirty-three upper secondary school students (M_{age} = 17.2, SD = 0.86) from Norway (n = 554) and Iceland (n = 579) participated in a cross-sectional survey. Four teacher-dependent support variables were measured via self-reporting: perceived competence support, perceived relatedness support, perceived autonomy support, and perceived teacher learning support. To simplify

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comparison between groups, we divided the sample into three units: highly competent students, moderately competent students, and less competent students. A one-way multivariate analysis of covariance (MANCOVA), with gender as a covariate, found indications of biased teacher behavior, thus supporting the aforementioned accusations. Even though some discrepancies may exist between the reported and actual support levels, students respond and react in accordance with their perceptions, which is why their perceptions are of concern. These findings are incongruent with the aims of the subject and indicate that modified practices are needed if a more equal learning environment for all students is desired. To reverse the current trend, we provide three measures that we believe can reduce the aforementioned discrepancy. First, PE teachers must become more aware of their own biases, recognizing their tendency to treat the competent more favorably. Second, challenges related to the students who show less appreciation for the subject should become more prominent in physical education teacher education. Finally, the advantage of those who participate in leisure-time sporting activities, over those who do not, should be reduced through a reevaluation of the current curricular implementation.

Physical education (PE) remains among the most popular school subjects, irrespective of grade level or geography (Kangas, 2010; Moen, Westlie, Bjørke, & Brattli, 2018; Säfvenbom, Haugen, & Bulie, 2015). However, the students who dislike the subject tend to dislike it with an intensity not associated with other subjects (Andrews, & Johansen, 2005; Olafson, 2002). PE teachers have often been accused of favoring certain sections of the population, whether males, active athletes, or the students who are more competent (Ennis, 1999; Leslie et al., 1999; Säfvenbom et al., 2015). Giving credence to these accusations is that a plethora of studies have found males to dominate just about every occurrence and interaction within the PE context (Alfermann, 1999; Derry & Phillips, 2004; Duffy, Warren, & Walsh, 2001; Hannon & Ratliffe, 2007; Shimon, 2005) and that the greatest predictors for PE appreciation are perceived competence and leisure-time sporting participation (Redelius, 2004, p. 162; Säfvenbom et al., 2015).

The main phenomena of interest in this study is perceived competence. Competence refers to the capacity of an individual to interact effectively with a given environment and is usually the

result of prolonged learning (White, 1959). According to the basic psychological needs theory, a mini-theory derived from Deci and Ryan's (1985, 2000) self-determination theory, competence is one of three basic psychological needs an individual relies upon to function optimally in any social context (the other two being autonomy and relatedness). For the basic psychological needs to be fulfilled, need-supportive environments that facilitate competence, support autonomy, and stimulate emotional connections have to be in place. Neglecting any of the basic needs can result in functional costs (Deci & Ryan, 2000).

In accordance with the theoretical postulations of Deci and Ryan (2000), Standage, Duda, and Ntoumanis (2005) found the degree of need satisfaction to be indicative of the degree of perceived need support in secondary school PE. Those findings are congruent with other research findings, which affirm the relationship between relatedness support and relatedness on one hand (Chang, Chen, Tu, & Chi, 2016; Cox, Duncheon, & McDavid, 2009) and autonomy support and autonomy on the other (Shen, McCaughtry, Martin, & Fahlman, 2009; Shen, McCaughtry, Martin, Fahlman, & Garn, 2012). However, the same does not necessarily apply to competence, at least not to the same degree. Competence seems to separate itself from the other two psychological needs, at least in the PE context, as it is not as dependent on external facilitation. Even though perceived competence tends to be higher in environments that are mastery oriented, where evaluation is based on individual criteria as opposed to comparative ones (Kalaja, Jaakkola, Watt, Liukkonen, & Ommundsen, 2009; Ntoumanis, 2001), most of the variance appears to be determined by physical activity levels and sport participation (Anderssen, 1993; Carroll & Loumidis, 2001; Goudas, Dermitzaki, & Bagiatis, 2001).

Studies within the PE context have found that perceived competence is associated with the degree of motivation for the subject (Ntoumanis, 2001), can predict future levels of physical activity (Timo, Sami, Anthony, & Jarmo, 2016), and is consistently more prominent in male than female students (Cairney et al., 2012; Carroll & Loumidis, 2001; Robinson, 2011). Even though variations in competence occur in all school subjects, PE stands out, as the nature of the subject puts these variations on display to a greater extent

(Fagrell, Larsson, & Redelius, 2012). The physical and exhibitional nature of PE make concealment of shortcomings onerous, which may explain why students who are less competent tend to opt out of participating when given the opportunity to do so (Fagrell et al., 2012; Ntoumanis, 2005).

In line with the rest of the Western world, PE in the Nordic countries is based on a multiactivity approach that is heavily congested with traditional team-based ball sports (Annerstedt, 2008). Many of the PE teachers have backgrounds in these same sporting activities, and as a result, PE lessons tend to be organized in line with the modus operandi of sports clubs (Moen et al., 2018; Syrmpas, Digelidis, Watt, & Vicars, 2017; Trost, 2004). In addition, PE classes have been found to be a subpar arena for skill development, with most of the time allotted to the execution and evaluation of skills at the expense of acquiring them (Digelidis & Papaioannou, 1999; Gibbons, 2008; Smith, Lounsbery, & McKenzie, 2014). Students who actively participate in sports outside the PE context are therefore at a great advantage. Instead of reacting to the challenge, too many PE teachers choose the path of least resistance and hide behind the preferred activities of the majority, as opposed to using pedagogical tools to design inclusive activities that benefit everyone (Crum, 2012). This results in an environment where sections of the students are rewarded for using skills acquired outside the confines of PE to succeed, while others are left behind (Crum, 2012; Fagrell et al., 2012). This trend comes across as curious, given that previous research within the PE context indicates that the students who are more capable are likely to thrive irrespective of their environment, while the students who are disadvantaged can benefit greatly from facilitation (Dudley, Okely, Pearson, & Peat, 2010; Gabbei, 2004; Nicaise, Cogérino, Bois, & Amorose, 2006). Likewise, these priorities are incongruent with the aims of the subject, which do not include improving proficiency or inciting competition, but rather teaching the basic rules of the games, developing teamwork, and inspiring students to live active lives (Fagrell et al., 2012).

To date, most research into psychological need satisfaction in PE has centered on the integral role of autonomy in determining well-being within the subject and how internalizing the reasons for participation is paramount to mediating motivation (Prusak,

Treasure, Darst, & Pangrazi, 2004; Shen et al., 2009; Shen et al., 2012). This study attempted to expand the ongoing discussion on the subject by highlighting the tacit importance of competence in teacher–student interactions. The objective of this study was therefore to investigate the relationship between perceived competence and the perceived level of support provided by the teachers in the Nordic PE context. Based on the aforementioned empirical rationale, we expected to find a positive relationship between the students' perceived competence and the level of support provided by the teachers on all observed support variables.

Method

Participants and Procedure

The participants in this study were 1,133 upper secondary school students (M_{age} = 17.2, SD = 0.86) from Norway (n = 554) and Iceland (n = 579). The eight participating schools, four from each country, were selected through a stratified sampling procedure representing urban, suburban, and rural settlements. Informed consent was obtained from all participants and school representatives before data collection. Data were collected through a questionnaire that was administered by a project leader in a group setting during PE class.

Instruments

The students' perception of their PE-specific competence was measured via a five-item modified short version of the 18-item Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989). Answers were given on a 7-point Likert scale ranging from 1 (*strongly disagree*) to 7 (*strongly agree*). Examples of items are "I am pretty skilled at PE" and "I am satisfied with my performance in PE." The instrument has repeatedly displayed satisfactory construct validity and internal consistency in the PE context, both internationally (Standage et al., 2005) and in Norway (Ommundsen & Kvalø, 2007).

Competence support was measured via a four-item PE-specific instrument developed by Standage et al. (2005). Answers were given on a 7-point Likert scale ranging from *strongly agree* (1) to *strongly*

disagree (7). Examples of items are "In this PE class the PE teacher helps us to improve" and "In this PE class the teacher makes us feel like we are good at PE." The instrument has displayed satisfactory construct validity and internal consistency in the PE context previously (Standage et al., 2005).

Autonomy support was measured via a six-item PE-specific version of the Learning Climate Questionnaire (Williams & Deci, 1996). Answers were given on a 7-point Likert scale ranging from *strongly agree* (1) to *strongly disagree* (7). Examples of items are "In this PE class the PE teacher encourages us to ask question" and "In this PE class we feel that the teacher provides us with choices and options." Satisfactory construct validity and internal consistency have been demonstrated in the PE context previously (Standage et al., 2005; Ommundsen & Kvalø, 2007).

Relatedness support was measured via a five-item PE-specific scale developed by Standage et al. (2005) intended to measure the quality of the interpersonal relationship between the teacher and the students. Answers were given on a 7-point Likert scale ranging from *strongly agree* (1) to *strongly disagree* (7). Examples of items are "In this PE class the PE teacher supports us" and "In this PE class the PE teacher has respect for us." Standage et al.'s (2005) study on secondary school PE students demonstrates the measurement's satisfactory construct validity and internal consistency.

Perceived teacher learning support was measured via an eight-item PE-specific scale developed by Laxdal, Mjåtveit, Leibinger, Haugen, and Giske (2019). The items measured the students' experiences with different elements related to teacher learning support, such as the dissemination of learning goals, use of feedback, and willingness to modify behavior. Items include questions such as "It is important to the PE teacher that we learn new skills" and "The PE teacher provides us with clear advice on how we can improve our performance." Answers were given on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). Laxdal et al. (2019) found the scale to display satisfactory construct validity and internal consistency in the Norwegian PE context.

Statistical Analysis

All statistical analyses were performed via SPSS (version 25; IBM, Armonk, NY). When the data had been processed, the sample was divided into three groups depending on their level of perceived competence. The participants who were placed in the highly competent group scored above the 66th percentile, while those placed in the less competent group scored below the 33rd percentile. The moderately competent group consisted of the remaining individuals, who placed at or between the 33rd and 66th percentile. The internal reliability of the applied measures was assessed via Raykov's composite reliability coefficient (Raykov, 1998). The relationship between variables was assessed via Spearman's rank correlation coefficient and a one-way multivariate analysis of covariance (MANCOVA). Gender and nationality were used as covariates. Between-group differences were examined via LSD post hoc tests. As normality is a criteria to perform a MANCOVA, non-normally distributed variables were transformed to normality via the Rankit procedure (Bliss, Greenwood, & White, 1956). The Rankit procedure was chosen, as it has been found to be the most reliable normalizing procedure, irrespective of sample size and distribution (Solomon & Sawilowsky, 2009). To quantify the differences between groups, we computed Cohen's *d* (for comparison between two groups; benchmarks: .2 for small, .5 for medium, and .8 for large; Cohen, 1969) and partial eta squared (for comparison between three groups; benchmarks: .0099 for small, .0588 for medium, and .1379 for large; Cohen, 1969). For all analysis, significance was accepted at $p < .05$.

Results

Table 1 shows the descriptive statistics, internal reliability scores, and the correlation matrix for all observed variables. Mean scores for all variables were relatively high, which explains the negatively skewed distribution of the data. The measurements displayed high levels of internal consistency, with composite reliability coefficients ranging from .91 to .96 (Raykov, 1998). Table 2 illustrates the gender representation in each group.

Table 1
Descriptive Statistics, Composite Reliability Coefficients and Correlations for All Observed Variables

Variable	*M*	*SD*	Range	ρ	1	2	3	4
(1) Perceived Competence	5.66	1.25	1–7	.91	-			
(2) Perceived Competence Support	5.63	1.40	1–7	.95	.35*	-		
(3) Perceived Relatedness Support	5.89	1.40	1–7	.96	.33*	.85*	-	
(4) Perceived Autonomy Support	5.29	1.41	1–7	.95	.28*	.78*	.82*	-
(5) Perceived Teacher Learning Support	4.32	1.08	1–6	.92	.27*	.64*	.62*	.69*

Note. ρ = Raykov's rho. Correlation indicated via Spearman's ρ.

*$p < .001$.

Table 2
Gender Distribution Across the Various Competence Groups

	Boys		Girls	
Group	**%**	**(*n* = 449)**	**%**	**(*n* = 684)**
Low perceived competence	27.8	(*n* = 125)	34.1	(*n* = 233)
Moderate perceived competence	29.4	(*n* = 132)	35.4	(*n* = 242)
High perceived competence	42.8	(*n* = 192)	30.6	(*n* = 209)

As Table 3 shows, a one-way MANCOVA, with gender as a covariate, revealed significant differences between groups on all measured support variables, Pillai's trace = .1, $F = 14.57$, $df = (8, 2116)$, $p < .001$. Between-groups post hoc comparisons revealed that the more competent groups outscored the less competent groups consistently. Analyzing each country separately did not affect the conclusion. To further verify the validity of the results, we tested the untransformed data using the Kruskal–Wallis nonparametric one-way ANOVA, which resulted in the same conclusion (not reported). The between-group differences were quantified via Cohen's *d* estimation of effect size and are illustrated in Figure 1.

Table 3
Mean Scores by Confidence Levels and MANCOVA Results for All Support Variables

	Perceived competence						
	Low *M* (*SD*)	Moderate *M* (*SD*)	High *M* (*SD*)	*df*	*F*	*p*	η_p^2
Perceived Competence Support	5.19 (1.40)	5.53 (1.40)	6.11 (1.23)	2	52.60	< .001	.09
Perceived Relatedness Support	5.49 (1.43)	5.78 (1.45)	6.34 (1.18)	2	52.17	< .001	.09
Perceived Autonomy Support	4.87 (1.38)	5.19 (1.48)	5.75 (1.24)	2	37.81	< .001	.07
Perceived Teacher Learning Support	3.99 (1.05)	4.29 (1.13)	4.65 (.95)	2	29.64	< .001	.05

Note. Covariates (gender and nationality) are not included in the table for the sake of clarity.

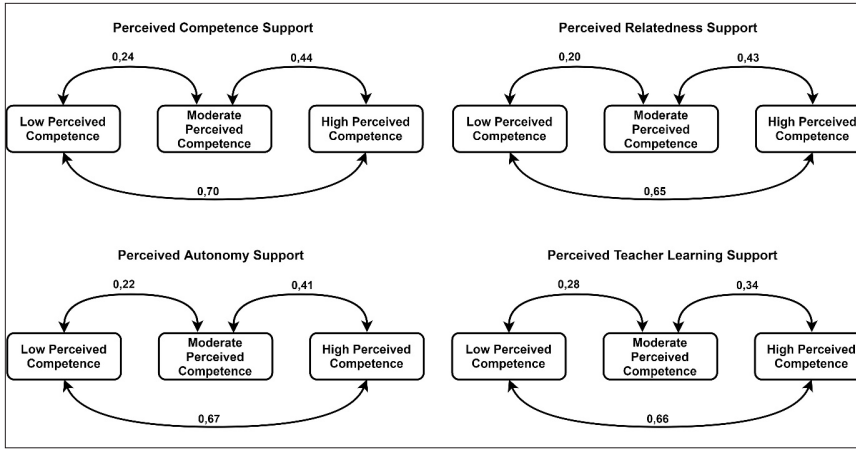

Figure 1. Cohen's *d* was used to quantify the difference between groups. Whole lines indicate significant differences at the $p < .01$ level.

Discussion

This study investigated the relationship between perceived competence and perceived level of support provided by the teacher in the Nordic PE context. Because studies within the field of PE have indicated that perceptions of competence and teacher support were gender dependent, gender was controlled for in all analyses (Cairney et al., 2012; Carroll & Loumidis, 2001; Lentillon, Cogèrion, & Kaestner, 2006; Robinson, 2011). In line with the aforementioned studies, this study found that males reported higher scores than females on both variables.

Congruent with our expectations, the results of this study indicate varying levels of support, depending on the students' competence levels, on all measured support variables. The different subgroups of high, moderate, and low perceived competence reported significantly different scores, with the highly competent group scoring the highest and the less competent group scoring the lowest, consistently across all variables. These results give further support to the claims that PE is an arena for the athletically competent and that the less competent are at a disadvantage (Dowling, 2016). These findings are incongruent with previous findings from the more academic subjects, where the students who are less able have been found to receive higher levels of support than their peers, via both observation and

self-reporting (Baker, 1999; Mercer, Nellis, Martínez, & Kirk, 2011). In the academic context, the students who are less competent are consistently identified as needing additional support, which is reasonable, as they are likely to be less familiar with the subject matter and to be less comfortable within the context compared to the students who are more competent (Bruggink, Meijer, Goei, & Koot, 2014). Disproportionate levels of support in favor of the less competent appears to be a shrewd method of counteracting the Matthew effect, which has been found to be prevalent in the school system (Merton, 1968; Stanovich, 2009).The Matthew effect is the tendency for those who already possess desirable capital, whether money, power, recognition, or ability, to accrue more of it over time, while those who are without tend to remain so; in other words, the rich get richer and the poor get poorer (Merton, 1968).

At first glance, the discrepant teaching behavior between these two contexts may seem illogical; however, these results fit in line with our expectations and the available empirical evidence in the field (Dowling, 2016; Ennis, 1999; Olafson, 2002). As mentioned, PE lessons are heavily influenced by the modus operandi of sports clubs, and PE teachers tend to have backgrounds as active participants or coaches in various sports (Moen et al., 2018; Syrmpas et al., 2017; Trost, 2004). Ideally, sports clubs and educational institutions operate according to a different set of principles that, although not bipolar, should lean toward the different ends of a spectrum. Sports clubs should, to a much greater extent than educational institutions, allow for the cultivation of the competent, as they are more likely to act as catalysts in future sporting successes (Abbott & Collins, 2004; Digelidis & Papaioannou, 1999). Even though acquiring an understanding of the rules of the game, encouraging teamwork, and promoting fair play are integral components of sports at a grassroots level, the ultimate objective tends to be winning (Ring & Kavussanu, 2018). Therefore, a system designed to accommodate the less competent rather than the most competent would be counterproductive in the sporting context. However, everyone should be entitled to an opportunity to succeed in the educational system, and the teachers ought to provide appropriate tasks for all students in an effort to facilitate progress irrespective of prior knowledge and experience (Norwegian Board of Education, 2015).

Nevertheless, it would be simplistic to allocate the teacher sole responsibility for the differing perceptions reported by the various competency groups, as the students should be viewed as active rather than passive participants in their own learning process. There are indications from sports and higher education that individuals who are more successful, confident, and motivated are more likely to seek support, as well as to be better equipped to detect and make use of said support, than are their less successful counterparts (Karabenick & Sharma, 1994; van Yperen, 2009). In addition, repeated negative experiences, confusion, and general discomfort within the PE context can result in a state of learned helplessness for certain students. Likewise, the less successful may be incentivized to mask their own shortcomings by blaming a dearth of support instead of coming to terms with their own deficiencies.

In congruence with previous research, this study found that the inter-variable correlation between the different support variables was relatively high (Zhang, Solmon, Kosma, Carson, & Gu, 2011). The average score for all three subgroups of students for said support variables was also relatively high (above the arithmetic mean of the scale), which indicates a generally supportive learning environment. The concern is the consistent unconscious bias in favor of the competent students, which the competent students are bound to benefit from. Curricular implementation has also been raised as a cause of concern, as activity preferences have been found to be skill and gender dependent (Dudley et al., 2010; Olafson, 2002). According to Dudley et al. (2010), students who are less skilled tend to prefer recreational activities focusing on fitness, while students who are more skilled tend to prefer sport-specific competition, which focuses on individual performance. In addition, female students have expressed their frustration at the superfluous focus on competition in the PE context and at the lack of priority for traditionally feminine activities in the curriculum (Gibbons, 2008; Olafson, 2002; van Daalen, 2005).

Limitations

The results of this study have to be interpreted with its limitations in mind. The cross-sectional nature of the study design does not allow for any determination of causality. Nonrandom sampling diminishes the probability of the sample being representative of the general population, thus potentially limiting the generalizability

of the results. However, the sampling procedure included several measures designed to increase generalizability. These measures appear to have been successful, as certain key characteristics of the sample mirrored the designated population (e.g., age, gender composition, ethnicity, and urban settlement). Self-reporting presents certain obstacles that can skew the results, such as social desirability and response bias. However, we took steps during data collection to minimize the effects of those phenomenas. There is also an unknown discrepancy between the actual and perceived prevalence of the measured behavior. We relied on the students' perceptions when measuring support, which only gave us an indication of the actual received support. However, students respond and react in accordance with their perceptions, which underlines the importance of documenting and understanding those perceptions. Despite these limitations, the results of the study are interesting and have important practical implications. Additionally, we would like to point out that sampling participants from two countries represents a strength to the study and that the similarities in results across borders bolster the argument for these findings to be generalized even further.

Recommendations

Our recommendations for future research are threefold: (1) The replicability of the results across grade levels should be investigated, (2) longitudinal study design should be used to determine whether the perceptions of the sample remain constant over time or change in accordance with the Matthew effect, and (3) the discrepancy between perceived and received support in the PE context should be explored via observation.

Conclusion

Our findings indicate discrepant perceptions of support on all measured support variables, depending on the students' competence levels. Irrespective of the discrepancy between the actual and reported support, the students' perceptions are of concern and indicate biased teacher behavior. To reverse the current trend, we provide three measures that we believe can reduce the aforementioned discrepancy. First, PE teachers must become more aware of their own biases, recognizing their tendency to treat the competent more

favorably. Second, challenges related to the students who show less appreciation for the subject should become more prominent in PE teacher education. The current system has a tendency to affirm the predetermined views of an already homogeneous group of individuals instead of challenging their preconceptions and thus broadening their horizons. Finally, nontraditional sports and activities should become more prominent on the agenda, at the expense of more traditional sports, so that those who participate in leisure-time sporting activities have less of an the advantage over those who do not. When traditional sports are on the agenda, the rules of the game can be modified for a more even playing field.

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The Physical Educator Vol. 77 • pp. 404–425 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9915

PEDAGOGY

Japanese Elementary Classroom Teachers' Experiences of Teaching Gymnastics in Physical Education

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Abstract

The purpose of this study was to describe Japanese elementary classroom teachers' experiences of teaching gymnastics in physical education. This study used a descriptive qualitative approach, grounded in the classroom ecological model, using in-depth, semistructured interviews about teaching gymnastics in physical education. Five teachers (4 males, 1 female) from five public elementary schools in Tokyo, Saitama, and Chiba regions of Japan voluntarily participated in this study. Three major interrelated and complex themes emerged from the data analyses: (a) facilitating peer feedback to improve student learning, (b) holding students accountable using self-reflection and self-evaluation, and (c) the struggles of executing ideal lessons. The findings demonstrate the reciprocal and dynamic nature of the teaching–learning environment in Japanese elementary physical education. Teachers must understand their students' learning interests and motivations and develop student social task systems in gymnastics lessons.

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School gymnastics (*gakko taiso*) is an old concept connected to current school physical education (*gakko taiiku*) in Japan. After the introduction of *Shogakko Kyosoku-taiko* (the outline of the rules for teaching in the primary school) in 1891, classroom teachers began to understand physical education lesson plan development including three components of teaching gymnastics: (a) the rule of teaching (*kyosoku*), (b) the details of teaching (*saimoku*), and (c) the lesson plan development (*kyoan*) in physical education (Kishino & Takeshita, 1959).Then, in 1902, the Swedish system of gymnastics was introduced (Mukoyama, 2006) and was used as a part of the Japanese physical education curriculum as well as in military education (Collins, 2007). Since then, gymnastics has played an important role in Japanese physical education, with classroom teachers using the Swedish system of instruction in Japan to help students develop pedagogical skills (Kishino & Takeshita, 1959). To further improve the quality of instruction of gymnastics, Heizaburo Takashima (1865–1946) developed "the principles of physical education," which consisted of the components of preliminary exercise, main exercise, and final exercise for gymnastics lessons in physical education. He also introduced the law of physiology and psychology model (connection of body and mind of individual adolescents; Sasaki, 2017).

Since 1891, gymnastics has been a major content area in elementary physical education in Japan. The Ministry of Education, Culture, Sports, Science, and Technology (MEXT) requires that all teachers include specific content areas within gymnastics such as a mat exercise, a horizontal bar, a balance beam, and a vault horse. These requirements are stated in the national curriculum issued by the MEXT (Nakai & Metzler, 2005). More specifically, three objectives of gymnastics in elementary physical education state that students will be able to (a) acquire fundamental skills of gymnastics (psychomotor), (b) create different movement patterns and convey thoughts to peers (cognitive), and (c) cooperate and collaborate with peers and be mindful of surroundings for safety (affective; MEXT, 2018). Therefore, gymnastics is expected to help elementary students recognize the body and mind as a whole and to contribute to the development of motor skills, physical fitness, lifestyle choices, and participation in lifelong physical activity (Kirk, 2005; Haydn-Davies, 2005). With this, learning gymnastics in elementary physical

education is beneficial for students' holistic development including physical, cognitive, emotional, and social aspects (Morgan & Bourke, 2008).

Physical Education in the Japanese Elementary School System

Japanese public elementary schools provide 6 years of education for children aged 6 to 12, which is also called primary education (Grades 1–6). The school year in Japan starts on April 1 and ends the following March. Students aged 6 or above on April 1 are eligible to begin their elementary education. The elementary curriculum consists of Japanese, social studies, mathematics, science, life studies, music, arts and handcrafts, homemaking, moral education, and health and physical education (health and physical education are combined as one subject area in Japan). One teacher is assigned to a classroom, and the classroom teacher instructs all subject areas, including physical education (MEXT, 2018). Physical education lessons are typically 45 to 50 min (2–3 classes/week). Across the academic year, 90 mandatory hours are allocated for health and physical education in all public elementary schools (Nakai & Metzler, 2005).

According to Takahashi (2000), Japanese physical education is underpinned by the characteristics of (a) democratic physical education, (b) culturally oriented physical education, (c) fitness-oriented physical education, (d) directing to a lifelong participation in sport, and (e) physical education for mind and body. Takahashi explained the details and definitions of these five components.

First, democratic physical education refers to the discretion of schools and regional administrative bodies to form their own curricula, using the course of study as a reference, and to shift from a teacher-oriented to a more child-centered approach in physical education. Second, culturally oriented physical education emphasizes that learning in physical education allows students to gain an appreciation for the broader cultural system that underpins sport. Third, fitness-oriented physical education prioritizes developing fitness levels among students in physical education. Fourth, directing lifelong participation in sport illustrates the individual value shift toward "education in sport," which emphasizes the intrinsic value of physical activity. Last, physical education for mind and body explains the focus of whole student development in physical education. In the Japanese education system, physical education also plays a primary

role in extracurricular activities, sport events, and sport festivals in schools (Nakai & Metzler, 2005). Hence, people see physical education as an important subject area for the achievement of overall educational goals (Nakai & Metzler, 2005). The physical education course of study provides content standards for all school levels from kindergarten through high school to provide a fixed framework for teachers to ensure consistent physical education throughout the country (MEXT, 2018). Every 10 years, MEXT revises the curricula for all academic subjects to meet the educational needs of the society and continue enhancing the education system in Japan. Thus, teachers need to stay up to date with their knowledge to provide a curriculum to students.

Current Issues of Japanese Physical Education

Elementary school teachers are not licensed for specific subject areas in Japan. Teachers are trained separately for each school level, including kindergarten, elementary, secondary, and special education (MEXT, 2018). Among these school levels, only secondary school teacher licensure is subject specific. Within the 4 years of a teacher education program, elementary teachers receive a minimal amount of training for each subject area, including physical education. Therefore, once on the job, elementary teachers need to participate in various professional development workshops and events organized by districts, universities, and MEXT to develop their content knowledge and subject-specific pedagogical skills. These professional development opportunities are also important for Japanese teachers to remain current with all curricula (MEXT, 2018).

Every 7 years, elementary teachers are required to rotate to another school within the prefecture in which they teach (Collinson & Ono, 2001). The system of rotating and relocating schools is intended to minimize educational disparities among students (Lewis, 1995). This mandatory relocation of teachers may, however, create unintentional consequences in their lives, because various teachers experience various school environments and class sizes and use various instructional styles of gymnastics in physical education. For example, teachers may need to cope with the uncertainties of entering new working environments throughout their career, potentially resulting in professional isolation. Additionally, this system makes it

difficult for teachers to establish and maintain rapport with students (Shimazu, Okada, Sakamoto, & Miura, 2003).

Sato, Ellison, and Eckert (2020) studied Japanese elementary teacher development experiences in teaching physical education. The participants were eight elementary classroom teachers (six males, two females; within their first five years of teaching) teaching PE for the first time in Japanese elementary schools. Sato et al. (2020) found four themes including (a) prevention of classroom collapse in physical education, (b) avoiding a competitive learning climate, (c) using classroom duties as physical education lesson sources, and (d) lesson study community. The findings suggest that school districts need to develop a series of professional experiences with prefecture public school partnerships to help elementary teachers, when necessary, overcome challenges in teaching students in physical education settings.

To date, research examining elementary classroom teachers' experiences and processes has focused mostly on physical education teachers in Western countries (e.g., Langton, 2007). Little is known about the meaning that Japanese elementary classroom teachers ascribe to their experiences of teaching gymnastics in physical education. Thus, this study seeks to provide a unique insight into the experiences of Japanese elementary school teachers who teach physical education.

The purpose of this study was to describe Japanese elementary classroom teachers' experiences of teaching gymnastics in physical education. Two research questions guided this study: (a) What is the nature of Japanese elementary teachers' experiences of teaching gymnastics in physical education? (b) What are Japanese classroom teachers' strategies in designing every physical education gymnastics lesson?

Theoretical Framework

This study utilized the classroom ecological model (Conroy, Sutherland, Haydon, Stormont, & Harmon, 2009; Doyle, 1979). In this framework, the classroom environment is seen as an action of affective behavior. It has three main characteristics: multidimensionality, simultaneity, and unpredictability (Doyle, 1986). More specifically, the classroom is multidimensional because it serves a variety of educational purposes and contains a variety of events and

processes that may not be related such as practices, assessment, and motivation. Those many events occur at the same time, which is explained as simultaneity (e.g., students' learning outcomes between teachers, students, community, and culture). The simultaneously occurring events could produce unpredictable sequences of events, which is called unpredictability (e.g., incomplete tasks, delaying class assignments). Namely, the model sees teachers and students as they interact, rather than distal outcomes such as achievement or learning (Hastie & Siedentop, 2006; Sutherland & Oswald, 2005).

In physical education, teachers have used the Sport Education model, for example, to interpret, predict, and respond to classroom dynamics (Siedentop, 1988). The ecological classroom model, which focuses on the characteristics of multidimensionality, simultaneity, and unpredictability, identifies three interrelated systems including managerial, instructional, and student social task systems (Hastie & Siedentop, 1999; Siedentop, 2002). The managerial system comprises rules, routines, and expectations for students to follow and that allow learning to take place (Hastie, Rudisill, & Boyd, 2016). The presentation and practice of subject matter are defined as the instructional system (Hastie et al., 2016). The student social task system is directed by students who have their own social agenda and involves the ways students seek social interaction (Siedentop, 1991). This has been determined as a powerful driving force in activity-based settings and a key impulse in the accomplishment of managerial and instructional tasks (Carlson & Hastie, 1997). Based on the ecological model, student leadership and responsibility play a significant role in maintaining and strengthening the primary vector for subject-matter work (Hastie & Siedentop, 2006).

Hastie (2000) found that these managerial, instructional, and student social task systems are important factors that produce a high level of student engagement. All of these systems make positive contributions to maintaining the quality of a program, which thus helps students to determine appropriate behaviors during different instructional contexts (Hastie & Siedentop, 1999).

Method

The research method involved a descriptive qualitative approach using in-depth, semistructured interviews (Seidman, 1998). The aim of using the interviewing method was to solicit elementary classroom

teachers' experiences of gymnastics and to unpack the meaning of those experiences. Unquestionably, interviewing is a powerful way to gain insight into the educational and social phenomena experienced by individuals in educational contexts (Seidman, 1998). Interviews are unique in that they allow the researcher "to acquire data not obtainable in any other way" (Gay, 1996, p. 223). Examples include a teacher's past experiences with their students and reflection of their past instructions. From a researcher's perspective, the lead author conducted a series of semistructured interviews with five participants.

Settings and Participants

Research sites for this study were determined by the nomination of Japanese classroom teachers who were teaching gymnastics in elementary physical education in city school districts of three prefectures in Japan. The lead researcher identified participants from all school districts of these prefectures. Each district was contacted for the number of teachers who had teaching experiences of gymnastics within the school. The lead researcher contacted the school district's curriculum and instruction division to request sending two research recruitment letters to all identified classroom teachers (n = 20). Five teachers (four males, one female; Mr. Kudo, Mr. Aoki, Mr. Sakata, Mr. Yuki, and Ms. Noto [pseudonyms]) from five public elementary schools in Tokyo, Saitama, and Chiba prefectures voluntarily participated in this study (Table 1).

Table 1
Demographic Information

Name	Age	Years of teaching experience	Current grades of teaching PE	Number of students in PE class
Mr. Kudo	33	11	6th	32
Mr. Aoki	38	16	6th	32
Mr. Sakata	34	12	3rd	28
Mr. Yuki	34	12	4th	30
Ms. Noto	30	8	5th	29

Note. All teachers had a bachelor's degree and an elementary teaching credential.

Data Collection

The data sources included semistructured face-to-face interviews about teaching gymnastics in physical education. According to Yin (2003), researchers have two jobs when conducting interviews: (a) to follow the interview case study protocol and (b) to ask the actual (conversational) questions.

Participant interviews. During the interview, the researcher asked participants questions for 60 to 90 min. The interview questions were open-ended and assumed a conversational tone. The modified interviews were guided by a preestablished set of questions developed by Ensign, Woods, and Kulinna (2017). The questions were modified, piloted, and carefully worded to be relevant to the current investigation of Japanese teachers teaching gymnastics in physical education (Yin, 2003). The following are example questions utilized during interviews:

1. How do you manage your gymnastics class and design gymnastics lessons?
2. What are characteristics of the student and teacher relationships of teaching gymnastics and how do these relationships affect establishing students' learning climates in physical education?
3. What do you need to do between now and the end of the semester to reach your teaching goals of gymnastics in physical education?

Data translation process. This study used a cross-cultural translation technique developed by Banville, Desrosiers, and Genet-Volet (2000) and Hodge, Sato, Mukoyama, and Kozub (2013). The four native Japanese translators (A [data collector], B, C, and D) were bilingual faculty who were fluent in both English and Japanese languages and employed in physical education departments at universities in the United States and Japan. First, three translators (A, B, and C) individually translated the original Japanese version of the interview and lesson plan data into English. Later, they compared their versions and discussed any differences to arrive at an agreement. They then edited the interviews as deemed necessary for proper vocabulary, grammar, and syntax of the Japanese and English languages. The Japanese version from this process was sent to the fourth translator (Translator D) in the United States, who translated

the interview data into English. In the second step, a committee comprising three bilingual translators and an established physical education faculty member was asked, via email correspondence, to critique (evaluate) the interview data. The committee recommended edits to the interview data to ensure the consistency of the meaning between English and Japanese languages. This process continued until all coders reached a consensus in all interview data.

Data Analysis

A constant comparative method (Boeije, 2010) was used in the interpretation of the data, which allowed themes to emerge from the data. The basic strategy of this analytical process is to constantly compare pieces of data. More specifically, each potentially meaningful piece of data within the transcripts from the first set of interviews (initial transcription) with each participant was coded independently by the first and second authors, who discussed the differences until reaching an agreement. The second set of interviews (after translation into English) was initially coded by the lead author and checked by the second author. In addition, two peer debriefers reviewed the codes, helping the researchers to avoid potential researcher bias. Furthermore, the researchers coded data from transcripts and each participant to identify similarities and differences. The researchers grouped the codes into thematic categories, which were then refined into recurring themes (Boeije, 2010).

Trustworthiness

Trustworthiness was established through triangulation, member checking, and peer debriefing. Triangulation involved the use of multiple data sources, including those from interview transcripts. Member checking reduced the effect of subjective bias (Patton, 2002). The researchers sent electronic files of the interview transcripts and emergent themes to the respective participants. The participants' acknowledgment of the accuracy of the transcripts and the researchers' interpretations of the data ensured the establishment of trustworthiness. Peer debriefing is a process of exposing oneself to a knowledgeable peer in a way paralleling an analytic session, with the purpose of exploring aspects of inquiry that might remain only implicit in the inquirer's mind (Patton, 2002). For this study, two professional colleagues who had expertise in qualitative research

agreed to serve as peer debriefers. They reviewed the established themes and were in agreement with the findings of the researchers. Hence, the interpretations of the data were acknowledged as accurate and representative.

Results

Explainable within the logic of the classroom ecological model (Doyle, 1979; Conroy et al., 2009), three major interrelated and complex themes emerged from the data analyses: (a) facilitating peer feedback to improve student learning, (b) holding students accountable using self-reflection and self-evaluation, and (c) the struggles of executing ideal lessons. These themes illustrate the participants' experiences of teaching gymnastics in physical education.

Theme I: Facilitating Peer Feedback to Improve Student Learning

Feedback is essential for improving student learning. The teachers consistently stated their integration of peer feedback among students. Since the typical class size in elementary physical education was 20 to 30 students, peer feedback was an effective approach that ensured every student received individual feedback. Mr. Kudo said,

> It is important to make all students realize there are always some places to improve during gymnastic practices. I do not let them satisfy current performance. Therefore, peer feedback is so important. I emphasize that peer corrective and positive feedback would help their performance. In elementary school, this is not an easy process, but I push my students to find useful feedback that motivates their learning.

Mr. Kudo indicated that he recognizes that developmentally, peer feedback can be an advanced skill for elementary students. However, he challenged the students to work on this learning process. With this, Mr. Kudo even promoted the use of corrective feedback among his students as a more effective strategy for enhancing student learning than general feedback. Mr. Sakata also shared his integration of corrective peer feedback among his students in his lesson:

> When I teach how to give feedback to classmates, I believe that all students need to find specific and corrective feedback to their classmates in gymnastics. For example, when my students practice forward roll of mat exercises, I allowed them to find a few key elements that help them improve their performance. In my class, I heard students' feedback and comments, like "look at own belly button or stomach when you roll." I feel that this type of feedback is important.

Mr. Yuki noted how peer feedback helps him understand what students think relative to good performance. In his class, instead of focusing on how the teacher defines what is correct or important, he allows his students to have their own images of good performance:

> I motivated them to give feedback that allows my students to take spontaneous actions and practices in gymnastics lessons. I learned that students have ideal performance images such as strength, flexibility, and postures. In order to maximize students' learning, I needed to understand students' ideal images of good performance. Then I selected a group of students who have various ideal images of good performance so that all students receive different types of feedback related to strength, flexibility, and posture. I think students learned from other students' feedback. (Mr. Yuki, interview)

These teachers' comments indicate that during their gymnastics lessons, the teachers see their students as active participants in their classes and give students responsibilities (i.e., peer feedback, peer interaction) for learning experiences when they teach gymnastics in physical education.

Theme II: Holding Students Accountable Using Self-Reflection and Self-Evaluation

Holding students accountable for their own learning is crucial to the establishment of an effective teaching environment. The teachers in this study shared their use of self-reflection and self-evaluation for the accountability system in their lessons. Ms. Noto said,

> I used reflection cards for students to express positive and negative experiences of gymnastics lessons. Then all students

> share the reflection cards with other students. Through this practice, all students need to become aware of their own gymnastics' performance challenges. This practice allowed them to think about how to improve their own performance.

Similarly, Mr. Yuki explained how he integrates self-reflection and self-evaluation into his lesson. He believes that gymnastics is one of the best content areas in which teachers can use self-directed approaches for holding students accountable, because of the underlying emphasis on technique and the prominence of closed skills in gymnastics. He commented,

> I ensure that my students know how and why their mat exercise skills improved. I also make sure that they know what they can do and cannot do, so they can think why and how they practice. I believe teachers need to include deep learning exercise through gymnastics. I think gymnastics is one of the good activities for developing critical thinking, because it requires the analysis and learning of individual body mechanism.

Mr. Aoki also shared his beliefs in the use of self-reflection and self-evaluation in his teaching. However, he finds challenges in these approaches when working with elementary students. As an alternative approach, he integrates technology to meet his students' developmental needs. Mr. Aoki commented,

> I try to develop critical thinking skills through gymnastics lessons in my students. I gave students assignments of self-reflection and self-evaluation. However, they shared their assignments with me only; therefore, there is no feedback or interaction among classmates. I think writing their own reflections was very difficult tasks for elementary students. Now, I used basic information and communication technology that allow them to record their mat exercise performances. This enables all students provided feedback and comment for their improvement. Then they began to write a reflection. However, this only works for fifth and sixth graders. I do not think this is developmentally appropriate for first and second graders.

The teachers consistently shared how self-reflection and self-evaluation allow students to have greater ownership of their learning. Their comments indicate that teachers believe that learning is not strictly teacher directed; instead, learning should be a student-directed process.

Theme III: The Struggles of Executing Ideal Lessons

The teachers shared their perceptions of ideal lessons that they can use to meet the expectations of the course of study (MEXT, 2018). However, they felt that it was not always possible to execute those ideal lessons. Ms. Noto explained the managerial and safety challenges that affect the effectiveness of her gymnastics lessons:

> For me, it is hard to design gymnastics lessons, because I need to determine where and how to set mats considering safety. Now, I use nine mats in the class, and there are different sizes of mats to meet the various height of students. Therefore, I allow my students to select the appropriate size of mats. This matter regarding mats is a very difficult part when I write lesson plans. My lessons will be used in a lesson study in professional development. Other teachers must be able to understand what and how I set mats in a way in the physical education class.

Mr. Kudo further explained how his ideal lessons change based on his students' performance. He struggles to teach gymnastics to meet lesson objectives for psychomotor, cognitive, and affective domains. He discussed the kinesthetic nature of the activity as a key challenge in instructing gymnastics content. Mr. Kudo said,

> As elementary teachers, we need to have ideal images of successful lessons in mat exercise. However, we often lose those images, because many students' performances were far behind from our expectations. We do not know how to develop lessons that meet our students' needs. I felt that when I develop the mat exercise lessons, I always make adjustment and modifications, but my lessons never meet my expected students' learning outcomes. In the professional development workshops, I received various instructional approach and strategies including psychomotor, cognitive,

> and affective domains. However, I have a hard time to select affective key factors that help students improve their social skills through mat exercises, because I focused on individual movement too much.

Mr. Sakata also explained,

> When I design lessons, I follow the gymnastics section of the course of study in elementary physical education. In the course of study, forward roll and backward roll are in separate skill categories, while previously they were in the same skill category. I have difficulties in teaching these skills with this change because I have not had any training of teaching elementary physical education in a teacher education program. I struggled to redesign mat exercise lessons following this revision in the course of study. I am not sure how to solve the problems.

In Mr. Sakata's previous course of study, forward and backward rolls were in the same skill category of the fundamental rolling skills. It was easier for Mr. Sakata to teach the content, because he found similarities between forward and backward rolls. However, with the revision of the course of study in 2018, the fundamental rolling skills category was eliminated, and those two skills, forward and backward rolls, are now clearly separated as two different rolling skills. This categorization shift of skills constrains Mr. Sakata's instruction. He conducts the direct and immediate observation of student performance to make decisions about what to do next and how to adjust to the revision of course of study (Rink & Hall, 2008).

Mr. Sakata added, "When I taught forward and backward roll separately, students had to do repetitive practices and tend to lose their motivation." While it is still possible for teachers to teach these skills together, for Mr. Sakata the change affected his fundamental concept of teaching for these two skills and made it difficult for him to adjust his lessons. These types of changes have more of an effect on elementary teachers because elementary teachers are not trained for a specific subject area. The course of study has a strong influence on teachers' conceptualization of skills and how to teach them (Sato et al., 2020). The teachers' responses illustrate the complex nature of teaching (Rink & Hall, 2008). Not only are teachers consistently

required to adjust and redesign lessons based on environmental contexts and students' needs, but they also need to achieve lesson objectives that are determined in the course of study (Sato, Miller, & Delk, 2018).

Discussion

The purpose of this study was to describe Japanese elementary classroom teachers' experiences of teaching gymnastics in physical education. To teach gymnastics to elementary students, the teachers integrate peer feedback among students. While elementary students are still in the developmental phase of cognition, teachers must challenge their students to engage in this learning process (Magill, 1994). Doyle (1979) defined teaching as a continuing task of gaining and maintaining the cooperation of students in activities. Bidirectional interaction between teachers and students is a central view in the classroom ecological model. The process of the teachers trying to integrate students into the lessons by giving them active roles requires the cooperation of students, and bidirectional interactions need to be developed (Rink, 2010). The teachers' emphasis on the peer feedback strategy (e.g., peer corrective and positive feedback) illustrates their successful acquisition of students' cooperation in their lessons.

The use of peer feedback can also be seen as a way teachers utilize the student social system within the instructional system (Allen, 1986; Hastie & Siedentop, 2006). Emphasizing peer feedback among students enables teachers to integrate socializing opportunities for students, and this use of the student socializing system might have assisted teachers to execute the managerial and instructional task systems successfully (Hastie & Siedentop, 2006).

The teachers also explained that they have a high expectation for peer feedback. Specifically, teachers emphasized the use of corrective feedback among students. Such an approach for peer feedback is ideal because it is essential for students' skill development but is a more advanced feedback strategy (Rink, 2010). Siedentop (2002) said that effective classrooms are friendly places for students; there is a positive relationship between academic and affective outcomes, with evidence suggesting that academic success drives affective outcomes. Also, as noted, one characteristic of Japanese physical education is democracy, where teachers try to create a student-centered learning environment (Takahashi, 2000). Students' active involvement

reflects this value orientation in Japanese elementary school physical education.

It is also important to note that gaining and maintaining the cooperation of students is not a short-term process; rather, teachers need to establish their managerial systems early in the school year (Jones, 1992). The teachers in this study were able to establish necessary foundations, regardless of their challenges with the aforementioned 7-year rotating system.

Regardless of the nature of a task, and how explicit a task might be, supervision and accountability determine the work students accomplish. Accountability is a critical aspect of the classroom ecological model and drives the instructional system (Hastie & Siedentop, 1999). In this study, the teachers shared that they utilize self-reflection and self-evaluation as tools to hold students accountable for their learning. One teacher shared that he has his students exchange their reflection cards. Another teacher described that he uses information and communication technology to record their exercise, asks other students to provide feedback and comments, and has each student do a self-reflection. While each teacher uses slightly different approaches, their fundamental notion of using self-directed accountability systems is consistent. Tousignant and Siedentop (1983) noted that students behaved differently under different accountability systems, and most of them behaved in such a way that they met the task requirements for which they were formally held responsible by the teacher. For students to work independently of the teachers, student compliance needs to be high (Layne & Hastie, 2013). The self-directed system demonstrates one approach for keeping students responsible and accountable for their own learning.

The teachers also commented on their challenges of executing their ideal lessons for gymnastics. One teacher discussed how determining the organization of where to place the mats was challenging for her, which was further complicated by the fact that Japanese elementary physical education teachers are not specialized to teach physical education. The placement of mats specifically relates to the managerial task system, but the teacher reflected how it affects the instructional system as well. The managerial and instructional task systems are interrelated and understanding the nature of the interrelationships is a fundamental goal of an ecological analysis (Siedentop, 2002).

Other teachers indicated that they modify their instruction based on their students' responses. Jones (1992) described a three-stage task model of teachers reacting to a lesson: (a) teacher presents a task to their class, (b) students then respond to the task demands, and finally, (c) the teacher responds to students, holding or not holding them accountable for the work. From the classroom ecological perspective, it is the nature of the classroom environment that tasks performed by students are often different from the teacher's original plan. During a class, the actual instructional tasks often result from how the teacher responds to students' effort (Siedentop, 1991). Participant data from this study illustrate how all systems—instructional, managerial, and student social task—interact in a way that affects the larger goal of student learning (Jones, 1992).

Overall, the results of this study demonstrate what Doyle (1979) called "reciprocal causality of classroom relationships," in which teachers and students continually react to and interact with one another. Teaching is not a unidirectional relationship wherein teachers alone dictate student learning. Tasks are continually changing as students and teachers, in response to each other, make appropriate adjustments and modifications (Doyle, 1979). Further, consistent comments from the teachers about students' involvement indicate the compelling agenda for physical education teachers to establish and maintain order through a managerial system that focuses on cooperation rather than the compliance of students (Tousignant & Siedentop, 1983).

Conclusion

Historically, gymnastics has played a significant role in Japanese physical education. Thus, unpacking teachers' teaching experiences in this context helps us understand the nature and challenges of elementary physical education in Japan. This study exposed three recurring themes relative to teaching gymnastics in elementary schools: (a) facilitating peer feedback to improve student learning, (b) holding students accountable using self-reflection and self-evaluation, and (c) the struggles of executing ideal lessons. The findings demonstrate the reciprocal and dynamic nature of the teaching–learning environment in Japanese elementary physical education. Teachers intentionally established bidirectional relationships with students and gave students active roles in the learning process (Hastie &

Siedentop, 1999). All three systems—instructional, managerial, and student social task—are interrelated, and when all systems function well, students can acquire the highest learning outcomes. In addition, the last theme shows that teachers face challenges when teaching gymnastics with their limited subject-specific training in physical education. This study further emphasizes the need for professional development for in-service teachers and, ideally, physical education teachers.

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The Physical Educator Vol. 77 • pp. 426–446 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-9855

PEDAGOGY

Motivational Climate in Physical Education Classes: Is It Really Determined by the Instructional Model?

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Abstract

This study compared the effect of the cooperative learning and direct instruction models on the motivational climate in physical education lessons. Participants were 121 seventh-grade students. The Achievement Orientation Scale examined learners' perceptions of the motivational climate in physical education lessons. One teacher taught a class of boys, a class of girls, and a coed class. Participants completed the questionnaire before and after the learning program, in which the teacher used direct instruction and cooperative learning. In all three groups, the students perceived the mastery climate to be higher than the performance climate, irrespective of the gender composition of the class or the instructional model employed. It is not possible to attribute motivational climate to the instructional model.

Motivational climate has been characterized as an influential factor in determining and developing learners' motivation in physical education (PE) lessons. Two approaches to the motivational climate have been identified in the literature: a climate that nurtures skill

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acquisition, hereafter called the *mastery climate*, and a climate that nurtures improved performance and its demonstration, hereafter called the *performance climate* (Ames, 1992). In a mastery climate, personal improvement is presented as the required achievement and emphasis is on effort and cooperative learning as tools for success. In a performance climate, the required achievement is superiority over the opponent, errors are perceived as failure, and objectives should be attained on a minimal-input/maximum-output basis. The main differences between mastery climate and performance climate are reflected in several measures: the definition of success—personal improvement versus superiority over the opponent; the value of the activity—effort, learning, and improvement versus natural ability; the reasons for individual satisfaction—investing maximal effort versus proving superiority; the definition of error—part of the learning process versus failure; the motives for effort—a tool for self-improvement versus a tool for achieving superiority; and the assessment measure—personal progress versus relative rating. These measures represent the differences between two educational approaches. In a mastery climate, the learning environment serves the individual's desire for personal improvement, while in a performance climate, the learning environment serves society's desire to test individuals and then promote and reward the best of them (Ames & Archer, 1988).

Studies have shown that when a class is perceived as having a mastery climate, the learners express greater enjoyment and satisfaction from physical activity in PE lessons (Ntoumanis & Biddle, 1999), exhibit higher perceived competency and a belief that effort leads to success (Cury et al., 1996), show perseverance and a preference for challenging tasks (Morgan & Carpenter, 2002), and even express the intention to remain physically active in the future (Ntoumanis & Biddle, 1999). In contrast, performance climate has been shown to reflect negative effects such as lack of enjoyment and reduced social and group unity (Ommundsen, Roberts, Lemrye, & Miller, 2005). Focusing on effort and personal improvement appeals to most learners, irrespective of their ability, in a dynamic learning environment in which success is achievable by all. A performance climate, in contrast, has a distancing effect. It rewards only those demonstrating the highest level of ability and leads to social comparisons that affect the others (Smith, Smoll, & Cumming, 2007).

To prevent attrition from an activity and to ensure a positive physical education experience, it is important to examine learners' motives for their participation or nonparticipation. Teachers are the agents who most significantly influence class climate. They have the opportunity to shape the experience of participants in physical activity and thus to affect learners' attitudes toward physical activity and their intention to continue to engage in it (C. Johnson, Erwin, Kipp, & Beighle, 2017).

Direct Instruction

The direct instruction model, also known as the traditional approach, is the most common one used in teaching PE lessons (Metzler, 2011). However, the use of the direct instruction approach during PE lessons has been criticized because it does not empower the learners and their creativity during the lessons (Butler & McCahan, 2005) and focuses more on individual skills and technique rather on the game (Roberts & Fairclough, 2011).

Cooperative Learning

The cooperative learning model is a learning–teaching process that entails reciprocal ties among learners in small heterogeneous groups for the achievement of scholastic goals. Underpinning this method is the perception that creating mutual responsibility among group members—which means that learners are responsible for their own learning and for the learning of their group partners—promotes a broad range of educational aims such as cooperation toward attaining objectives, mutual respect as a basis for group success, stable perceived self-worth, and academic achievements (Slavin, 1987; Zach & Cohen, 2012).

Development of the educational paradigm of cooperative learning can be seen in the research literature. First, the ecological approach to teaching (Doyle, 1977) emphasized the bidirectional teacher–pupil effect and thus the possibility of pupils acting as partners in management, organizational, and learning tasks (Doyle, 1986). Another development, the cultural-historical approach to learning (Kuhn, 1972; Vygotsky, 1978), emphasized that learners progress from their present level to their potential level through two main factors: guidance by an experienced professional and cooperation with peers who are more or less at the same level of development.

The social learning approach (Bandura, 1977) focused on the inner dynamics of learner groups and emphasized the mutual and dependent ties between reciprocity and learning; that is, learning is a product of shared social experiences, which enable individuals in the group to learn and to teach. In other words, as learners, students observe others trying a task and listen to their explanations, and then they undergo the same experience through imitation, comparing their performance to that of their peers and receiving feedback from them. As teachers, students enable others to watch them, they explain what they are doing, and then they give feedback to others trying to perform the same task (Rosenshine & Meister, 1994).

For cooperative learning to succeed, several principles should guide the design of the learning environment: (1) Individuals should feel that their active participation is essential for the group's success. (2) The group shares responsibility for the development of the individual. (3) Individuals are responsible for the development of the group. (4) Individuals are obliged to act with respect and patience toward other members; judgmental behavior and impatience among group members have a negative effect on the required development of trust, which takes time and effort (although members should also learn how to voice constructive criticism when necessary). (5) The group is essential for the success of the individual. Where feasible, teachers should guide learners to work together toward academic achievements; that is, they should regularly reflect on the requirements for learners as part of cooperative learning (Darling-Hammond & Bransford, 2005; D. Johnson & Johnson, 1994). A proper design of the cooperative learning model and appropriate implementation are necessary conditions for the group to function properly. Group members should feel confident enough to try new things even though they may err, knowing that their weaknesses will not be ridiculed by their peers. Reciprocal feedback is also necessary for improving personal and group achievements (Frank, 2004).

In a literature review on cooperative learning in PE, Casey and Goodyear (2015) found that cooperative learning achieves four learning outcomes of physical activity: physical, cognitive, social, and affective. In addition, research shows that cooperative learning facilitates motivational climate in PE lessons. Specifically, students in PE classes in which teachers incorporated cooperative learning and a mastery climate demonstrated effort and a high activity

level (Grasten &Watt, 2016) and an increase in self-confidence, self-esteem, and motivation (Fernandez-Rio, Sanz, Fernandez-Cando, & Santos, 2017; Goodyear, Casey & Kirk, 2014).

Even though the direct instruction approach is mainly used for acquiring techniques and fundamental motor skills, recent research has found that the direct instruction model has fewer positive effects on student motivation and academic achievement than does the co-operative learning model (e.g., Cuellar-Moreno, 2016; Gokhan, 2012; Sánchez, Byra, & Wallhead, 2012; Sánchez-Hernández, Martos-García, Soler, & Flintoff, 2018). As well, the use of mixed models in primary PE lessons significantly improves student attention, satisfaction, and behavior, compared with use of only the traditional style (Cuellar-Moreno, 2016).

Gender Inequality and Physical Education

Gender inequality in PE is prevalent and is perpetuated by gender stereotyping (Koca, 2009). Excising gender stereotypes from the learning environment is a challenging goal, since they are so deeply ingrained in our culture as a whole despite the inroads made in recent years. Solmon, Lee, Belcher, Harrison, and Wells (2003) offered a number of conditions that can help to moderate such stereotypes:

1. Discussing equal potential. Individuals need an environment in which they can internalize the notion that effort leads to results—one that challenges and encourages all to try, without being judged (Koca, 2009).
2. Instilling basic skills equally. Certain motor skills are required if learners are to be skilled in physical activity. These are the building blocks of more complex physical activities (Goodway & Savage, 2001). Complex movement skills do not come naturally, and the more complex or difficult they are, the longer the period of instruction that is needed. Discourse that promotes equal potential is credible only if the same basic skills are taught on an equal basis to both genders.
3. Equal opportunities for participation. All pupils, regardless of gender, should have equal access to content and the same allocation of time and resources.
4. Equal learning opportunities. An environment is needed that is physically and emotionally safe. It must ensure no gender discrimination in terms of learning opportunities and that

all learners can participate in the process of advancing from their present level to their potential level (from the real toward the ideal).
5. Gender-equal assignment into groups where all are equals among equals.

The group is where gender equality can be nurtured and gender stereotypes eliminated. Proper selection of the gender makeup of groups can eradicate gender stigmas and balance academic achievements in a manner that allows learners to express their full biological potential (Jinging, Bin, & Lei, 2016). Gender composition in physical education classes can be either gender separated or coed. Another option is the division of classes into separate groups by gender only for PE lessons, where all other studies are coed.

Studies of gender discrimination in PE lessons and of the question of separation of boys and girls in PE lessons, conducted outside the United States (e.g., Wang & Liu, 2007), revealed a number of difficulties in implementing gender equality. One problem was the dominance of boys in the groups of learners. Evidence indicates that in mixed classes boys dominate the physical and linguistic space as well as the teachers' attention, and as a result, girls cannot express themselves and are ignored by the teacher (Olafson, 2002). Girls become marginal or insignificant in the lesson and receive less training time (Garcia, 1994). Similarly, it was found that girls recoil from contact with boys in PE lessons because they feel that their bodies are on display (Fisette, 2011) as a result of the looks and comments by the boys.

Another problem in gender equality is stereotypical biases among teachers. Cabbei (2004), who sought solutions to the problem of inequality between the genders, contended that one reason for gender inequality in PE lessons is sexist behavior, both direct and indirect, by the teachers. He offered evidence that girls often do not receive egalitarian PE. His solutions included recommendations to teachers to change their language and terminology, give more attention to the girls, and provide the girls more learning opportunities and more chances to demonstrate their abilities.

Shilling (2017) recommended that unless active steps to remove or prevent the development of stereotypes are taken, a mixed class may serve as a platform for internalizing perceived gender inequality.

If the learning environment offers equal opportunities, content, and resources to both genders, then single-sex teams may be the correct choice if it is predicated on differences in interests or significant divergences in potential levels between the genders. In such cases, educational discourse should reflect that the aim of separation is to support the development of each individual's full potential—in an environment of equals among equals. Otherwise, the option of single-sex teams may perpetuate gender stereotypes of inequality (Jinging et al., 2016).

Therefore, this study examined the effect of two instructional models—direct and cooperative—on perceptions of motivational climate in PE lessons. In addition, it examined how this perception was affected by the gender composition of the class—only boys, only girls, or mixed-gender classes. Such knowledge may assist decision makers and curriculum planners in understanding what facilitates better conditions for enhanced performance and improved learning in PE.

Method

Participants

One hundred twenty-one participants (65 boys, 56 girls) in three seventh-grade classes in a mixed-gender junior school took part in the study.

Research Tools

We used the Learning and Performance Orientation in Physical Education Classes Questionnaire (Papaioannou, 1994) to assess the motivational climate of PE lessons. The questionnaire comprises 27 statements that refer to the respondents' perception of the atmosphere in the athletic environment and to the motivational factors necessary to be active in that environment. After a procedure of factor analysis, five factors emerged:

1. Learners' perceptions of the motivational climate created by the teacher (6 items, 1–6). These items examine whether learners perceive the teacher's behavior as promoting learning and self-improvement as the most important achievements to be attained.

2. Learners' attitudes toward personal internal motivational factors (7 items, 21–27). These items examine the extent of satisfaction learners derive from activity in the lesson and from the motivational climate in the class.
3. Learners' perceptions of the motivational climate created by other members of the group (5 items, 7–11). These items examine whether learners perceive superior performance (better than other members of the group) as the primary measure of success and reward in the learning environment.
4. Learners' attitude toward the motivational climate in the group (4 items, 17–20). These items examine learners' perceptions of the connection between effort and success in the learning environment.
5. Learners' perceptions of the motivational climate in the group (5 items, 12–16). These items examine learners' perceptions of the emotional price they pay (e.g., fear, worry, anxiety) if not succeeding in performing the task.

Measures of internal consistency for the factors, as assessed in this study, were 0.84, 0.8, 0.65, 0.71, and 0.71, respectively.

Procedure

After receiving authorization from the college ethics committee, we implemented the study. The same teacher taught all four classes. Class I was only boys (n = 46), Class II was only girls (n = 35), and Classes III and IV were mixed (19 boy, 21 girls). The teacher received detailed instructions about the cooperative learning program, its objectives, and its implementation. The teacher also received six lesson plans constituting a teaching unit based on the cooperative learning model. In Classes I, II, and III, six sequential lessons were given based on the direct instruction model, after which questionnaires were distributed to the learners. Another six lessons were given according to the cooperative learning model, with no changes in the composition of the group or teacher. To verify teacher adherence to the instructional models, the second author of the study observed the first three lessons of each model and filled out an observation sheet (see Appendices A and B). The last three lessons were observed and video recorded. After the six lessons, the questionnaires were

again distributed to the students. In Class IV, the same procedure was applied, but in regard to the teaching models and the order, the first six lessons were given in a cooperative learning approach and then six lessons were given in a direct instruction approach—the reverse order.

Data Analysis

The data are presented by means of descriptive statistics (frequency, means, and SD). In addition, comparisons were made between the different groups according to the gender composition of the group, via ANOVA tests.

Findings

Table 1 shows the descriptive statistics of the study variables. First, we hypothesized that there would be significant differences between the boys and girls who studied in single-gender classes and between the two teaching models, in motivational climate. A three-way ANOVA (Teaching Model × Gender × Motivational Climate) revealed a significant difference between the two motivational climates, $F\ (1, 77) = 52.11$, $p < .001$, ES = .404; no gender differences, $F\ (1, 77) = 3.54$, $p > .05$, ES = .044; no differences between the teaching models, $F(1, 77) = 1.07$, $p > .05$, ES = .014; and that none of the interactions were significant. A follow-up analysis via an independent *t* test showed that in each of these research groups, mastery climate was significantly higher than performance climate; see Figure 1.

To find the differences between the boys in the one-gender class and the boys in the mixed-gender class, we conducted a three-way ANOVA (Class × Teaching Model × Motivational Climate). Results showed a significant difference between the kinds of motivational climate, $F(1, 61) = 23.29$, $p < .001$, ES = .276, and no difference between the teaching models, $F(1, 61) = 2.11$, $p > .05$, ES = .033, or between the one-gender and mixed-gender classes, $F(1, 61) = 0.74$, $p > .05$, ES = .001. A significant interaction appeared between motivational climate and teaching model, $F(1, 61) = 5.23$, $p < .05$, ES = .079, which points out that the differences between the kinds of motivational climate are greater in direct instruction than in cooperative learning (in both teaching models the differences between the kinds of motivational climate were significant). The same analysis was conducted for the girls (Class × Teaching Model × Motivational

Table 1
Descriptive Statistics: Means and Standard Deviations of the Study Variables

		Mastery climate				Performance climate			
		Direct instruction		Cooperative learning		Direct instruction		Cooperative learning	
Group	***n***	***M***	***SD***	***M***	***SD***	***M***	***SD***	***M***	***SD***
Boys	46	4.10	1.02	3.54	1.10	2.72	1.11	2.89	1.08
Girls	35	3.60	0.92	3.66	1.11	2.57	0.66	2.23	0.77
Boys in a mixed-gender class	19	4.13	.460	.313	20.7	2.98	0.71	3.06	0.44
Girls in a mixed-gender class	21	3.96	0.60	4.02	0.70	2.22	0.48	2.14	0.72

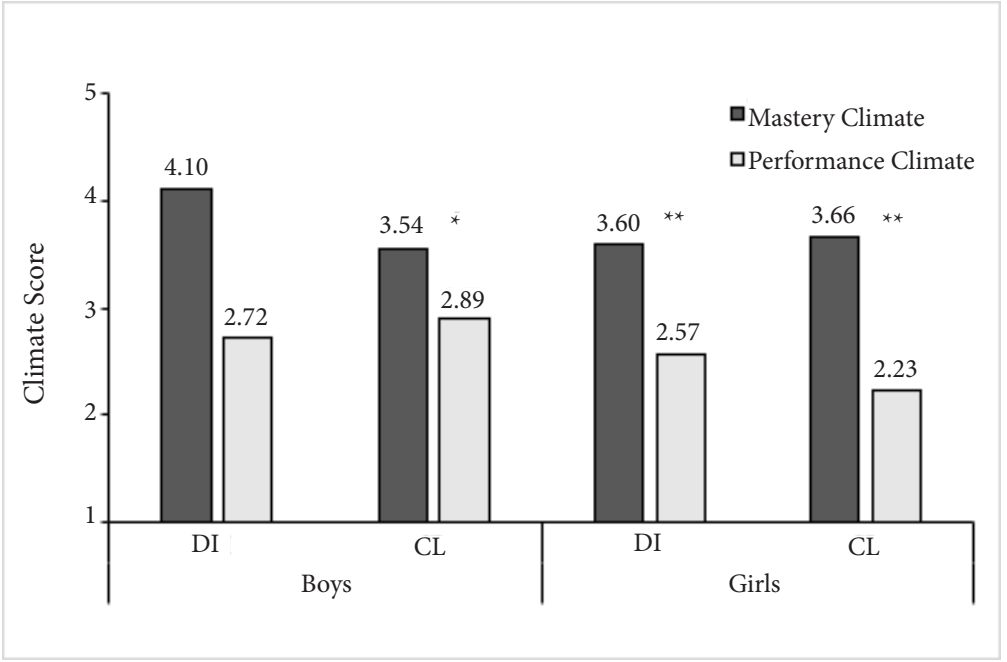

Figure 1. Motivational climate among boys and girls in two teaching models. DI = direct instruction; CL = cooperative learning.
*$p < .05$. **$p < .01$.

Climate). Results showed a significant difference between the kinds of motivational climate, $F(1, 52) = 85.72$, $p < .001$, ES = .622, and no difference between the teaching models, $F(1, 52) = 0.25$, $p > .05$, ES = .005, or between the one-gender and mixed-gender classes, $F(1, 52) = 0.23$, $p > .05$, ES = .004, and there was no significant

interaction. A follow-up analysis showed that in the the one-gender and mixed-gender classes, in both teaching models, the mastery motivational climate had significantly higher scores than the performance motivational climate.

We further hypothesized that the order of the two instructional models would have a similar effect on the perception of motivational climate in both genders. A four-way ANOVA (Motivational Climate × Order of Teaching × Teaching Model × Gender) revealed significant differences between the two kinds of motivational climate, $F(1, 74) = 140.51$, $p < 0.001$, $\eta^2 = 0.66$; a significant interaction between the kind of motivational climate and gender, $F(1, 74) = 18.66$, $p < 0.001$, $\eta^2 = 0.20$, and between teaching model and gender, $F(1, 74) = 6.24$ $p < 0.05$, $\eta^2 = 0.078$; and a four-direction interaction, $F(1, 74) = 6.26$ $p < 0.05$, $\eta^2 = 0.078$. These results show that, generally, for all the situations examined in the study, the mastery climate mean was significantly higher than the performance climate mean ($M = 3.83$, $SD = 0.68$; $M = 2.63$, $SD = 0.69$, respectively), and this difference was higher among girls than boys ($M_1 = 4.00$, $M_2 = 2.32$; $M_1 = 3.68$, $M_2 = 2.92$, respectively). In addition, it was found that among the boys, the general level of motivational climate was higher in direct instruction than in cooperative learning ($M_1 = 3.50$; $M_2 = 3.12$), whereas among the girls, such differences did not appear ($M_1 = 3.11$; $M_2 = 3.21$). Since a significant four-way interaction appeared in addition to a significant interaction between gender and kind of motivational climate, we conducted separate analyses for boys and girls.

Boys: Mastery climate. No significant differences were found between the teaching models, $F(1, 39) = 2.02$, $p > 0.05$, $\eta^2 = 0.049$, or concerning the order of the models that were taught, $F(1, 39) = 1.21$, $p > 0.05$, $\eta^2 = 0.030$, and no interaction was found between the order of the teaching models and the models taught, $F(1, 39) = 3.53$, $p > 0.05$, $\eta^2 = 0.083$. These results point to the fact that the mastery climate was significantly higher among boys who studied in a direct instruction model ($M = 3.93$, $SD = 0.49$) compared with boys who studied in a cooperative learning model ($M = 3.45$, $SD = 0.78$), and the order of learning these models had no influence.

Boys: Performance climate. A two-way ANOVA revealed significant differences between the instructional models, $F(1, 39) = 6.66$,

$p < 0.05$, $\eta^2 = 0.146$; no differences in the order the models were taught, $F(1, 39) = 0.05$, $p > 0.05$, $\eta^2 = 0.001$; and no interaction between the model of teaching and the order the models were taught, $F(1, 39) = 2.33$, $p > 0.05$, $\eta^2 = 0.06$. These results point to the fact that performance climate was not influenced by the model of teaching or the order the models were taught.

Girls: Mastery and performance climate. In a similar analysis conducted for the girls, no differences were found between the DI model and CL model for skill, $F(1, 35) = 0.02$, $p > 0.05$, $\eta^2 = 0.01$, or performance, $F(1, 35) = 1.28$, $p > 0.05$, $\eta^2 = 0.035$. No differences were found regarding the order of the instructional models for skill, $F(1, 35) = 0.00$, $p > 0.05$, $\eta^2 = 0.00$, or performance, $F(1, 35) = 2.0$, $p > 0.05$, $\eta^2 = 0.054$, and there was no significant interaction among them for skill, $F(1, 35) = 1.68$, $p > 0.05$, $\eta^2 = 0.05$, or performance, $F(1,35) = 2.25$, $p > 0.05$, $\eta^2 = 0.060$. These results point to the fact that the scores of the girls' motivational climate remained stable regardless of the instructional model or the order the models were taught.

Discussion

This study sought to examine whether a cooperative learning instructional model influences the motivational climate in PE classes and, in addition, to determine whether this influence relates to the gender composition of the class. No differences were found between the boys and girls who studied in one-gender classes—neither in the motivational climate nor in relation to the teaching model. In both one-gender classes, skill motivation was higher than performance for the boys and girls. These findings are encouraging, since researchers have reported that the mastery climate has a positive influence on enjoyment of PE classes (Ntoumanis & Biddle, 1999), on self-efficacy and the perception that effort leads to success (Cury et al., 1996), and on the intention to stay physically active in the future (Ntoumanis & Biddle, 1999). No differences were found in this study between boys and girls in same-gender classes and those in mixed-gender classes in either teaching model, and the mastery climate was higher than the performance climate in both of these groups. Therefore, we concluded that the instructional model could not be considered as the only determinant of motivational climate in the class. An interesting finding is that the boys in a mixed-gender class perceived

the performance climate as being higher than did the girls, which suggests that boys in classes with girls place a higher emphasis on their achievements than do the girls. Therefore, we recommend that PE teachers adjust their attitude toward girls so that equality among boys and girls will be maintained, especially in mixed-gender classes.

In the second hypothesis, we postulated that there would be differences between boys in a same-gender class and boys in a mixed-gender class. Results demonstrate differences between the two kinds of motivational climate in both instructional models, but this was regardless of whether it was a same-gender or a mixed-gender class. The mastery climate was significantly higher than the performance climate, and both were higher in a direct instructional model than a cooperative learning model. In other words, boys in a direct instruction model perceived the mastery climate to be higher than their motivational climate in a cooperative learning model. Since all classes were taught by the same teacher, we concur with C. Johnson et al.'s (2017) view that most likely it is the teacher who influences the class motivational climate and forms the learners' experience in the class, rather than the instructional model implemented. Similar findings were obtained for the girls—no differences were demonstrated concerning gender or the instructional model, and in all situations, the mastery climate was higher than the performance climate.

Hence, despite the teacher's contribution to the class climate not being examined directly, it can be cautiously inferred that the instructional model is not the sole influence on the class climate, but, as claimed by others, it is the teacher's attitude and personal teaching characteristics that highly affect both instructional models (e.g., Kunter et al., 2013; Siegle, Rubenstein, & Mitchell, 2014).

In the fourth hypothesis, we assumed that there would be no differences between boys and girls in mixed-gender classes. We found that although no differences appeared between the instructional models, a significant difference appeared between the two kinds of motivational climate and between the boys and girls, and a significant interaction was seen between motivational climate and gender. In addition, for direct instruction no differences appeared between the boys and girls in a mixed-gender class; the performance climate of the boys in these classes was higher than the performance climate of the girls. This finding points out that boys attach a higher

importance to their achievements in mixed-gender classes than in same-gender classes. This is especially interesting, since girls attach a similar importance to achievements in the two different classes, and so the performance climate remains low in either of the class compositions that were examined in this study. This result deserves special consideration, since research shows that not many girls take the opportunity to decrease the gap in sport achievement between girls and boys by participating in coed PE classes (e.g., Williams & Bedward, 2004). Moreover, it has been documented that in mixed-gender classes boys tend to take over the verbal and physical spaces, and therefore girls are able to express themselves more freely in single-gender classes (e.g., Hannon & Ratliffe, 2007; McKenzie, Prochaska, Sallis, & LaMaster, 2004). Further, girls may recoil from contact with the boys, since they feel that they are under constant judgment (Flintoff & Scraton, 2001).

Hence, we join Hills and Croston's (2012) line of recommendation that there is a need to examine not only the PE teachers' methods of teaching but also the implications of class gender composition, keeping in mind the teaching program goals.

Two main limitations of this study should be addressed. First, the small number of participants in each group makes the design similar to a case study and therefore generalizations cannot be made regarding any population. Nevertheless, since the design reflects a field experience, the strength of the study lies in its possibility to point out specific tendencies. Second, the contribution of the teacher to the class climate is known. Different results may have emerged if a different teacher with a different personality and beliefs had taught the classes. To reduce this limitation, we used the same teacher for all the lessons.

We recommend that future research investigate a similar design, in which the lessons are taught by a male teacher, a female teacher, and a mixed-gender pair, to determine whether the teacher's gender has an effect on the class climate in same-gender as opposed to mixed-gender classes. In addition, we recommend that future research assess the teacher's attitude concerning motivational climate, as well as the teacher's teaching beliefs, before the intervention takes place, to examine not only the effect of the instructional model on the class climate but also the contribution of the teacher's approach to the class climate.

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Appendix A

Cooperative Learning Observation Sheet on Teacher Behavior

Items	1 Never	2	3	4	5 At all times
All children participate in groups of four and stay with that group for the whole unit.					
The group shares responsibility for the development of the individual—students help each other.					
Each student takes a specific responsibility along the unit (accountability is demonstrated).					
Students regularly reflect verbally on what is required from them.					
Students share new things/ideas.					
Reciprocal feedback is given.					

Appendix B

Direct Instruction Observation Sheet on Teacher Behavior

Items	1 Never	2	3	4	5 At all times
The teacher teaches the whole class together.					
The teacher verifies that all the students are doing exactly as they were told: the teacher demonstrates and tries to keep them working on the task.					
The teacher verifies that every student tries to achieve the task that was given to them.					
The teacher verifies that after the demonstration and explanation, the students are practicing.					
The teacher elaborates or develops the drills as the students make progress.					
The teacher gives feedback.					
The students are playing 4 × 4. The groups are not fixed, and students change groups frequently.					
The teacher is responsible for the student learning.					

The Physical Educator Vol. 77 • pp. 447–453 • 2020
https://doi.org/10.18666/TPE-2020-V77-I2-10078

YOU AND THE LAW

Teenagers Suffer Traumatic Orifice Injuries While Using Personal Watercraft

Nathan T. Martin

Colombo et al. v. Bombadier Recreational Products, Inc. et al., 2014

Abstract

This article will highlight the details of Colombo et al. v. Bombadier Recreational Products, Inc. et al. in the context of how the three defendants could have better managed the safety and risks to their customers and their own liability. These recommendations will illustrate issues around negligence, product liability, employee training, inadequate warnings, waivers and participation agreements, and participant education and instruction.

A San Diego County Superior Court decision was affirmed on appeal in California's 4th Appellate District, upholding the result that two minor females were traumatically injured while riding a personal watercraft (PWC) due to the direct and proximate cause of the negligent behavior of the defendants.

Facts of the Case

On the date of the injuring event, 16-year-old Haley Colombo and 17-year-old Jessica Slagel (hereafter referred to by their last names or as a plaintiff) rode as passengers on a three-person Sea Doo (BRP model GFI 4-TEC) in Mission Bay, near San Diego, California.

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Brett Kohl (Kohl), a roommate of one of the plaintiffs' boyfriend and an employee of Mission Bay Jet Sports (MBJS), piloted the PWC. Robert Adamson (Adamson) owned and operated MBJS (hereinafter referred to by their last names or as a defendant).

During their excursion, the plaintiffs had reboarded the PWC after being thrown off during a high-speed maneuver by Kohl. Frustrated since they previously asked not be thrown from the PWC, at least one of the plaintiffs requested to be taken back to shore. Kohl obliged and applied full throttle to get going, which was his typical acceleration from a standstill position in open water. This full throttle acceleration resulted in plaintiffs sliding off the back of the PWC. Horribly, they both suffered significant orifice injury when the powerful jet thrust from the back of the PWC ripped their flesh.

The plaintiffs had no intention of piloting the PWC and did not have any idea how PWC worked and how fast water exited the jet-thrust nozzle underneath. Neither plaintiff was wearing a protective wetsuit, as instructed by the BRP operator's manual. Neither were they instructed to wear such protective equipment by either Kohl or MBJS, and they did not read in any exculpatory or participation agreements about the severe injury that could occur if they did not wear such protective equipment. Kohl was neither trained by MBJS on how to operate the PWC safely nor required to read the operator's manual, including how to protect himself or customers. However, Kohl had significant time and experience operating PWC. Also, Kohl's position as the pilot completely obstructed the plaintiffs' view of the placard on the front of the PWC warning of such risks. Furthermore, BRP's safety video for the PWC never mentioned the risk of orifice injuries from the jet-thrust nozzle and showed some passengers and pilots riding the PWC in nonprotective swimsuits. Finally, BRP had notice of similar injuries prior to the injuries to the plaintiffs.

Complaint

While the injuries were sustained in federal navigable waters and thus traditionally subject to maritime law, under the *savings to suitors* clause a party may pursue a remedy for a maritime claim in a state court under certain conditions (28 U.S.C.S. § 1333, 2012). Therefore, land-based negligence under common law applies the same as maritime law for potential torts occurring on navigable wa-

ters (*Withhart v. Otto Candies*, 2005). As such, the plaintiffs brought suit in San Diego County Superior Court against BRP, Kohl, and Adamson for a claim of negligence. More specifically, Colombo and Slagel claimed that Kohl (employee of MBJS) failed to operate the PWC in a safe manner, that Adamson (owner of MBJS) failed to adequately train Kohl in the safe operation of PWC as well as to warn customers about the risks, and that the PWC on which they were injured was defective because it did not adequately warn riders of the risks of riding a PWC.

Court Analysis

The superior court first noted that a PWC provider has a nondelegable duty to train, instruct, and supervise employees, as well as ensure that employees communicate about safety practices and equipment to customers and warn of the risks of participation. Furthermore, PWC operators have a duty to follow instructions and warnings provided in the PWC operator's manual. Finally, product manufacturers have a duty to adequately warn users when and how their product could cause injury and to instruct how to reduce or avoid such injury.

The superior court also considered the issue of reckless or callous disregard for plaintiffs' rights and safety, which would allow for punitive damages. Maritime law (*Atlantic Sounding v. Townsend*, 2009) differs dramatically from California law (California Civil Code, 1988) on the issue of punitive damages, as maritime law requires only proof by a preponderance of the evidence (i.e., showing recklessness or gross negligence), while California law requires proof by clear and convincing evidence (i.e., proof that the defendant acted with malice, oppression, or fraud). Under the aforementioned *savings to suitors* clause, parties who choose to have their case adjudicated in a state court rather than a maritime court are entitled to the maritime standard since state law may only supplement and not conflict with federal maritime law (28 U.S.C.S. § 1333, 2012).

Court's Ruling

The defendants were found negligent and each one-third responsible because they breached their duty of reasonable care that was, in part, the direct and proximate cause of the injuries to the plaintiffs. First, Kohl failed to heed the PWC manufacturer's warning to

never rapidly accelerate the PWC with passengers on board. Second, Adamson failed to adequately train and instruct his employee in the safe operation of PWC, including warning of the risk of orifice injury and the need for protective clothing, as well as failed to warn of the risks of participation to customers. Third, BRP failed to adequately warn users when and how their product could cause injury, specifically by not providing multiple warning placards for pilots *and* passengers to view; thus, BRP's PWC was defective because of inadequate warnings. As such, the jury awarded Colombo $3.385 million and Slagel $1.063 million in damages, which included past and future medical expenses and past and future noneconomic losses.

Furthermore, the court also found BRP demonstrated reckless disregard for the rights of others. Because BRP was aware of at least nine cases where orifice injuries had occurred to passengers on their PWC, the concept of foreseeability was established that similar injuries could occur in the future and they should have taken measures to enhance warnings to users. Although BRP was also aware that passengers may not see a warning on the front of the PWC due to it being obstructed by the pilot, BRP decided against placing additional warning labels for passengers elsewhere on the vessel for concern of what they called a *dilution effect*, whereby a user might not pay attention to any one warning if there are too many warnings. However, other manufacturers of PWC (e.g., Yamaha) utilized three labels to warn, suggesting that a single warning was inadequate. These facts, along with the fact that adding warning placards elsewhere on the PWC would have been an inexpensive fix and would have helped ensure the warning of passengers even if a PWC operator failed to do so, further supported the plaintiffs' claim of reckless disregard for the rights of others. The final piece of evidence was BRP's safety video, which failed to mention orifice injury due to the powerful jet thrust and most appallingly showed operators and passengers not wearing protective clothing such as wetsuits. As such, the jury also awarded Colombo and Slagel each $1.5 million as punitive damages against BRP for its reckless disregard for the rights of others.

Discussion

Based on the sound risk management approach of developing and implementing layers of protection, this section offers specific recommendations on how the three defendants could have better

managed their own liability and, most important, the safety of their customers. These recommendations are framed beyond the case's immediate details so that they can be applied across a breadth of practitioners' own managerial and operational practices. Finally, the layers of protection are described broadly as (1) participant safety, (2) establishing assumption of risk, (3) using agreements designed to limit lawsuits, and (4) transfer of risk.

The first and most obvious layer of protection rests at keeping participants safe, since litigation such as this case never arises without injury. Obviously, such safety could have been enhanced herein through the provision of adequate employee training and participant education. This includes an employee orientation for each piece of equipment as well as a review of operational manuals specific to the safety of the user within such orientation. When an employee has such knowledge, it makes it easier for them to communicate it during a participant safety briefing via checklist, which is also recommended. Such training and participant briefing should not only enhance participant safety, but also bolster the second layer of protection by establishing both primary and secondary assumption of risk principles (discussed below). Finally, requiring and making available for free or for a fee personal protective equipment such as a wetsuit to participants is a simple mitigation device that is recommended by PWC manufacturers, much like a Coast Guard–approved personal flotation device.

Supplemental to the assumption of risk principles in the second protection layer, *assumption of risk agreements* and *agreements to participate* help formalize a participant's knowledge, understanding, and appreciation of the risks of participation and how to keep themselves as safe as possible. Once established, these principles can serve as part of a legal defense when a participant decides to initiate litigation if injured. Armed with such information from reviewing and signing such documents, a participant is much more likely to keep themselves safe.

In the third protection layer, a *waiver* (aka *release of liability*) is a tool that is generally supported by public policy, but differs in its effectiveness as a protection mechanism across jurisdictions. Such a tool is based in contract law and allows parties to agree to an exchange of value in which the value of an opportunity to participate is

exchanged in return for the value of a promise not to bring litigation for an injury due to a claim of ordinary negligence. While such a tool does not ever help a participant be safer, it does provide a layer of protection from the threat of litigation or to an organization's financial assets.

The fourth layer of protection is the practice of risk transfer. While insurance is the most common and well understood tool in risk transfer, the use of *indemnification* agreements or clauses is not nearly as ubiquitous. Indemnification is a tool that helps transfer the risk of financial loss to another party. The other party is most often the participant themselves and they take responsibility for any costs incurred by the provider to defend itself in court or for financial settlements or awards to a plaintiff. Similar to releases of liability, indemnification is also based in contract law and, while it never helps a participant be safer, it does provide another layer of protection from the threats of litigation or to an organization's financial assets.

While most readers of this article are not product manufacturers, the behavior of the PWC manufacturer in this case (BRP) can be constructive in the development of layers of protection across broad operational settings. Under the first layer of keeping participants safe, organizations that develop safety videos in lieu of providing in-person participant safety briefings must do so using safety, not marketing, as the premise for creating the video's content. A safety video in this case not only failed to warn viewers of a significant risk of participation but also showed participants not following safety advice that was important enough to include in an operator's manual; this suggests that the content was not designed for safety. Such an oversight might also be found in marketing collateral such as flyers and brochures or in an online environment since they are not intended to provide safety information, and this too sets up participants with an inaccurate portrayal of the risks they might encounter. As such, practitioners should review all marketing collateral for consistency with safety and risk factors.

Furthermore, the use of warnings to enhance participant knowledge, understanding, and appreciation of the activity and risks they may encounter is an important mechanism to keep participants safe and to establish assumption of risk as a legal defense. This case demonstrates that one warning in one place is not nearly enough and that

not heeding warnings from seeing *too many* is not nearly as likely to occur as is injury from not seeing warnings at all.

Finally, and while all too obvious, when a practitioner receives notice of injury due to its management, operations, or equipment, foreseeability is established that the injury could happen again. As such, practitioners should debrief all injuries and investigate the antecedents to that injury to inform constructive changes of training manuals and videos, processes, warnings, checklists, and other related factors.

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