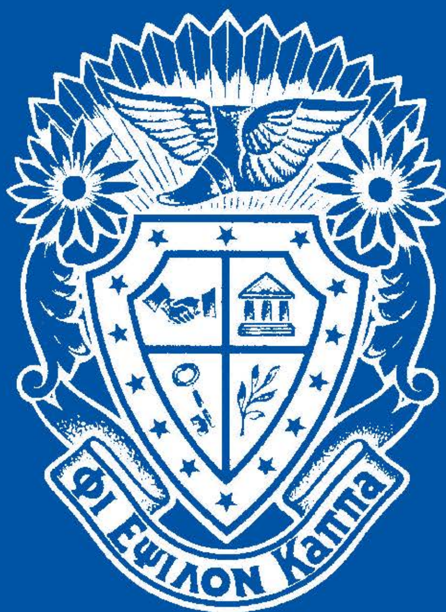
THE PHYSICAL EDUCATOR



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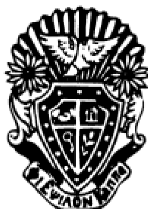

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COACHING

Effect of an Educational Intervention on Youth Swim Coaches' Behaviors

Kara A. Holtzclaw, Lindsey Blom, Alee Wade, Lawrence W. Judge

Abstract

This research project examined the effects of an external educational training intervention delivered to coaches, parents, and athletes on youth swim coaches' behaviors. Coaches' perceptions of their own behavior, athletes' perceptions of coaches' behavior, and the sport environment were explored. Youth swim coaches within one organization were asked to complete an online survey prior to their involvement in a coach training workshop and another at the end of their sport season. Coaches also participated at the end of their season in a 45-min discussion about their overall experience with the training. Youth athletes completed at the end of the season a one-on-one discussion regarding their experience with their coach. Results of this study indicate the coaches' overall awareness of their behaviors increased after they completed the training. Coaches and athletes reported positive behavior consistent with the concepts emphasized in the educational training intervention. These results may further previous research on coach training interventions examining perceptions of the coaches and youth athletes on the effect of a coach training intervention on youth sport.

Positive youth development (PYD) is a theoretical approach to the personal development of adolescents and emphasizes growth in attributes, skills, and overall well-being (Benson, Scales, Hamilton, & Sesma, 2006; Weiss, 2008). Based on developmental systems

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theories, PYD theory supports the idea that youth become successful adults through social interactions and that young people have the potential for positive change in their lives (Lerner, Brentano, Dowling, & Anderson, 2002). One avenue for the achievement of PYD is organized youth sport. By facilitating positive bonds between young people and adults, the sport context provides opportunities for youth to develop important assets, and an opportunity remains for further development during a critical stage of the athlete's life (Trottier & Robitaille, 2004).

When youth can identify positive emotions, such as happiness or enjoyment, they can access emotional resources that enhance social connections (Gano-Overway et al., 2009). Social connections within a PYD sport setting consist of youth and peer relationships, as well as youth athlete and coach relationships. Specifically, PYD environments build assets by facilitating positive bonds between young people and adults. The quality of the relationships between youth and coaches is important for validating self-worth and creating positive relationships between adults and young people, which ultimately contributes to the development of youth (Jones, 2005). Although many organized youth sport programs are not specifically titled as a PYD program, concepts of PYD that enhance the overall well-being of adolescents should be applied.

Relationships

Self-determination theory (SDT; Deci & Ryan, 2002) provides a framework for examining how social relationships interact in predicting positive outcomes through three basic psychological needs, autonomy, competence, and relatedness, which can be evaluated specifically among youth. Autonomy refers to the need for individuals to experience freedom and a commitment to a certain behavior or action (Niemiec & Ryan, 2009). Competence refers to the need for individuals to experience the ability to complete an action successfully. Relatedness is the need for individuals to feel connected and have a sense of belonging, according to Niemiec and Ryan (2009).

According to SDT, individuals engaged in an activity by choice reap more benefits than those whose participation is less autonomous (Deci & Ryan, 1985). Furthermore, SDT (Deci & Ryan, 1985, 2002) consists of three types of motivation leading to specific behavior: amotivation, extrinsic motivation, and intrinsic motivation. Niemiec

and Ryan (2009) found that enhancing autonomy, competence, and relatedness in the classroom led to an increase in intrinsic motivation among students. These findings suggest that enhancing a youth athlete's autonomy, competence, and relatedness can lead to an overall positive experience, which coaches can achieve by fostering intrinsic motivation through strategies that enhance these psychological needs in youth sport (Deci & Ryan, 1985, 2002; Niemiec & Ryan, 2009).

A strong theoretical foundation explains the importance of social influences, adult and youth relationships, and the effect of these relationships on the experiences of youth within a youth physical-activity-enhanced environment (Deci & Ryan, 1985, 2002). Harter (1999) explained the importance of the context in which youth have relationships with adults (e.g., parent–child or athlete–coach relational context). Such importance can be seen when youth participate in athletics and believe athletics is a key component of their life; if they view athletics as a significant part of their identity, they may be more sensitive to feedback provided by a coach within the athlete–coach relational context (Coatsworth & Conroy, 2006). Research by Kenow and Williams (1999) suggests coach–athlete compatibility strongly influences the athlete's self-confidence. The more compatible the athlete perceived the relationship with the coach, the more likely the athlete experienced fewer negative cognitive effects; the more compatibility that existed, the more likely the athlete felt support from the coach. Therefore, coaches must be aware of the environment they create within sport, because it affects youths' perceptions of self and personal and sport development.

Youth Sport Environment

Young people who experience a caring environment are more likely to obtain greater happiness and psychological well-being (Noddings, 2006). Coaches can structure the youth sport environment to promote caring through modeling, emphasizing the importance of caring for one another, and creating teachable moments (Gano-Overway et al., 2009). However, coaches also have the potential to structure a negative youth sport environment. According to McPartlin (2010), coaches who place a strong focus on winning and who practice negative reinforcement strategies may cause decreased motivation and an increased risk of injury in their

athletes. Negative psychosocial outcomes including performance anxiety and low self-perception can also be the result of a controlling, winning-based coaching style (McPartlin, 2010; Weiss, 2008).

When youth perceive a positive and caring environment, they are more likely to feel happy, thus finding it easier to establish a relationship with peers and adults (Fry et al., 2012; Newton et al., 2007). Furthermore, if coaches can create a caring environment, they have the opportunity to influence an athlete's psychological development, including the development of self-perception. In a study that investigated connectedness and self-esteem in a sports-based youth development program for girls, Markowitz (2011) found that the program context created an environment for the youth to develop relationships with peers and adults. Leaders in the program had a significant effect on the girls' self-esteem development by providing encouragement, support, and validation to enhance the girls' self-perceptions. Results of this study indicated that the participants continued to gain skills even after program completion. Ullrich-French, McDonough, and Smith (2012) reported similar findings in that perceptions of social connections in a PYD program were related to psychological outcomes. Specifically, an increased perception of self-worth among youth participants occurred over 4 weeks. Youth also experienced enhanced pro-social skills, and the connection, or relationship, between youth and adults played an important role in this development (Ullrich-French et al., 2012). These studies maintain that leaders can enhance their ability to structure a caring, supportive climate and can enhance their relationship with youth through appropriate leadership training.

Coach Training

Coach training programs provide an opportunity for coaches to enhance their coaching behavior and ultimately create an environment where they can contribute to youth development by providing optimal psychological benefits through their participation (Conroy & Coatsworth, 2006). Smith and Smoll (1979) developed a training program for teaching youth sport coaches how to create a positive experience for youth athletes entitled Coach Effectiveness Training. These programs have been effective in changing coaching behavior

by increasing the amount of reinforcement demonstrated by coaches (Conroy & Coatsworth, 2006; Smith & Smoll, 1990).

Training coaches to improve certain behaviors and decrease others can change the quality of the youth sport experience and, if used consistently, may enhance youth development. Conroy and Coatsworth (2006) stated that coach training workshops, or programs based on similar principles, have been effective in changing coach behaviors and eventually led to youths' increased perception of themselves. For example, Conroy and Coatsworth found that girls with low self-esteem who were on the team with trained coaches demonstrated a greater increase in self-esteem than the girls who were playing on the team with the untrained coaches.

Research has found other positive effects of coach training. Specifically, Macdonald, Côté, and Deakin (2010) found that youth athletes who had a coach who underwent training reported higher rates of social skills than athletes who had a coach who was not trained. Cognitive skills, goal setting, and initiative were three positive aspects resulting from athletes who participated on a team with a trained coach, along with personal and social skills (Macdonald et al., 2010). Consistent with Conroy and Coatsworth (2006), Macdonald et al. found that athletes with trained coaches reported higher levels of positive psychosocial skills.

While research has indicated the effect that coach training programs have led to PYD, there is a lack of research on the effect of a training intervention on a sport organization (Conroy & Coatsworth, 2006; Smith & Smoll, 1979; Weiss, Stuntz, Bhalla, Bolter, & Price, 2013). Langan, Blake, and Lonsdale (2013) reviewed the literature on the effectiveness of coach training interventions and coach education interventions and concluded that more research is needed for the effectiveness of such interventions to be understood. While studies have examined the effects of training programs with systematic evaluation measures, they have focused on the Smith and Smoll (1979) Coach Effectiveness Training model (Conroy & Coatsworth, 2006; Langan et al., 2013; Smoll & Smith, 2006).

Despite the lack of research, the literature has begun to expand upon the effect of coach training interventions. Falcão and Bloom (2012) examined the effect of a coach training program based on

coaches' perceptions. Six youth sport coaches participated in a 2-hr workshop and were subsequently asked about their perceptions of the training and the promotion of youth developmental outcomes in the qualitative study. Results indicated coaches perceived positive outcomes for themselves, their athletes, and their teams. Research applications encouraged by Falcão and Bloom (2012) included assessing youth perceptions and more studies of youth development applications to sport. This study fills the gap in research regarding the effect of coach training on a targeted training program based on coaches' and athletes' perceptions.

This Study

In an examination of perceptions of the youth sport climate and coaching behaviors, the effectiveness of a specific coach training intervention was explored. This study examined the effect of an educational training intervention on youth sport coaches' behaviors. Coaches were taught the concept of being a "Double-Goal Coach," with coaches having two main goals: to win and to use sports to teach positive character traits and life lessons. To accomplish both of these goals, coaches were introduced to different coaching strategies that would contribute to achieving the program goals. Core concepts and behaviors covered in training included praise, appreciation, positive recognition, listening, and nonverbal support. Thus, the training instructor emphasized the importance of these five behaviors for coaching in a youth sport context, concluding that youth will have a more pleasant sport experience when these aspects are present (Thompson, 2003). In addition to coaches attending training, the athletes completed an athlete workshop and parents of athletes completed a parent workshop. These workshops discussed concepts specific to athletes and parents.

This study explored coaches' perceptions of their own behavior, athletes' perceptions of a coach's behavior, and the sport environment. Implementation of strategies learned was also explored. Perceptions of athletes and coaches were examined based on one athletic season following a coach training intervention. It was hypothesized that the coaches would implement strategies that they learned in the coach training into their coaching practice and behavior.

Method

Participants

Coaches and athletes from one swim organization in a Midwest suburb participated in the study. Initially, parents also participated in the study; however, there were not sufficient data for analyses. The organization consists of 10 coaches and approximately 100 youth athletes competing in club swimming. For this study, coaches were recruited based on their involvement in a coach training workshop. Athletes were recruited if their coach was involved in the training workshop.

Coaches. Four coaches participated in the study. Three coaches completed the preseason questionnaire, and two coaches completed the postseason questionnaire and an interview. One coach completed all three means of the data collection process. The three coaches who completed the preseason survey identified as White/Caucasian and ranged in age from 29 to 45 years (M = 37.33, SD = 8.02). All three coaches had 3 years of experience working with the current swim organization, and competitive coaching experience among them ranged from 11 to 30 years (M = 20.33, SD = 9.50). All coaches had completed American Swimming Coaches Association (ASCA) training, and one coach had a master's degree in coaching, while the other two had a coaching license. The coaches had never completed the educational training intervention.

Athletes. Athletes were recruited based on their coach's involvement in the training workshop. Sixteen athletes completed a postseason interview. Demographics were obtained for 15 of those athletes (11 males, 4 females), who ranged from ages 10 to 17 years (M = 13.5, SD = 2.21). Eleven athletes indicated their race as White/Caucasian, while the remaining five indicated their race as Asian, Asian/White/Caucasian, or Other. The athletes' experience in competitive swimming ranged from 2 to 10 years (M = 5.87, SD =2.33), and the athletes had competed under their current coach for half of a year up to 4 years (M = 1.77, SD = 1.28).

Measures

Four measures were used: one quantitative measure and three qualitative measures. Qualitative measures included open-ended

questions and semistructured interviews. Brief semistructured interviews were the primary method for data collection from the coaches and athletes.

Coach behavior change. Self-reported coaching practices were measured with questions developed by the author based on the concepts that were part of the coach training curriculum (see Appendix A). Questions from the Coach's Character Development Self-Evaluation Checklist were also used as a reference for these questions (Davidson, Moran-Miller, & Beedy, 2004). Questions were open ended and included topics of character development and coaching philosophy. An example of a provided question is "As a coach, I try to develop positive character in my players by…"

Athlete perception of coach behavior. Athletes' perceptions of coach behavior were assessed through semistructured interviews with athletes discussing their coach's behavior from the beginning of the season to the end of the season (see Appendix B). Questions explored whether the athlete recognized a difference in her or his coach's behavior throughout the season and ultimately investigated if the coaches were implementing concepts from the training. Questions included "What were some of the most common behaviors you saw your coach do throughout the season?" and "How did your coach handle situations where an athlete made a mistake?"

Training Intervention

The educational training intervention consisted of three workshops delivered by an external agency that has been conducting workshops for over 10 years (Thompson, 2003). The mission of the training is to develop better athletes and better people through coaches and parents in youth sport. The three workshops conducted in this study included a coach workshop, an athlete workshop, and a parent workshop. For this study, the effects of the coach workshop as it related to coach and athlete perception were addressed. The athletes were not questioned over the workshop they completed nor the information obtained from it.

The coach workshop spanned 2 hr and provided information through an oral, in-person presentation on the concepts of positive coaching. The mission statement of the training program is to "develop 'better athletes, better people,' by working to provide all youth and high school athletes a positive, character-building youth

sports experience" (Thompson, 2003, p. 8). Behaviors taught in the training and targeted in this study included praise, appreciation, positive recognition, listening, and nonverbal support by coaches.

Procedure

Following approval from the institutional review board, the external agency that delivered the educational training was asked to participate in the study and to provide information on local trainings planned for the near future. A member of the agency then connected the researcher with a director of a swim organization who had completed the educational training for the first time. The director of the swim organization was contacted and asked to participate; after the director agreed, he became the point of contact throughout the study.

Coach e-mails were obtained from the director of the swim organization. All 10 coaches were sent a recruitment e-mail that asked them to complete the preseason survey. One coach completed the survey within a week; a reminder e-mail was sent 2 weeks after the initial e-mail, and two additional coaches completed the preseason survey thereafter. The questionnaire took about 15 min for the coaches to complete. At the end of the season, coaches were contacted again via e-mail and asked to complete postseason measures including the questionnaire and the interview. A reminder e-mail was sent 2 weeks after the initial e-mail; two coaches completed the postseason questionnaire up to a month following the end of the season. The same two coaches also agreed to participate in an interview that took 10 to 20 min and occurred within a month after the end of the athletic season. Only one coach completed all preseason and postseason measures.

To obtain athlete participation, parents were asked to consent for their child to participate in the study. Parent e-mails were also obtained from the director of the swim organization. Informed consent from parents was collected in person by the research team. Athletes gave assent prior to participating in postseason interviews, which took 2 to 10 min to complete. All consent and assent were collected by the research team prior to the interviews, which were completed in person and via phone based on the athletes' availability. In-person interviews were completed during a practice, and parents

of athletes not in attendance at practice were contacted and asked for a phone interview for convenience purposes.

Design and Analysis

This case study has a qualitative design. The semistructured interviews were transcribed verbatim. Minor edits for purposes of confidentiality and clarity were made. The interview data were analyzed through identification and classification of themes (Côté, Salmela, Baria, & Russell, 1993). Two members of the research team analyzed the interview data independently and collaborated to compare conclusions. Themes were determined based on frequently used concepts; eight themes were identified.

Results

Four coaches participated in the study; three (Coaches 1, 3, and 4) completed the preseason open-ended questionnaire and two (Coaches 1 and 2) completed the postseason open-ended questionnaire and semistructured interview. Only one coach completed premeasures and postmeasures. Sixteen athletes completed postseason semistructured interviews.

Eight themes were identified based on the information obtained from the preseason and postseason questionnaires and interviews, from a combination of the coach and athlete data. The preseason questionnaire aimed to identify coaches' expectations of the training and coaches' current behavior. The postseason questionnaire and semistructured interview sought to identify concepts or strategies from training that coaches utilized. Of the eight themes, six related to coaches' behaviors and two related to coaches' perceptions of training.

The themes for coaches' behaviors based on concepts learned from the educational training included (a) an increase of coach awareness of behavior, (b) coaches' focus on effort, (c) coaches' use of positive reinforcement, (d) coaches' focus on the athletes, (e) athletes' openness with coaches, and (f) working to improve the coach and athlete relationship.

Two themes were based on the coaches' perception of the training: (a) planning for the future and (b) positive experience. The results are presented with interview statements and are cited by

either “Coach” or “Athlete” followed by a number to represent the different individuals.

Increase of Coach Awareness of Behavior

An increase of the coaches’ awareness of their own behavior was found based on the coaches’ experience with the training. Overall, coaches stated that after completing the training, they were more aware of their interactions with their athletes and the behaviors that they exhibited, as well as the effect it had on their interactions with athletes. For example, Coach 1 said,

> I was definitely a lot more aware of my interactions with both one-on-one individuals and also the group. I kind of paid a lot more attention to the language that I was using . . . one of the challenges for me was avoiding sarcasm . . . working with teenagers, I had to kind of really be aware of that and had to catch myself to avoid using sarcasm with them.

Coach 2 shared,

> We noticed that we were lacking in individual attention that we were giving the kids . . . we don’t put enough time in our schedules to have the one-on-one with all of the athletes.

Coaches’ Focus on Effort

With an increase in awareness of their behavior, coaches reported the use of specific strategies that aligned with concepts learned in the training, specifically encouraging effort in the athletes. The athletes also indicated that they felt their coach wanted them to put forth their best effort in practice and in competition. Coach 1 stated,

> One thing we discussed a lot more was effort . . . we would talk about how giving your best effort is one of the main objectives that we would have on a daily basis, just to get the best effort out of the athletes . . . just had a team focus on effort.

This theme was also supported by the athletes’ perceptions of coaches’ priorities or goals for practice. Athlete 5 stated, “Just try your hardest but have fun.” Athlete 8 responded, “He wants us to race

hard and put our best effort forward." When asked what the most common word or sentence their coach said throughout the season, Athlete 10 stated, "Work hard but have fun." Athletes consistently reported that their coach not only wanted them do their best and work hard but also wanted to ensure they were having fun in the process.

Coaches' Focus on Positive Reinforcement

Coaches also reported using positive reinforcement, another strategy that aligned with concepts from the training. Positive reinforcement was directly identified as a theme based on the coaches' quotations, verbatim. Coaches were asked questions based on their coaching philosophy and on character development in the postseason questionnaire. Specifically, coaches were asked to complete the sentence, "As a coach, I try to develop positive character in my players by ______." Coach 1 reported, ". . . allowing mistakes, encouraging effort and reinforcing actions that are positive toward others." Coach 2 reported, "…encouraging positive reinforcement, teamwork, and character development." Positive behavior is emphasized as a part of the educational training. Furthermore, when asked questions regarding coaching strategies learned in the training, Coach 2 said, "We try to do more of that positive reinforcement and, you know, getting the kids to buy into being better teammates."

Coaches' Focus on the Athletes

The coaches reported that they work to improve athletes' well-being. This theme was identified based on coaches' responses related to how they enhance the athlete as an individual. Both preseason and postseason questionnaires, as well as interview results, reflected that the coaches universally had a strong focus on the athletes. Specifically, coaches were asked what they expected to gain from the training workshop, which the majority responded by saying they wanted to be a better coach for the benefit of their athletes. For example, Coach 1 shared that the training workshop would give him ". . . more tools to help me better develop athletes," and Coach 3 responded he wanted to ". . . learn new, improved, ways to motivate my swimmers."

Coaches also answered questions based on their coaching philosophy and on character development. Coaches 1 and 4 indicated

that they think character development involves "teaching life lessons." Coach 3 reported trying to develop positive character in the athletes by "focusing on the process," and Coach 1 reported trying to develop positive character by "leading by example."

Athletes' Openness With Coaches

Athletes' openness with the coaches was identified through the athletes' responses that their coach was a good listener and was willing to accept their feedback. When asked about coaches' listening behavior, Athlete 7 responded, "I think he listens really well, like he'll take our suggestions into practice." Coaches also explicitly stated that they saw an increase in openness from the athletes after they made changes based on attending the educational training. When asked if coaches saw any direct influence in changes of behavior during individual meetings, Coach 2 responded, "I think the kids are more willing to give us their feedback . . . it kind of allows them to give us that feedback a little easier than just keeping it to themselves."

Working to Improve the Coach–Athlete Relationship

The coach–athlete relationship reportedly improved throughout the season. The coach and athlete relationship was identified through the coaches' interactions with the athlete and through the athletes' responses to their coaches' behavior. For instance, Coach 1 responded,

> I felt like . . . some of the athletes did seem more comfortable coming to me, and open with me when they had, I guess, problems or concerns with, maybe the way things were going for them personally, or issues with teammates . . . so I think I saw this past season a little bit high level of openness I guess with my athletes . . . I think there was some definite growth in, kind of, our relationship between the coaches and athletes from [the beginning of the season] through [the end of the season].

Athlete 13 commented,

> I think that from an athlete and coach standpoint it was really good because he got to really meet and . . . meet every individual athlete and it was good because it was easier for

> him to give you advice when you needed to fix something, something that might have been easier for you to personally understand.

Planning for the Future

The first theme identified based on the coaches' perceptions of the training was the coaches' plan to use strategies from the training in the future. This theme was identified based on the coaches' responses to several questions in the interview. They indicated that with more time and preparation, they planned to use more of what they learned in their future training. Coach 1 described strategies he implemented directly from the training and how he plans to continue to implement them in the future:

> One of the things we used was . . . the "Athlete of the Day," where we would pick one athlete without them knowing . . . we would go out of our way to find them doing things correctly . . . that would usually be somebody that needed kind of a positive emotional boost . . . feeding them positive energy and really just catching them doing things correctly. Another strategy that we used was what we called the "Winners Circle," and it was the athlete . . . it wouldn't be the whole team . . . it would just be 20 or 30 kids at a time and they'd all just be in a group and they had to just say positive, one thing positive about one of their teammates and how they have helped them or how they have encouraged them in the past week.

When asked about the strategies implemented from the training, Coach 1 said, ". . . We do plan on doing a goal meeting with them after our break . . . [the Winners Circle] is something we're considering adding on a weekly basis . . . for the future." Coach 2 stated, ". . . as far as making some subtle changes . . . sit down with every kid individually, setting enough goals . . . try to make a little more conscious effort to spend a little more time with those."

Positive Experience

The coaches reported an overall positive perception of the training and also reflected on their desire to continue to implement

strategies in the future. Coach 1 provided his overall perception of the educational training, saying it was a " . . . positive experience, it's something that I would definitely look to do again with the coaching staff."

Discussion

This study examined the effect of an educational training intervention on youth sport coaches' behaviors. Specifically, athletes and coaches from one swim organization participated in the study, sharing their perceptions on the effect of the training on coaches' behaviors. Eight themes were identified, six related to coach behavior and two related to the perceptions of the educational intervention. The themes related to PYD, the coach training intervention, and SDT (Deci & Ryan, 2002).

The themes identified in this study are consistent with concepts of PYD and the training intervention. Specifically, coaches' focus on effort, use of positive reinforcement, and coaches' focus on the overall well-being of the athletes create a positive environment for youth athletes (Benson et al., 2006; Trottier & Robitaille, 2014; Weiss, 2008). Athletes' openness with coaches and an improvement in the coach–athlete relationship contribute to the youths' overall experience (Jones, 2005; Lerner et al., 2002). Coaches in this study were trained on concepts within positive coaching (Conroy & Coatsworth, 2006; Smith & Smoll, 1979), and coaches and athletes in the swim organization reported behaviors consistent with positive coaching.

The theoretical framework in SDT explains the importance of social influences in adult and youth relationships in youth sport (Deci & Ryan, 1985, 2002). The themes related to coaches' behavior included how the coaches interact with the athletes. Athletes unanimously reported that their coaches listened to them. Coaches 1 and 2 reported satisfactory relationships with their athletes and that their athletes were more open with them. The coach–athlete relationship within the youth sport context can have a pivotal effect on the youth sport experience (Deci & Ryan, 2002; Jones, 2005), and according to SDT, social relationships interact in predicting positive outcomes for young athletes (Niemiec & Ryan, 2009).

For the effectiveness of the training on the coaches, coaches reported being more aware of their behaviors and the language they used with their athletes. The educational training was the first

time the coaches had been presented material on positive coaching. Coaches were taught positive coaching strategies, such as how to balance winning and teaching positive character traits and life lessons. In this study, coaches indicated after the intervention that they believe character development involves teaching life lessons, which aligns with concepts of the training. This finding corresponds with those in other studies examining the effectiveness of other coach training interventions, which found that coaches perceived the training to be positive for themselves and their athletes (Conroy & Coatsworth, 2006; Falcão & Bloom, 2012).

Coaches and athletes in this study discussed how effort was encouraged, which aligns with the educational intervention's focus of rewarding effort, developing effort-based goals, and targeting symbolic rewards. Athletes stated that their coaches used "encouraging" words and athletes reported an overall positive experience. These results are consistent with those in Markowitz (2011), who found that providing encouragement and support enhanced participants' self-perceptions and self-esteem in a youth sport program.

The effect the educational intervention had on coaches' behavior is apparent, although arguably minor. Because this is the first time the coaches have undergone the training, they may not have had enough time to implement the strategies (Falcão & Bloom, 2012). Nonetheless, coaches reported being more aware of their behaviors and planned to use concepts and strategies from the training in the future. Athletes discussed behaviors their coaches exhibited that were consistent with positive coaching and with the training workshop. Thus, coaches may need to receive multiple training workshops and be offered reminders about the targeted positive coaching behaviors emphasized by the training workshop.

Limitations and Future Research

This study found that an educational training intervention had an effect on coaches in a youth swim organization. Though it appears that the results of the study reveal an effect on the coaches, it is important that the limitations are noted and ideas provided for future research to expand upon the literature. One limitation is that, based on the data from the preseason questionnaire, at least one coach was already using some of the coaching strategies that were consistent with the concepts taught in the training. Because of this

limitation, measuring the direct effect from the training was difficult. It may be necessary for future research to distinguish coaches' behaviors and beliefs prior to and after the intervention to discover the changes, if any, related to the training intervention.

Results of this study were explored through concepts of SDT and the effect of social relationship on youths' experience in a youth sport environment (Deci & Ryan, 2002). However, this study did not examine the effect of the training on youths' experiences or developmental outcomes. Further research should include a longitudinal study observing youth athletes' developmental outcomes in a coach training environment.

This study also examined the effect of an educational intervention at one swim club in the Midwest suburbs. Further research should include more than one swim organization either in the Midwest or nationwide and an increased number of participants. Having a control group would strengthen the results and implications of the effectiveness of the training.

Implications

Overall, the educational training intervention had an effect on the coaches. Though this was a pilot study, the findings provide coaches and coach educators with information on the effect of implementing coaching techniques. Ultimately, coach training has helped coaches promote youth development (Conroy & Coatsworth, 2006). In addition to training coaches, youth sport organizations can learn the importance of employing educated coaches so that youth athletes have the opportunity to have a positive sport experience.

Conclusion

The educational training intervention had an effect on the coaches who underwent the program. Coaches reported implementing strategies they learned and planning to more frequently implement concepts and strategies of the training in future seasons. Overall, coaches were more aware of their behaviors and interactions with their athletes. Athletes expressed that their coach created a positive youth sport environment and encouraged them to put forth their best effort. Further research should continue to expand upon youth developmental outcomes and coach training literature.

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Appendix A: Coach Questionnaire

1. What do/did you expect to gain from completing this coach training workshop?

Please complete the following statements

2. My coaching philosophy is…

3. As a coach, I think character development involves…

4. As a coach, I try to develop positive character in my players by…

Please indicate how frequently the following occur on a Likert-type scale (1 = *never* to 5 = *always*) and explain your response.

5. At the beginning of the season, coaches, players, and their parents explicitly discuss the core values that will define our team.
6. As a team, we regularly discuss our team's values, what they mean, how we live by them, and why they are important.
7. As a coach, I focus on effort over results.
8. Athletes are challenged throughout the season to develop performance character (e.g., work ethic, perseverance, self-discipline).
9. Athletes are challenged throughout the season to develop moral character (e.g., respect, responsibility, honesty, caring).
10. As a coach, I reward unsuccessful effort.
11. I meet with athletes individually to help them construct a vision of who they want to be as athletes.
12. I meet with athletes individually to help them construct a vision of who they want to be as people outside of their sport.
13. I use communication to help athletes deal with nervousness or fear of failure.
14. I use communication to teach athletes how to deal with mistakes.

Appendix B: Athlete Interview Questions

1. How was your coach similar or different in his/her behaviors towards the end of the season compared to the beginning?
2. What were some of the most common behaviors you saw your coach do?
3. What was the most common word or sentence you heard your coach say throughout the season?
4. How well does your coach listen to you?
5. How did your coach handle situations where an athlete made a mistake?
6. What are the main priorities or goals of your coach for practices? For competitions?
7. How did you feel overall with your coach this season?

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COACHING

An Exploratory Study of Youth Soccer Players' Participation Motivation and Health-Related Behaviors

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Abstract

Using the Adapted Questionnaire of Soccer Athlete's Motivation and Health Related Behaviors-Chinese Version (AQSAMHRB), this study examined essential factors that motivate youth athletes to participate in soccer practices and competitions. Participants included 98 male soccer athletes (aged 14–15) from 10 middle schools of Jiangsu province, China. Data analysis included descriptive statistics and a 2 (Supporting: By Parents or By School) × 2 (Goal-Setting: For Professional or For Non-Professional) MANOVA. The top three scores from the 18 motivation factors (MFs) in the AQSAMHRB included MF1, high technical content and unique value, M = 4.73; MF4, to meet friends, M = 4.42; and MF2, for fun, M = 4.34. The 2 × 2 MANOVA revealed no significant difference in Supporting, $p > .32$, $\Lambda = .79$, $F = 1.16$, but a significant difference in Goal-Setting, $p < .00$, $\Lambda = .03$, $F = 143.61$. The follow-up MANOVA discovered that 12 of the 18 MF comparisons in Goal-Setting showed significant difference at $p < .05$, with For Professional scoring higher than For Non-Professional (e.g., MF6, to contest winners; MF7, to shape the body; MF9, to become

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a professional; and MF17, to become a coach). In brief, intrinsic and extrinsic MFs significantly affected these soccer athletes' motivations. It did not matter who supported their participation, but it was their Goal-Setting on becoming a Professional or Non-Professional athlete that mattered. On the other hand, for the 27 health-related behaviors in the AQSAMHRB, frequency and percentage data were analyzed and summarized. Findings from this aspect provide firsthand information about the youth soccer athletes' eating habits, nutrition knowledge and status, risk behaviors, and hygiene behaviors. A meaningful discussion from an educational perspective has also been provided.

Soccer is the most popular sport on the earth, especially in Europe and the Americas. There is "early evidence of soccer being played as a sport . . . in China during the 2nd and 3rd centuries BC. In China, it was during the Han dynasty that people dribbled leather balls by kicking it into a net" ("History of Soccer," n.d., para. 1). Long story short, China is turning its attention to the world's most popular sport. If the Chinese can follow through on an ambitious plan pushed by Chinese President Xi Jinping, China could someday become a superpower in the sport of soccer (Baxtert & Kaiman, 2016).

According to Buckley (2017),

> the 48 soccer fields of the vast Evergrande Soccer School in south China seem barely enough for its 2,800 students. Against a backdrop of school spires that seem modeled on Hogwarts, the young athletes swarm onto the fields nearly every day, kicking, dribbling and passing in the hope of soccer glory and riches. (p. 4)

Moreover, Buckley described that with 48 soccer fields, Evergrande Soccer School has become the biggest soccer boarding school on the earth. President Xi Jinping has set his wishes on transforming China into a great soccer power. Remarkably, the principal of Evergrande Soccer School indicated that as more soccer schools are established in China, more youth athletes will be playing soccer and they will grow up into superstars.

The current features about China's soccer status include the following: (1) President Xi declared, "My biggest hope for Chinese soccer is that its teams become among the world's best" (Buckley, 2017, p. 5). (2) The former top division Chinese Football Association

(CFA) Jia-A League was transformed into Chinese Super League (CSL) in 2004. The CSL now runs under the authorization of the CFA. (3) The CSL Company—a commercial branch of the league—is a corporation in which the CFA and all the member clubs act as shareholders. Further, the CFA will finally transfer its share to clubs and a professional union that consists of CSL clubs, and then it will be established as the league's management entity ("Chinese Super League," n.d.). (4) From an economic stand point, Chinese soccer is the largest sport market and business on the earth, and this market can provide the best platform for a new generation of players to achieve their superstar soccer dream.

Generally speaking, according to the literature in youth sports, the goals and reasons for engaging in youth sports practices and competitions include enjoyment, physical health, having fun, fostering self-esteem, friendship, passion or love of the game, and peer acceptance, whereas the first three reasons are similar for those who participate in the dominant recreational activities of Western societies (Cox, 2011; Devine & Lepisto, 2005; Smith, Balagurer, & Duda, 2006; Zeng, Cynarski, Baatz, & Shawn, 2015). Moreover, Miguel and Machar (2007) indicated that motivation supports a successful sport performance, representing one of the most important psychological skills in the game. Based on those findings, we ask whether youth soccer athletes participate in their practices and competitions for those factors or reasons. However, the problem is that previous research studies of youth soccer athletes' participation motivations and health-related behaviors were extremely limited.

From the introduction and youth sports research background, it is clear that some of the reasons for participation are known in general, but little is known about what factors or reasons motivate youth soccer players who have continually engaged in practices and competitions. This study, therefore, explored what factors or reasons motivate youth soccer athletes who play soccer in two types of schools (the youth sport school and the traditional school with soccer as a sport) and have engaged in soccer practices and competitions for years in Jiangsu province, China.

The following hypotheses guided this study: (1) no significant differences would be found on the MFs between the athletes who receive financial Support by School or Support by Parents, and (2) no

significant differences would be found on the MFs between the athletes who set their goal to be a Professional or Non-Professional athlete.

Findings from this research reveal and add a new set of data and firsthand information on the youth athletes literature, especially concerning youth soccer athletes' motivations and related behaviors in their soccer practices and competitions.

The comprehensive theoretical framework of self-determination theory (SDT; Ryan & Deci, 2000) was employed as the theoretical frame of this study. SDT comprises two major branches: the theory of intrinsic motivation and the theory of extrinsic motivation. Ryan and Deci (2000) indicated that humans are motivated by the basic psychological needs of competence, relatedness, and autonomy. Competence in the SDT model is called effectance motivation; relatedness refers to people's need to belong and to feel accepted by others; and autonomy refers to people's need to feel self-determined—it is the source of their own action.

In terms of organismic needs energizing intrinsic and extrinsic motivations, the concept of need is too general and too vague to illustrate the engagement in particular behaviors and to guide empirical research, according to Harter (1981) and Pintrich and Schunk (2002).

Researchers, therefore, developed a few models to describe how different motivations triggered by needs manifest in intrinsic and extrinsic motivation in specific aspects or activities. These models also explain how factors or reasons in a setting may form and affect the type of motivation that people manifest in different aspects or activities (Kaplan, 2010).

Stipek (1996) indicated that the research literature is consistent with regard to the benefits of intrinsic motivation to learning and development; that is, engagement based on intrinsic motivation does not need external incentives or rewards, and enhances the motivations necessary for athletes to engage in the same activity again and again in the future. Researchers also indicated that engagements based on intrinsic motivations are connected with enhanced comprehension, creativity, cognitive flexibility, and accomplishment (Kaplan, 2010).

Furthermore, Breese (1998) illustrated that athletes' initial motivation should be defined as intrinsic motivation (participating in sport for enjoyment) or extrinsic motivation (participating in sport to gain rewards). Breese further illustrated that athletes' initial motivation usually predicts their attendance and adherence to a sport. Such as in the present study, a youth soccer athlete who is intrinsically motivated would play or practice skills every other day for fun, whereas a youth soccer athlete who is extrinsically motivated would practice soccer skills to become a better player at the competition so that he could win a medal at competitions. It is interesting that intrinsic and extrinsic motivation have different effects on athletes, including whether they continue on with the sport.

Likewise, Ryan, Frederick, Lepes, Rubio, and Sheldon (1997) explained that individuals who are mainly motivated by competence (engaging in practices to improve skills) and enjoyment (desire to have fun and enjoyment) could be primarily defined as being motivated intrinsically. In contrast, extrinsically motivated individuals are motivated by those behaviors aimed at obtaining rewards, recognitions, and so forth. Breese (1998) further explained that when beginning participation in a sport, athletes are motivated not only by intrinsic factors but also by extrinsic factors. Some sports, however, rely more on *intrinsic motivation* than *extrinsic motivation* (as described by Ryan et al., 1997). The reasons include that different types of sports need different types of motivation (Breese, 1998). In the present study, we tried to find factors or reasons that motivate youth athletes who have engaged in soccer for numbers of years.

Additionally, in regard to how educators (coach or teacher) apply SDT to enhance their coaching or teaching, Kaplan (2010) described in his review of the literature, "While some important variation exists, there seems to be a wide-spread consensus among researchers and educators that enhancing intrinsic motivation among athletes or students is beneficial" (Implications for Educators section, para. 1). Kaplan continued, kids' intrinsic motivation is enhanced when practices promote their sense of personal autonomy, when team or schoolwork are challenging and relevant to them, when social relationships are supportive, and when environments are physically and psychologically safe. Practices that promote these environmental characteristics include providing athletes/students with choices

among activities and between ways of completing tasks, encouraging athletes/students to explore and pursue their ambition, building on their backgrounds and prior experiences in constructing tasks, encouraging them to collaborate, incorporating fantasy in activities, providing feedback that is informative and frequent, and reducing external rewards.

In many cases, however, athletes and students are required to engage in tasks that they are not motivated to do or do not understand why they have to do. In such situations, the extrinsic motivations should be implemented to those tasks. However, coaches and teachers should pursue the internalization of athletes' and students' extrinsic motivation for these tasks. They can promote such internalization by employing as many of the descriptions specified as possible. Furthermore, coaches and teachers should make the value of the activity and tasks explicit and clear. They can do this most effectively through modeling and by providing a clear and age-appropriate rationale for the youth (Kaplan, 2010).

Method

Sampling

Participants in this study were selected from the Jiangsu province top 10 middle schools in the youth soccer category (five from youth sport school and five from the traditional school with soccer as a sport) according to the resources from the division of Jiangsu province youth sports administration (Jiangsu Sports Administration, 2017).

Moreover, as said on Jiangsu.net (n.d.), Jiangsu province has the following unique features: (a) Jiangsu is one of the most developed areas in economy, technology, and culture in China; its industries' total output is one of the largest in the nation. (b) Jiangsu is a center of education and science, having the highest density of academic institutions and universities, colleges, and research institutes in China. (c) Athletes of Jiangsu province have won more gold medals during the past 10 years than did athletes from any other province in China; remarkably, the city of Nanjing, the capital of provinces, held the 2014 Summer Youth Olympic Games not long ago. This is why we intentionally selected Jiangsu province as the sample of our study.

Instrumentation

The Adapted Questionnaire of Soccer Athlete's Motivation and Health Related Behaviors-Chinese Version (AQSAMHRB; Zeng & Xie, 2015) was employed for data collection. The reasons for using the AQSAMHRB included (a) availability of an existing questionnaire with similar purposes; (b) for a new questionnaire to be developed, times and funding would be needed; (c) availability of specialists in soccer motivation and health-related behaviors to revise the wordings for use with youth soccer athletes; and (d) availability of research assistants or youth soccer coaches for distributing and collecting the questionnaire.

Reliability and Validity of the Instrument

According to Child (1990), the exploratory factor analysis is the best solution for exploring the possible underlying factor of the structure for a set of measured variables without imposing a preconceived structure on the outcome; therefore, the exploratory factor analysis was executed for the AQSAMHRB (Zeng & Xie, 2015). The analysis extracted six factors with perfect correspondence to the 18 items, with eigenvalues for the reasons or factors ranging from 2.69 to 8.62 and structure coefficients from .78 to .92, and the majority of the fitted residuals reached the pre-setup significant difference ($p < .05$) level.

Additionally, the validation process was done through a pilot study, for review of the content or items. These processes (a) confirmed the readability and writing skills of the participants (14 to 15 years old); (b) confirmed whether young participants can understand and respond to the questions in the questionnaire correctly; (c) may have resulted in rewording on some questions or statements, for improved understanding among youth athletes; (d) may have resulted in cutting or adding questions or statements in the questionnaire; and (e) confirmed whether the questions or statements asked all possible motivation reasons or factors for the athletes' participation in soccer practices and competitions.

As a result, the AQSAMHRB contained three parts. Part I included seven questions and asked general information about participants. Part II asked, "What reasons/factors motivate you to take part in soccer practices and competitions continually" with 18

MFs provided. In each MF, the participant responded on a 5-point Likert-type scale (5 = *strongly agree*, 4 = *agree*, 3 = *somewhat agree*, 2 = *little agree*, and 1 = *disagree*). Part III asked 27 health-related questions or behaviors under four subcategories: Eating Habits, Nutrition Knowledge and Status, Risk Behavior, and Hygiene Behaviors. These 27 health-related questions or behaviors in Part III are qualitative data; hence, frequency and percentage were used with these data.

In summary, Part II of the questionnaire contains nine intrinsic motivation factors (MFs; Items 1, 2, 6, 7, 9, 13, 14, 15, and 18) and nine extrinsic motivation factors (Items 3, 4, 5, 8, 10, 11, 12, 16, and 17). In other words, it included the three basic psychological needs (competence, relatedness, and autonomy) described by Ryan and Deci (2000). Part III contains 27 health-related behaviors of the youth athletes, which is qualitative data. Tables 1 and 2 show all questions and items in the AQSAMHRB.

Data Collection

The questionnaires were distributed to the participants during a planned practice day of their team by the researchers under the supervision of their coach and administrators. The participants were given their right to participate or not participate and were also educated on the confidentiality of the survey. Then an explanation was given about responding to the questions and the questionnaire items; then an envelope for preventing the participant's coach or instructor from viewing the answers on the questionnaires was provided. Then the participants signed the Informed Consent Form and submitted it to the researchers. The researchers also informed coaches that after the study, the overall outcomes would be provided to their school. As a result, among the 150 questionnaires delivered, 98 were correctly completed and returned to the researchers, for a return rate of 65.33%.

Research Design and Data Analyses

The research design and data analyses for this study included first looking at the effects of two independent variables, Supporting (By School vs. By Parents) × Goal-Setting (For Professional vs. For Non-Professional), on 18 dependent variables, at the same time. Therefore, a 2 × 2 MANOVA was implemented, and a follow-up MANOVA was implemented after significant differences were

found. The descriptive statistics reflect the general status of how the participants were motivated to participate in soccer practices and competition; the 2 × 2 MANOVA examined whether there were significant differences among the two independent variables and the 18 dependent variables; the follow-up MANOVA test reflected the differences among the dependent variables. IBM SPSS Version 22 was used for data analyses.

Second, concerning participants' health-related behaviors, Part III of the questionnaire, which included the subareas of (1) Eating Habits, (2) Nutrition Knowledge and Status, (3) Risk Behaviors, and (4) Hygiene Behaviors, included 27 questions/behaviors. Because of the structures and characters of these questions, frequency and percentage methods were utilized for data analyses. The findings from this part reflected the participants' current health-related behaviors.

Results

Participants' General Information

This section presents the findings from this study; Tables 1 to 5 summarize the results. It reveals what reasons or factors motivated these youth soccer athletes to engage in the sport, and it gives their health-related behaviors status. Of the 150 questionnaires distributed, 98 were completed correctly returned, and this represents a good return rate of 65.33%. Data in Table 1 reflect general information about the participants. For example, the participants self-reported that they have been officially engaged in soccer practice and competitions for 3 to 5 years. Their height ranged from 158 to182 cm, and their weight ranged from 43 to 69 kg. They studied in Grades 7 to 9 and ranged in age from 14 to 15, and 52 attended sport school and 46 attended the traditional soccer school. It is worth noting that athletes from the sport school represent the highest skill and competitive capability at the non-professional level in the Chinese competitive sport system; athletes in sport school practice at least 5.5 days/week, including a morning exercise and an afternoon practice. While the athletes from the traditional soccer school represent the level of skill and competitive capability slightly below those athletes in the sport school, they might have the talents to become soccer stars but for their academic purchase (e.g., aim to attend a top university or college). Athletes in the traditional soccer school have 3 to 4 after-school practices/week.

Table 1
General Information About Youth Soccer Athletes (N = 98, age = 14–15, boys only)

Question	Answer	Frequency	%
1. What is your gender?	Male	98	100
2. What are your height and weight?	Height Range: 158–182 cm Weight Range: 43–69 kg		
3. What is your age rank?	14–15 (± 1.21)		
4. How long have you engaged in official soccer training?	3–5 years	98	100
5. What type is your soccer school?	Sport School Traditional Soccer School	52 46	53.06 46.94
6. What is your current school level?	Middle School (Grades 7–9)	98	100
7. Where do you live when you have soccer training/practicing?	School Home	58 40	59.18 40.82

Table 2 presents mean scores and standard deviations for the MFs. Table 3 shows the results of the 2 × 2 MANOVA for comparing the MFs of youth soccer athletes.

Table 2
Factors or Reasons That Motivate Youth Soccer Athletes: Mean Scores and Standard Deviations (N = 98, age = 14–15, boys only)

Motivation factors or reasons (MF)	*M* ± *SD*	Sum	Place
MF1. Because soccer has high technical content and unique value.	4.734 ± .488	463.932	1
MF2. For the fun and get rid of boredom.	4.346 ± .813	425.908	3
MF3. For getting healthier.	4.193 ± 1.011	410.914	9
MF4. To meet friends.	4.418 ± .895	432.964	2
MF5. To make new friends.	4.306 ± .817	421.988	4
MF6. To contest winners.	4.193 ± .833	411.012	8

Table 2 (cont.)

Motivation factors or reasons (MF)	*M* ± *SD*	Sum	Place
MF7. To shape the body.	4.112 ± 1.044	402.976	11
MF8. To improve health status.	4.071 ± .944	398.958	14
MF9. For near future, become a professional soccer player.	3.581 ± 1.746	350.938	17
MF10. To establish self-esteem.	4.255 ± 1.018	416.990	7
MF11. To improve my own biography.	4.295 ± .954	421.008	5
MF12. To establish prestige among my friends.	4.275 ± .822	418.950	6
MF13. To get recognition from my teacher/coach.	4.081 ± 1.090	399.938	13
MF14. To reduce pressure from academic learning.	4.092 ± 1.036	400.916	12
MF15. To reduce troubles from schoolwork.	4.000 ± 1.157	329.000	16
MF16. To develop one unique skill.	4.061 ± 1.119	397.978	15
MF17. Want to become a soccer coach in the future.	4.132 ± 1.001	404.936	10
MF18. To satisfy the will of family.	3.306 ± 1.213	323.988	18

Note. MF1, MF2, MF6, MF7, MF9, MF13, MF14, MF15, and MF18 are intrinsic factors. MF3, MF4, MF5, MF8, MF10, MF11, MF12, MF16, and MF17 are extrinsic factors. MF1, MF4, MF2, MF5, MF11, and MF12 scored on the top; MF10, MF6, MF3, MF17, MF7, and MF14 scored in the middle; and the MF13, MF8, M16, MF15, MF9, and MF18 scored on the bottom.

Table 3

2 (Supporting: By School vs. By Parents) × 2 (Goal-Settings: For Professional vs. For Non-Professional) Factorial MANOVA for Youth Soccer Athletes' Motivation Factors (N = 98, age = 14-15, boys only)

Source	Wilks' lambda	*F*	Hypo *df*	Error *df*	*p*
Support By	.787	1.157	18.000	77.000	.318
Goals-Setting	.029	143.612	18.000	77.000	.000
Support × Goals	.859	.700	18.000	77.000	.801

Note. Design: Intercept + Gender + School Levels + Athletes Types. Exact statistics shown.

The 2 (Supporting: By School vs. By Parents)] × 2 (Goal-Setting: For Professional vs. For Non-Professional) MANOVA in Table 3 showed no significant difference in the Supporting aspect, $p > .05$, $\Lambda = .787$, $F = 1.157$; however, a significant difference effect was found for Goal-Setting, $p < .000$, $\Lambda = .029$, $F = 143.612$.

According to the research design, after a significant difference effect was found, a follow-up MANOVA test was conducted. This post hoc test determined where and what factors or reasons motivated these participants to engage in soccer practice and competitions. Table 4 details these findings.

Table 4
Descriptive Statistics of Youth Soccer Athletes' Motivation Factors After Significant Differences Were Found in Goal-Setting (For Professional vs. For Non-Professional)

	Goals-setting			
	For professional ($n_1 = 58$)		**For non-professional ($n_2 = 40$)**	
Motivations factors (MF)	***M***	***SD***	***M***	***SD***
MF1. Because soccer has high technical content and unique value.	4.741	(.441)	4.725	(.554)
MF2. For the fun and get rid of boredom.	4.362	(.852)	.325	(.764)
MF3. For getting healthier.	4.275	(1.056)	4.075	(.944)
MF4. To meet friends.	4.689	(.706)*	4.025	(.999)
MF5. To make new friends.	4.586	(.701)*	3.900	(.810)
MF6. To contest winners.	4.431	(.678)*	3.850	(.921)
MF7. To shape the body.	4.293	(1.008)	3.850	(1.051)
MF8. To improve health status.	4.241	(.942)	3.825	(.902)
MF9. For near future, become a professional soccer player.	4.367	(.698)**	1.525	(.505)
MF10. To establish self-esteem.	4.396	(.972)	4.050	(.872)
MF11. To improve my own biography.	4.517	(.800)*	3.975	(.073)

Table 4 (cont.)

Motivations factors (MF)	Goals-setting			
	For professional (n_1 = 58)		For non-professional (n_2 = 40)	
	M	***SD***	***M***	***SD***
MF12. To establish prestige among my friends.	4.551	(.705)*	3.875	(.822)
MF13. To get recognition from my teacher/coach.	4.413	(.991)**	3.600	(1.057)
MF14. To reduce pressure from academic learning.	4.413	(.937)**	3.625	(1.004)
MF15. To reduce troubles from schoolwork.	4.310	(1.202)**	3.550	(.932)
MF16. To develop one unique skill.	4.448	(1.011)**	3.550	(1.037)
MF17. Want to become a soccer coach in the future.	4.697	(.502)**	3.325	(.997)
MF18. To satisfy the will of family.	3.500	(1.314)*	3.025	(.999)

Note. This follow-up test determined what MFs and which Goal-Setting had significant differences. The results show that 12 out of 18 comparisons had significant differences, wherein six comparisons were significant at $p < .05$ and six comparisons were significant at $p < .01$.

*$p < .05$. **$p < .01$.

Data in Table 4 were from the follow-up test. It determined what MFs had differences and reflected the factors that motivated the youth soccer athletes to initially take part in and continually engage in soccer practices and competitions. As Table 4 shows, the top six factors were MF1, technical content and unique value ($M = 4.741 \pm .441$); MF17, become a soccer coach ($M = 4.697 \pm .502$); MF4, to meet friends ($M = 4.689 \pm .706$); MF5, make new friends ($M = 4.586 \pm .701$); MF12, to establish prestige ($M = 4.551 \pm .705$); and MF11, for my biography ($M = 4.517 \pm .800$). These six factors had the highest impact power on these youth soccer players' motivation.

The bottom six factors were MF9, to be a professional ($M = 1.525 \pm .505$); MF18, to satisfy family's will ($M = 3.025 \pm .999$);

MF15, to reduce troubles from schoolwork (3.500 ± .932); MF16, to develop one unique skill (M = 3.500 ± 1.037); MF13, to get recognition (M = 3.600 ±1.057); and MF14, to reduce pressure (M = 3.625 ± 1.004); these six factors had less or lower impact power on these youth soccer players' motivation.

The mean scores of the other six factors were at the medium level, from M = 4.025 ± .944 to M = 4.413 ± .937. These factors have medium impact power on these youth soccer players' motivations.

The findings from Part III of the AQSAMHRB, including four subareas of Eating Habits, Nutrition Knowledge and Status, Risk Behaviors, and Hygiene Behaviors, involved 27 health-related behaviors, as presented in Table 5.

Table 5
Health-Related Behaviors in Part III of the Questionnaire (N = 98, age = 14–15)

Question	Answers	Frequency	%
	Subcategory 1. Eating Habits		
1. Do you eat regularly?	a) My eating is very regular	47	47.96
	b) My eating is regular	15	15.31
	c) My eating is unregular	36	36.73
	d) My eating is very unregular	0	0
2. How many meals do you eat a day?	a) Less than 3 times per day	0	0
	b) 3 times per day	82	83.67
	c) 4–5 times per day	16	16.33
	d) Others (please be specific____)	0	0
3. Do you add salt to your dishes?	a) Yes, always	8	8.16
	b) Sometimes, yes	17	17.35
	c) Sometimes, no	0	0
	d) No, I don't	73	74.49

Table 5 (cont.)

Question	Answers	Frequency	%
4. Do you try to cut down on the amount of sugars you eat?	a) Yes	0	0
	b) Sometimes, yes	18	18.37
	c) Sometimes, no	25	25.51
	d) No, I don't	55	56.12
5. How many glasses of milk or dairy products (yogurt, juice) do you drink per day?	a) 1–2 cups	8	8.16
	b) 3–4 cups	73	74.49
	c) More cups	5	5.10
	d) I don't drink milk	6	6.12
6. Do you dine before and after strenuous exercise?	a) Yes	0	0
	b) Sometimes I do	8	8.16
	c) I occasionally do	5	5.10
	d) I never do do	85	86.73
Subcategory 2. Nutrition Knowledge and Status			
7. How is your knowledge status about nutrition?	a) Very good	26	26.53
	b) Good	34	34.69
	c) Ordinary	31	31.63
	d) Not so good	1	1.02
8. How often do you eat fruit?	a) Once per day	19	19.39
	b) Twice per day	29	29.59
	c) More than three times per day	50	51.10
	d) Once every other day	0	0
9. How often do you eat vegetables?	a) Once per day	0	0
	b) Twice per day	78	79.59
	c) More than 3 times per day	20	20.41
	d) Once every other day	0	0

Table 5 (cont.)

Question	Answers	Frequency	%
10. How often do you eat fish?	a) Once per day	35	35.71
	b) Twice per day	0	0
	c) More than 3 times per day	0	0
	d) Once every other day	63	64.29
11. Do you eat wholemeal bread?	Yes:		
	a) Once per day	54	55.10
	b) Twice per day	19	19.39
	c) More than 3 times per day	0	0
	d) Once every other day	25	25.51
12. How many times do you eat dinner with meat in a week?	a) 1–2 times	0	0
	b) 3–4 times	9	9.18
	c) More than 4 times	8	8.16
	d) Every day in a week	79	80.61
	e) No, I don't eat meat, I am a vegetarian	2	2.04
13. What is your favorite meat?	a) Chicken	43	43.88
	b) Pork	37	37.76
	c) Veal / Calf	9	9.18
	d) Mutton / Lamb	8	8.16
14. Do you eat fried foods?	a) Occasionally eat	49	50.00
	b) Sometimes eat	40	40.81
	c) Yes, I eat fried foods	5	5.10
	d) No, I do not eat fried foods	4	4.08
	Subcategory 3. Risk Behavior		
15. How often do you drink alcohol?	a) Never	65	66.33
	b) Seldom	5	5.10
	c) Once in a while	9	9.18
	d) Whenever have a reason	19	19.39

Table 5 (cont.)

Question	Answers	Frequency	%
16. Do you smoke cigarettes?	a) Never	82	83.67
	b) Seldom	5	5.10
	c) Once in a while	7	7.14
	d) Whenever have a reason	4	4.08
17. Do you use any psychoactive substances?	a) Never	98	100
	b) Seldom	0	0
	c) Once in a while	0	0
	d) Whenever have a reason	0	0
18. Did you use anabolic steroid?	a) Never	98	100
	b) Seldom	0	0
	c) Once in a while	0	0
	d) Whenever have a reason	0	0
19. Do you know the health consequences of applying prohibited anabolic steroid or different kinds of doping substances?	a) Yes, I know them well	35	35.71
	b) Yes, I know some of them	25	25.51
	c) No, I am not sure	38	38.78
	d) No, I don't know them at all	0	0
Subcategory 4. Hygiene Behaviors			
20. Do you use sun cream when you play soccer?	a) Never	75	76.53
	b) Seldom	7	7.14
	c) Once in a while	7	7.14
	d) Whenever have a reason	9	9.18
21. Do you take a shower after practicing or competition?	a) Yes, of course I do	92	93.88
	b) No, reason: want to go home ASAP	6	6.12

Table 5 (cont.)

Question	Answers	Frequency	%
22. How often do you wash your hands daily?	a) One time	0	0
	b) Two to three times	41	41.84
	c) Before every meal	52	53.06
	d) Other, reason: whenever it is needed	5	5.10
23. How often do you brush your teeth daily?	a) Once per day	0	0
	b) Twice per day	43	43.88
	c) Three times per day	55	56.12
	d) Never	0	0
24. Do you use extra mouth hygiene?	Yes! — circle the things you used:		
	a) Dentist's threads	23	23.47
	b) Liquids for rinsing	8	8.16
	c) Toothpick	59	60.20
	d) No, I never use extra hygiene mouth	0	0
25. After an intensive practice, how was the quality of your sleep?	a) Very good	67	68.37
	b) Good	14	14.28
	c) Normal	9	9.18
	d) Not so good	6	6.12
	e) Poor	2	2.04
26. After an intensive competition/game, how is the quality of your sleep?	a) Very good	46	46.94
	b) Good	25	25.51
	c) Normal	14	14.29
	d) Not so good	6	6.12
	e) Poor	7	7.14
27. When sweating, do you drink water or beverages immediately?	a) Yes, I drink water immediately	55	56.12
	b) I don't drink any of them immediately	8	8.16
	c) I drink beverages immediately	30	38.77
	d) I drink water but not immediately	5	5.10

Data in Table 5 reflect the unique features and status of these youth soccer athletes' health-related behaviors. We believe that these four subareas of health-related behaviors are important to the youth athletes and have a positive relationship with their success rate. That is, the better their health-related behaviors, the higher success rate for them to become an elite soccer player. Moreover, from an educational perspective, coaches or teachers in their soccer team or soccer school do need to educate their athletes or students to gradually develop these positive health-related behaviors.

The significant findings regarding participants' health-related behaviors status include the following:

- For Eating Habits, (1) 63% reported eating regulary to very regulary; (2) 84% claimed to eat 3 meals/day; (3) 74% reported they do not add salt to their dishes; (4) 82% said they do not reduce the amount of sugars they eat; (5) 94% reported they drink 1 to 5 cups/day of milk, yogurt, or juice; and (6) 87% claimed they never dine before and after strenuous exercise.
- For Nutrition Knowledge and Status, (7) 61% reported having good to very good nutrition knowledge; (8) 81% said they eat fruit 2 to 3 times/day; (9) 100% said they eat vegetables every day; (10) 36% reported eating fish once a day, and 64% said they eat fish once every other day; (11) 100% said they eat wholemeal bread; (12) 81% reported they eat dinner with meat every day; (13) as to their favorite meat, 44% favored chicken and 38% favored pork; and (14) 91% reported they eat fried foods.
- For Risk Behavior, (15) 66% claimed they never drink alcohol, (16) 84% claimed they never smoke cigarettes, (17) 100% said they never use psychoactive substances, (18) 100% said they never use anabolic steroid, and (19) 61% reported they know the health consequences of using the prohibited anabolic steroid.
- For Hygiene Behaviors, (20) 77% claimed they never use sun cream when playing soccer, (21) 94% said they take a shower after practicing or competition, (22) 100% claimed they wash their hands often, (23) 100% claimed they brush their teeth at least twice a day, (24) 60% said they use toothpicks as extra

mouth hygiene, (25) 82% claimed they have a good sleep after an intensive practice, (26) 72% reported they have a good sleep after an intensive competition or game, and (27) 56% said that when sweating they drink water immediately.

Discussion

This study explored the participation motivations of youth soccer athletes (aged 14–15) from two types of soccer schools in Jiangsu, China. It also examined the differences of the MFs or reasons among the participants' for Supporting and Goal-Setting aspects. Finally, it investigated the health-related behaviors of this sample of participants.

Table 2 shows the scores for each MF, and the scores can be divided into three groups based on the Place column. First, the high impact factors with higher scores include MF1, MF4, MF2, MF5, MF11, and MF12; these MFs had the highest impact power on these youth soccer athletes' motivation. Among these six, MF1 and MF2 are intrinsic factors, while MF4, MF5, MF11, and MF12 are extrinsic factors.

Second, the MFs group with medium-high scores includes MF10, MF6, MF3, MF7, MF17, and MF14; these MFs had medium impact power on these youth soccer athletes' motivation. Remarkably, this group has three intrinsic MFs and three distributed MFs.

Third, the lower impact MFs with lower scores include MF13, MF8, MF16, MF9, MF15, and MF18; these MFs had significantly lower impact power on these participants' motivation. Unbelievably, four MFs were intrinsic factors (MF13, MF9, MF15, and MF18), while only two MFs were extrinsic factors (MF8 and MF16; see Table 2).

In summary, (1) with regard to this sample's participants' motivation features, intrinsic and extrinsic factors had similar impact power on their motivations, (2) the nine intrinsic factors in the AQSAMHRB (Zeng & Xie, 2015) were the core MFs for the participants, (3) some factors or reasons had higher impact power than other factors, and (4) some factors or reasons held less impact power than other factors. Based on the findings from this study, youth soccer coaches, trainers, or administrators should diagnosis and analyze their athletes' specific situation and carefully implement the findings

accordingly. Figure 1 summarizes the motivation features of this sample.

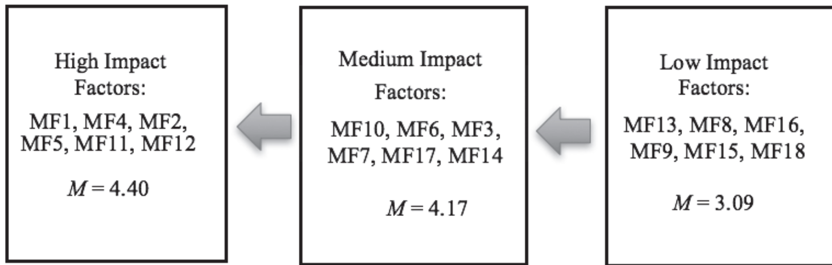

Figure 1. Three groups of youth soccer athletes' motivation factors. Intrinsic factors include MF1, MF2, MF6, MF7, MF9, MF13, MF14, MF15, and MF18. Extrinsic factors include MF3, MF4, MF5, MF8, MF10, MF11, MF12, MF16, and MF17. These 18 factors reflect the competence, relatedness, and autonomy needs in self-determination Theory interpreted by Ryan and Deci (2000).

Furthermore, the follow-up MANOVA revealed significant differences in 12 of 18 comparisons in Goal-Setting (For Professional vs. For Non-Professional) , whereas six MFs reach significant difference at $p < .01$, with For Professional scoring significantly greater than For Non-Professional; these six MFs include MF9, to become a professional player; MF13, to get recognition; MF14, to reduce pressure; MF15, to reduce troubles from schoolwork; MF16, to develop a unique skill; and MF17, to become a soccer coach. Six MFs reached significant differences at $p < .05$: MF4, to meet friends; MF5, make new friends; MF6, to contest winners; MF11, for my biography; MF9, to become a professional player. Therefore, when facing these 12 MFs, they responded warmly, even with passion, because they were motivated to keep participating and playing with their friends and teammates, and they love their training environment, for example, the cohesive atmosphere in the soccer school.

These youth soccer athletes need all of these motivations to accomplish their soccer dream. This is why these MFs had significant impact power on their participation motivation. For MF12, to establish prestige, and MF18, for family will, again, For Professional scored significantly greater than For Non-Professional (see Table 4). What would be the reasons behind those significant differences? We

believe there should be some special facts behind this finding. When a youth soccer athlete sets up in his mind to be a professional player who will want to meet his friends and make new friends or teammates, he will try his best to be on the top of his team during his practices and competitions because he wants to become a winner; this will build up his biography and establish his positive prestige. Moreover, if he achieves his goal—becoming a professional soccer player—this will satisfy his family's will. This is why these MFs scored significantly higher than MFs preferred by those who set up in their mind to be non-professional players.

On the other hand, youth soccer athletes who set up in their mind to be a non-professional (note that most of these athletes were from the traditional school) did not respond as warmly as those who wished to be professional players to MFs such as meet friends, contest winners, get recognition, establish prestige, and become a professional player. They showed less excitement because they were practicing, receiving training, and attending competition in a different environment. More important, these type of athletes have higher academic ambition. They may plan to play on a college or university team, but motivations such as make new friends, contest winners, become a professional, establish prestige in soccer, and become a soccer coach might not be on their list of most important things to accomplish. Additionally, like athletes playing at National Collegiate Athletic Association[1] institutions, these youth soccer athletes who love to player soccer can still pursue their soccer dream by playing on a division team at their future college or university; therefore, the results of this survey were reasonable and logical.

Not so surprising, comparisons of the MFs between the two Goal-Setting aspects produced the following interesting and unique facts: (1) Athletes in the sport school were significantly more appreciate of MF4, meet friends; MF5, make new friends; MF6, to contest winner, and (2) they scored significant higher in MF9, to become a professional player; MF12, to establish prestige, and MF17, to become a coach, than those in the traditional soccer school. As

[1]The National Collegiate Athletic Association is a nonprofit association that regulates athletes of 1,281 institutions, conferences, organizations, and individuals. It also organizes the athletic programs of many colleges and universities in the United States and Canada and helps more than 450,000 college student athletes who compete annually in college sports ("National Collegiate Athletic Association," n.d.).

introduced before, athletes in sport schools represent the highest skill and competitive capability at the non-professional level in the Chinese competitive sport system; they practice 5.5 days/week and attend 2 to 3 major youth competitions every semester (Spring and Autumn), plus every 4 years a National Middle School Games. Those promising teenagers eagerly hope they will be sent to sport schools to receive specialized training so that they can make their sport-star dream come true; therefore, the expectations on their winning from all aspects are high. Maybe that was their top external motivation resource. Instead, although the youth athletes at the traditional sport school have less time for practicing and competing, plus reality tells them there is less opportunity to become a soccer star, they are still in the category of promising youth soccer player and could play at the college or university level. Over the years, many youth athletes who graduate from the traditional soccer school have played and competed in the National Collegiate Soccer Games. Where do these motivations come from? Probably these reasons can be attributed to intrinsic motivation.

As we stated at the beginning, research studies of youth soccer athletes' motivations for participating are extremely limited. This is why we defined this investigation as an exploratory study. Fortunately, after searching the whole database for youth soccer players' motivations, we found the study *Motivation, Need Support, and Need Satisfaction in Youth Soccer Players* (Lippitt, 2012). In this study, the researcher examined the motivations of 109 youth soccer players (13 years old). This study found no significant differences in motivational processes (e.g., support, need satisfaction, and motivation) between the two ethnic groups. Scores from the three questionnaires gave an overview of the motivation for the 109 youth soccer players from Georgia, USA (Lippitt, 2012). On the Sport Motivation Scale, the participants scored higher in learning new skills and learning new knowledge. Additionally, factors such as external rewards or punishments had higher impact in these youth soccer players. The researcher concluded that at this age level, soccer players' motivations appear to match up with what they were getting in support and satisfaction (Lippitt, 2012).

Besides some similarities between the current study and previous studies, there are many differences. For example, using another

study's findings for the sport of tennis (due to a lack of research resources in youth soccer athletes' participation motivations, we had to rely on the research resources from youth tennis). In their review of literature motivation in tennis, Miguel and Machar (2007) summarized that (1) enjoyment, having fun, and passion on the sport were ranked the top three important MFs for the success of youth tennis players; (2) improving performance, keeping fit, and socializing were rated as their basic reasons for keeping involved in the sport; (3) feeling important and popular, and earning rewards were ranked as lower influence motivations; and (4) school/club/team atmosphere and having a good relationship with the coach were also ranked as less or lower important factors on players' motivation.

Although this study and the Miguel and Machar (2007) study were conducted with different sports, findings from the studies show similarities and differences. Specifically, the top important and basic factors or reasons for the youth athletes to keep engaging in sports practices and competitions were similar.

As for differences, the factors of feeling important and popular, earning rewards, team atmosphere, and good relationship with coach from the Miguel and Machar (2007) study compared with the MFs from this study of technical content and unique value, unique skills, for fun, for biography, for establishing prestige, to become a professional, for establishing self-esteem, and to contest winners show many differences between the two studies.

Because no study has covered health-related behaviors in the youth soccer domain, this study did an exploratory investigation in this regard; because it is the first try, its design, data collection, and analysis are all fall far from perfection. However, it could be a good start to attract the attention of researchers in the study domain of youth sports.

Based on the results presented in Table 5 and summarized in this article, from the assessment point of view we are not going to comment on how good or bad the youth soccer athletes' health-related behaviors were, but the results in Table 5 and the summary reflect the status of health-related behaviors of this sample of youth soccer athletes. General speaking, for this type of data a qualitative description should be made or provided. With the assumption of employing a 5-point scale of *excellent* (5), *very good* (4), *good* (3), *not so good* (2),

and *poor* (1), then we can conclude that their health-related behaviors in all four subcategories were just right in the position between *very good* and *good* on the scale. What does this means? It means (1) when engaging in soccer practices and competitions for their teams or schools, these youth athletes obtain corrective and positive education in eating habits, nutrition knowledge, risk behaviors, and hygiene behaviors from their coaches, instructors, and administrators. (2) There is room for improvement regarding these youth soccer athletes' health-related behaviors. (3) It also indirectly reflects that these youth soccer teams and schools have strict regulations or legislation to manage their athletes' daily life. From the health education perspective, we believe this is a positive and beautiful thing that deserves to be applied to youth sports. With this consideration, this point is consistent with the point of a literature review article by Geidne, Quennerstedt, and Eriksson (2013); the researchers indicated that with regard to building healthy public policy, youth sports teams and schools should recognize and match up with the changes in regulations or legislation at a central level and then carry out these regulations or legislation to different types of teams or schools. These changes in legislation, organization, or policies have one thing in common: Put health on the agenda (Geidne et al., 2013).

Conclusion

With regard to the two hypotheses that guided this study, the findings revealed that the first hypothesis is true, which is, no significant differences exist for the MFs of the Supporting aspects (By School vs. By Parents) of the athlete. The second hypothesis is not true, which is, in the Goal-Setting aspect significant differences exist on the MFs between For Professional vs. For Non-Professional of the athlete.

In conclusion, the findings of this investigation showed that Supporting is not the determination aspect, but the Goal-Setting aspect is. The youth soccer athletes who set up as their goal to be a professional player had higher motivation than youth soccer athletes who set up their goal to be non-professional players. Moreover, with regard to the motivations of the participants, the intrinsic factors had higher impact power than the extrinsic factors. Specifically, MF1, technical content and unique value; MF4, to meet friends; MF2, for fun; MF5, to make new friends; MF11, for my biography;

and MF12, to establish prestige, had extraordinary impact power on these youth soccer athletes' motivations, which means some MFs have higher impact power, while some MFs have lower impact power. Youth soccer educators need diagnose and analyze their athletes' situations and utilize these research findings correspondingly. On the health-related behaviors aspect, we can qualitatively conclude that the grand mean score of the participants' health-related behaviors in all four subcategories was located between the position of *very good* (4) and *good* (3) on a 5-point assessment scale.

Limitations

We realize this study had several limitations. First, the size of sample was relatively small. Second, the data collection scope only covered one province. Third, youth soccer coaches might somehow affect their athletes' participation motivations, but that was not the objective of this study. Last, the participants in this study were purposefully selected. Future studies can improve on these limitations by including coaches from the participants' teams (e.g., creating open-ended questions for coaches to answer), extending data collection to multiple provinces or districts, and selecting participants using other sampling methods.

Recommendations

This study explored the participation motivations and health-related behaviors of youth soccer athletes from Jiangsu province, China. The MFs of technical content and unique value, unique skills, for fun, for biography, to establish prestige, to be a professional, to establish self-esteem, and to contest winners were the top eight factors or reasons these youth soccer athletes engaged in their practices and competitions.

From another perspective, team atmosphere and having a good relationship with coaches also influenced youth athletes' participation motivations. Moreover, although the values of youth athletes' participation motivations have been recognized by judicious youth sports researchers (e.g., Lippitt, 2012; Miguel & Machar, 2007; Smith et al., 2006), future studies are certainly needed, especially in the area of how intrinsic and extrinsic motivation work differently on different types of youth soccer athletes (e.g., players from a sport school soccer team or players from other types of schools' soccer team).

Additionally, those health-related behaviors explored in this study deserve the attention of researchers who have a research interest in youth sports, because only athletes who have developed positive health-related behaviors during their youth years have a chance to become future soccer stars.

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PEDAGOGY

Relationships Between Dispositional Flow, Motivational Climate, and Self-Talk in Physical Education Classes

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Abstract

This cross-sectional study explored the relationships between dispositional flow, motivational climate, and self-talk in physical education. Six hundred forty-eight participants completed the Dispositional Flow Scale for Physical Education, the Learning and Performance Orientation in Physical Education Classes Questionnaire, and the Automatic Self-Talk Questionnaire for Physical Education. The results revealed that dispositional flow subscales were negatively related to students' negative self-talk dimensions and positively related to students' positive self-talk dimensions. Moreover, significant relationships emerged between perceived motivational climate subscales and students' self-talk dimensions. Hierarchical regression analyses showed that the dispositional flow subscale of unambiguous feedback and the subscale of motivational climate of students' learning orientation significantly predicted students' positive self-talk dimensions (positively) and negative self-talk dimensions (negatively). In contrast, the motivational climate subscales of students' worry about mistakes significantly and positively predicted students' negative self-talk dimensions. Finally, significant differences were found in study variables as a function of gender, leisure-time sport participation, sport type, and grade level.

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Overall, these correlational findings stress the importance of dispositional flow and perceived motivational climate in physical education as potential factors that shape students' self-talk.

Sport literature uses the term *self-talk* to describe what athletes say to themselves silently or out loud. In the past 15 years, self-talk has attracted a great deal of interest, with considerable practical relevance for athletes, coaches, and sport psychologists who are interested in maintaining or changing thought patterns to enhance performance within the sport domain (Zourbanos, 2013). More particularly, self-talk has been found to improve task performance in sport and physical education (PE; Zourbanos, Hatzigeorgiadis, Bardas, & Theodorakis, 2013a). Nowadays, the amount of research evidence regarding the facilitative effects of self-talk on performance in sport (Hatzigeorgiadis, Theodorakis, & Zourbanos, 2010; Hatzigeorgiadis, Zourbanos, Mpoumpaki, & Theodorakis, 2009) and PE (Kolovelonis, Goudas, & Dermitzaki, 2011; Zourbanos, Hatzigeorgiadis, Bardas, & Theodorakis, 2013b) is growing. Also, according to Zourbanos (2013), in PE the aim of self-talk is not only enhancing performance but also getting students to love physical activity and to gain more self-confidence and higher self-esteem. According to Hardy, Oliver, and Tod's (2009) model, personal and situational factors influence athletes' self-talk, which in turn affects cognitive, motivational, behavioral, and affective mechanisms, and subsequently their sport performance. With regard to the context of PE, recently Zourbanos, Papaioannou, Argyropoulou, and Hatzigeorgiadis (2014) examined the moderating effects of perceived competence on the relationship between students' motivation (i.e., achievement goals) and self-talk.

One personal antecedent that influences individual's self-talk is achievement goal orientations. According to achievement goal theory (Nicholls, 1989), individuals in achievement settings interpret their success with respect to two goal orientations, learning or task orientation and performance or ego orientation. Ames (1992) argued that individual goal orientations may be influenced by the motivational climate created by significant others. The motivational climate can be characterized as either task-involving (i.e., emphasizing learning processes, improvement, and effort) or ego-involving (i.e., emphasizing competition, winning, and social comparison; Ames, 1992; Duda, 2001; Duda & Hall, 2000; Nicholls, 1989). Research in

PE and sport has shown that a task-involving motivational climate is associated with more adaptive cognitive, affective, and behavioral responses, while an ego climate is linked with less adaptive outcomes (Braithwaite, Spray, & Warburton, 2011; Ntoumanis & Biddle, 1999; Papaioannou, Zourbanos, Krommidas, & Ampatzoglou, 2012). Studies about achievement goal and self-talk in PE (Zourbanos et al., 2014) has shown that for students with low perceived competence, ego orientation was positively related to students' negative self-talk, whereas no relationship existed between ego orientations and negative self-talk for students with high perceived competence. In contrast, task orientation was positively related to students' positive self-talk irrespective of perceptions of competence. Overall, the results of Zourbanos et al.'s (2014) study stressed the importance of achievement goals and perceived competence as personal factors that can influence students' positive and negative thinking. The motivational climate is a situational factor (Daşdan Ada, Aşçı, Kazak Çetinkalp, & Altıparmak, 2012b; Weigand, Carr, Petherick, & Taylor, 2001) that can be considered as another potential antecedent of students' self-talk. Research (Zourbanos et al., 2015) in a youth sport setting has shown that athletes' perceptions of coach-created empowering climate (i.e., task-involving, autonomy-supportive, and socially supportive) were positively related to athletes' positive self-talk and negatively related to athletes' negative self-talk. In contrast, athletes' perceptions of coach-created disempowering climate (i.e., ego-involving and controlling coach behaviors) were positively related to athletes' negative self-talk and negatively (although not statistically significantly) related to athletes' positive self-talk. However, to the best of our knowledge, no study has yet examined the relationship between motivational climates and self-talk in the PE context. Also, research in sport (Kowal & Fortier, 2000) and PE (Daşdan Ada, Aşçı, Kazak Çetinkalp, & Altıparmak, 2013; Papaioannou & Kouli, 1999) has shown significant relationships between motivational climate and optimal experience.

Optimal experience or flow typically occurs when a person perceives a balance between the challenges associated with a situation and his or her capabilities to accomplish or meet these demands (Csikszentmihalyi, 1990). Csikszentmihalyi (1990) described nine characteristics or dimensions of flow, and their existence has been

supported in the sport and exercise environment through qualitative and quantitative research (e.g., Jackson, 1996; Jackson & Marsh, 1996). These dimensions include challenge–skill balance, merging of action and awareness, clear goals, unambiguous feedback, concentration on the task at hand, sense of control, loss of self-consciousness, time transformation, and autotelic experience (i.e., intrinsically rewarding, fun; Aşçı, Çağlar, Eklund, Altıntaş, & Jackson, 2007). Csikszentmihalyi suggested that experiencing flow depends on environmental (e.g., contextual and social) and personal (e.g., the individual's temperament, ability to concentrate on the task at hand, fear of ridicule, and selfishness) factors. With regard to environmental factors, Csikszentmihalyi considered that flow is enhanced in *autotelic contexts* (i.e., enjoyable environments characterized by clear goals and feedback, empathy for the subject's feelings and experiences, freedom of choice, the existence of challenge, and self-confidence). In the context of PE, Papaioannou and Kouli (1999) found that students' task orientation and perceptions of a task-involving motivational climate predicted higher levels of concentration, a more autotelic experience for those involved, and an absence of self-consciousness. However, research in PE settings (Bakirtzoglou & Ioannou, 2011; Moreno, Cervelló, & González-Cutre, 2008) revealed that task-involving and ego-involving motivational climates were significantly and positively related to students' dispositional flow. Last, González-Cutre, Sicilia, Moreno, and Fernández-Balboa (2009), extending previous research, and in line with the aforementioned findings (Bakirtzoglou & Ioannou, 2011), found that perceptions of a task-involving climate in PE positively predicted students' dispositional flow through social goals and perceived competence, while perceptions of ego-involving climate positively predicted students' dispositional flow through perceived competence.

Experiencing flow while participating in physical activity can lead to improved performance (Jackson & Marsh, 1996; Jackson, Thomas, Marsh, & Smethurst, 2001), more positive feelings after exercise (Karageorghis, Vlachopoulos, & Terry, 2000), and an increased engagement in physical activity (Jackson, 1996; Kimiecik, 2000). Research has also revealed that the dispositional flow state correlates positively and significantly with self-efficacy, the tendency toward task orientation, and the perceived value of physical activity

(Cervello, Moreno, Alonso, & Iglesias, 2006; Tipler, Marsh, Martin, Richards, & Williams, 2004). For all the aforementioned reasons, the facilitation of students' flow experiences in PE seems important, as it not only enhances student enjoyment of PE but also motivates voluntary participation in physical activity during adolescence and later in life. Moreover, flow experiences in PE lessons, as an optimal psychological state, may be the first factor regarding factors affecting situations such as students' participation in PE, perceived motivational climate, and students' self-talk.

Thus, this study examined the relationships between dispositional flow, perceived motivational climate, and students self-talk in PE. In line with the research literature, we hypothesized that dispositional flow and perceived learning climate would be positively related to students' positive self-talk and negatively related to students' negative self-talk. Furthermore, we tried to identify the best predictor of students' self-talk. We also examined differences in students' perceptions of motivational climate, dispositional flow, and self-talk, as a function of gender, leisure-time sport participation, sport type, and grade level.

Method

Participants

In this study, 318 male (M_{age} = 13.18, *SD* = .77) and 330 female (M_{age} = 13.23, *SD* = .73) secondary school students (M_{age} =13.20, *SD* = 0.75) voluntarily participated. Participants were randomly assigned into three groups via the proportional stratified sampling method so that the same number of boys and girls from each grade could be included in each group.

Measures

Self-talk in physical education. The Automatic Self-Talk Questionnaire for Physical Education (ASTQ-PE; Daşdan Ada, Zourbanos, Papaioannou, & Kazak Çetinkalp, 2014; Zourbanos et al., 2014) assessed students' self-talk. The instrument consists of 30 items assessing four positive and three negative self-talk dimensions. Positive self-talk consists of the dimensions of confidence (e.g., I can make it), anxiety control (e.g., Don't get upset), psych up (e.g., Do your best), and instruction (e.g., Concentrate). Negative

self-talk consists of the dimensions of worry (e.g., I am going to lose), disengagement (e.g., I want to stop), and somatic fatigue (e.g., I feel tired). Participants were asked to rate their frequency of self-talk on a 4-point scale (0 = *never*, 4 = *very often*). A confirmatory factor analysis indicated that model fit indices showed a good fit for the revised seven-factor model with 30 items, χ^2 (*df* = 384) = 790.45, χ^2 / *df* = 2.06, CFI = .93, RMSEA = .05, TLI = .92. The instrument consisted of 30 items assessing four positive (14 items) and three negative (16 items) self-talk dimensions. The internal consistencies of the subscales were .73 for worry, .77 for disengagement, .74 for somatic fatigue, .75 for psych up, .81 for anxiety control, .85 for confidence, and .87 for instruction.

Optimal experience. The Dispositional Flow Scale-2 (DFS-2) was designed as a dispositional assessment of flow experience (Kawabata, Mallett, & Jackson 2008). Respondents of the DFS-2 are directed to think about how often they experience the characteristics of the flow items (e.g., I have total concentration) within a particular activity and to rate their responses on a 5-point Likert scale ranging from 1 (*never*) to 5 (*always*). This scale was translated into Turkish by Daşdan Ada, Aşçı, Kazak Çetinkalp, and Altıparmak (2012a). The fit indices were χ^2 / *df* = 863.11 / 558 = 1.55, RMSEA = .043, NNFI = .96, CFI = .97. This study used three subscales of the DFS-2: unambiguous feedback (e.g., I am aware of how well I am performing), action-awareness merging (e.g., Things just seem to be happening automatically), and loss of self-consciousness (e.g., I am not concerned with how others may be evaluating me). The Cronbach's alpha reliability coefficients ranged from 0.46 (action-awareness merging) to 0.79 (loss of self-consciousness).

Perceived motivational climate. The original 26-item Learning and Performance Orientations in Physical Education Classes Questionnaire (LAPOPECQ; Papaioannou, 1994) was administered. This measured pupils' perceptions of achievement orientations in PE classes. The measurement model was proposed to be a hierarchical model with five first-order factors and two second-order factors (for review, see Papaioannou, 1994). Two factors, pupils' learning (7 items) and teacher-initiated learning (5 items) are first-order factors of a higher order factor, Learning. The remaining three factors, pupil competitive orientation (5 items), pupil worry (5 items), and

outcome orientation without effort (4 items) are first-order factors of another higher order factor, Performance. This scale was translated into Turkish by Daşdan Ada et al. (2012b). Confirmatory factor analysis revealed a good fit to the model, χ^2 / *df* = 863.11 / 558 = 1.55, RMSEA = 0.05, NNFI = 0.98, NFI = 0.92, CFI = 0.98, and AG FI = 0.86). The Cronbach's alpha coefficients were 0.50 for outcome without effort, 0.88 for student learning orientation, 0.68 for teacher-initiated learning orientation, 0.67 for student competitive orientation, and 0.72 for students' worry about mistakes.

Data Collection

Data were collected from the city of Mersin, Turkey. The participants were secondary school students. Before collecting data, we obtained permissions from the university ethics committee and the provincial directorate of national education. Because the scales were self-report and needed factors such as a pencil and concentration, the classroom environment was preferred each time. The questionnaires were also anonymous and were carefully designed to be suitable for the targeted age group. All participants participated voluntarily. The questionnaires took approximately 25 min for students to complete.

Analyses

Descriptive statistics, internal reliability scores, and Pearson's correlations were conducted for all variables. Moreover, a series of independent samples *t* tests tested the effects of gender, leisure-time sport participation, and sport type on students' perceptions of motivational climate, dispositional flow, and self-talk. Also, one-way ANOVAs (run separately for motivational climate, dispositional flow, and self-talk) tested for differences among grade levels. Finally, seven hierarchical regression analyses examined the effects of dispositional flow and motivational climate on students' self-talk.

Results

Table 1 shows descriptive statistics and Pearson's correlations for all variables. Pearson correlations revealed low to moderate negative relationships between negative self-talk subscales (worry, disengagement, somatic fatigue) and dispositional flow subscales (ranging from $r = -.17$, $p < .001$ to $r = -.41$, $p < .001$) and low to moderate but

positive relationships between positive self-talk subscales and dispositional flow subscales (ranging from $r = .18$, $p < .001$ to $r = .42$, $p < .001$). Regarding motivational climate, the results revealed low relationships between perceived motivational climate subscales and self-talk, except for the subscale of perceived motivational climate of students' learning orientation, which revealed low to moderate relationships with students' self-talk (see Table 1).

Gender Differences

The independent samples *t* tests showed that the girls reported significantly higher scores than the boys on the subscale of motivational climate of students' worry about mistakes, $t(646) = 3.07$, $p = .002$, and on the negative self-talk dimensions of worry, $t(641.07) = 2.90$, $p = .004$, and disengagement, $t(638.18) = 2.56$, $p = .011$. In contrast, the boys obtained higher scores than the girls on the confidence dimension of positive self-talk, $t(646) = -2.00$, $p = .046$ (see Table 2).

However, no significant differences were observed between boys and girls on DFS-2 subscales of action-awareness merging, $t(646) = -1.92$, $p = .056$; loss of self-consciousness, $t(646) = -1.54$, $p = .125$; and unambiguous feedback, $t(646) = -1.92$, $p = .055$. Similarly, there were no significant differences between boys and girls for the subscales of motivational climate of teacher-initiated learning orientation, $t(646) = .24$, $p = .812$; students' competitive orientation, $t(646) = -.18$, $p = .857$; outcome orientation without effort, $t(632{,}13) = .04$, $p = .967$; and students' learning orientation, $t(646) = -.24$, $p = .810$. Finally, no significant differences were observed between boys and girls for the negative self-talk dimension of somatic fatigue, $t(646) = 1.82$, $p = .069$, and for the positive self-talk dimensions of psych up, $t(646) = -1.61$, $p = .107$; anxiety control, $t(646) = -.54$, $p = .590$; and instruction, $t(646) = -.57$, $p = .567$ (see Table 2).

Leisure-Time Sport Participation and Sport Type Differences

With regard to the effect of leisure-time sport participation on the variables, sport participants obtained higher scores than nonsport participants in all of the DFS-2 subscales of action-awareness merging, $t(646) = -2.55$, $p = .011$; loss of self-consciousness, $t(646) = -3.21$, $p = .001$; and unambiguous feedback, $t(416) = -4.39$, $p < .001$. Moreover, sport participants reported significantly higher

Table 1

Descriptive Statistics and Pearson's Correlations for All Variables

Subscale	*M*	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. AAM	3.55	.95	-														
2. LSC	3.33	1.23	.51**	-													
3. UF	3.90	.98	.55**	.40**	-												
4. TILO	3.72	.95	.26**	.21**	.37**	-											
5. SCO	3.53	.90	.29**	.08*	.27**	.42**	-										
6. SWAM	3.33	.98	.06	-.08*	.03	.23**	.51**	-									
7. OOWE	3.12	.93	.25**	.08*	.16**	.25**	.55**	.48**	-								
8. SLO	3.93	.93	.34**	.30**	.48**	.74**	.49**	.24**	.28**	-							
9. Worry	.95	.88	-.30**	-.28**	-.41**	-.17**	.01	.27**	.04	-.23**	-						
10. Disengagement	.56	.74	-.22**	-.17**	-.39**	-.25**	-.08*	.14**	-.01	-.33**	.65**	-					
11. Somatic fatigue	.86	.81	-.22**	-.23**	-.36**	-.25**	-.03	.16**	.01	-.30**	.68**	.74**	-				
12 Psych up	2.63	1.00	.20**	.18**	.32**	.22**	.17**	.09**	.11**	.27**	-.09**	-.11**	-.05	-			
13. Anxiety control	2.64	1.19	.19**	.20**	.32**	.21**	.16**	.04	.14**	.26**	-.14**	-.12**	-.12**	.72**	-		
14. Confidence	2.96	1.14	.27**	.21**	.42**	.28**	.18**	.03	.13**	.35**	-.32**	-.30**	-.27**	.72**	.68**	-	
15. Instruction	2.92	1.11	.24**	.23**	.38**	.26**	.17**	.04	.12**	.33**	-.19**	-.23**	-.21**	.77**	.74**	.77**	-

Note. AAM = action-awareness merging; LSC = loss of self-consciousness; UF = unambiguous feedback; TILO = teacher-initiated learning orientation; SCO = students' competitive orientation; SWAM = students' worries about mistakes; OOWE = outcome orientation without effort; SLO = students' learning orientation.

$^{*}p < .05$ (one-tailed). $^{**}p < .01$ (one-tailed).

Table 2
Results of Independent Samples t Tests on Study Variables Based on Gender, Leisure-Time Sport Participation, and Sport Type

	Gender						Leisure-time sport participation						Sport type					
	Boys (n = 318)		Girls (n = 330)				Sport participants (n = 193)		Nonsport participants (n = 455)				Individual (n = 78)		Team (n = 115)			
Variables	*M*	*SD*	*M*	*SD*	*t*	*df*	*M*	*SD*	*M*	*SD*	*t*	*df*	*M*	*SD*	*M*	*SD*	*t*	*df*
AAM	3.62	.95	3.48	.94	-1.92	646	3.70	.92	3.49	.95	-2.55*	646	3.56	.90	3.80	.92	-1.75	191
LSC	3.41	1.22	3.26	1.24	-1.54	646	3.57	1.17	3.23	1.24	-3.21**	646	3.46	1.14	3.64	1.18	-1.07	191
UF	3.97	0.97	3.82	1.00	-1.92	646	4.14	.87	3.79	1.01	-4.39***	416.02	4.09	.85	4.17	.89	-.61	191
TILO	3.71	.95	3.73	.96	.24	646	3.86	.93	3.66	.96	-2.48*	646	3.84	.94	3.87	.93	-.26	191
SCO	3.53	.90	3.52	.90	-.18	646		.89		.94	.31	646	3.42	1.05	3.57	.87	-1.06	191
SWAM	3.21	1.01	3.45	.94	3.07**	646	3.31	.97	3.34	.99	.39	646	3.28	1.01	3.33	.94	-.31	191
OOWE	3.12	.98	3.13	.87	.04	632.13	3.10	.96	3.14	.91	.54	646	3.02	.96	3.15	.96	-.91	191
SLO	3.94	.96	3.92	.90	-.24	646	4.09	.89	3.86	.94	-2.88	646	4.01	.96	4.14	.84	-1.02	191
Worry	.85	.82	1.05	.93	2.90**	641.07	.72	.71	1.06	.92	5.07***	463.03	.74	.77	.70	.68	.39	191
Disengagement	.49	.68	.64	.79	2.56**	638.18	.44	.58	.62	.80	3.16**	494.14	.46	.66	.43	.51	.35	191
Somatic fatigue	.80	.80	.91	.83	1.82	646	.70	.69	.92	.85	3.53***	444.01	.73	.73	.68	.66	.48	191
Psych up	2.70	1.03	2.57	.98	-1.61	646	2.86	.94	2.54	1.02	-3.89***	389.79	2.67	1.02	2.99	.87	-2.34*	191
Anxiety control	2.67	1.19	2.62	1.20	-.54	646	2.80	1.16	2.58	1.20	-2.14*	646	2.54	1.22	2.97	1.10	-2.59*	191
Confidence	3.06	1.13	2.88	1.14	-2.00*	646	3.27	.98	2.83	1.17	-4.92***	426.65	3.10	1.09	3.39	.89	-1.99*	143.32
Instruction	2.94	1.15	2.89	1.08	-.57	646	3.14	1.04	2.82	1.13	-3.28**	646	3.04	1.11	3.20	.99	-1.04	191

Note. AAM = action-awareness merging; LSC = loss of self-consciousness; UF = unambiguous feedback; TILO = teacher-initiated learning orientation; SCO = students' competitive orientation; SWAM = students' worries about mistakes; OOWE = outcome orientation without effort; SLO = students' learning orientation.

*p < .05. **p < .01. ***p < .001.

scores than nonsport participants on the motivational climate subscales of teacher-initiated learning orientation, $t(646) = -2.48$, $p = .013$, and students' learning orientation, $t(646) = -2.88$, $p = .004$. Finally, the sport participants reported statistically significantly higher scores than nonsport participants on positive self-talk for psych up, $t(390) = -3.89$, $p < .001$; anxiety control, $t(646) = -2.14$, $p = .032$; confidence, $t(427) = -4.92$, $p < .001$; and instruction, $t(646) = -3.28$, $p = .001$. But they reported significantly lower scores on negative self-talk for worry, $t(464) = 5.07$, $p < .001$; disengagement, $t(494) = 3.16$, $p = .002$; and somatic fatigue, $t(444) = 3.50$, $p < .001$ (see Table 2).

Regarding the effect of sport type, team sports participants obtained significantly higher scores than individual sport participants on positive self-talk for psych up, $t(191) = -2.34$, $p = .021$; anxiety control, $t(191) = -2.59$, $p = .010$; and confidence, $t(143) = - 1.99$, $p = .049$ (Table 2).

Grade Level Differences

With regard to the influence of grade level on the variables, the one-way ANOVAs showed statistically significant differences between grade levels in the subscales of perceived motivational climate of teacher-initiated learning orientation, $F(2, 645) = 11.97$, $p < .001$; students' learning orientation, $F(2, 645) = 6.22$, $p = .002$; and students' worry about mistakes, $F(2, 645) = 9.28$, $p < .001$. Statistically significant differences were also found for the negative self-talk subscales of worry, $F(2, 645) = 9.54$, $p < .001$; disengagement, $F(2, 645) = 15.58$, $p < .001$; and somatic fatigue, $F(2, 645) = 14.92$, $p < .001$. In relation to these findings, Tukey post hoc tests revealed that students in eighth grade obtained significantly lower scores than students in sixth ($p < .001$) and seventh ($p =.003$) grades on teacher-initiated learning orientation, but significantly higher scores than students in sixth ($p = .004$) and seventh ($p = .021$) grades on students' worry about mistakes (see Table 3). Moreover, students in eighth ($p < .001$) and seventh ($p = .018$) grades reported significantly lower scores than students in sixth grade on students' learning orientation, whereas no significant differences were found for this variable between students in eighth and seventh grades ($p = .122$). Finally, findings related to self-talk showed that students in eighth grade obtained significantly higher scores than students in

sixth and seventh grades on the worry (eighth vs. sixth, p = .032; eighth vs. seventh, $p < .001$), disengagement (eighth vs. sixth, $p < .001$; eighth vs. seventh, $p < .001$), and somatic fatigue (eighth vs. sixth, $p < .001$; eighth vs. seventh, $p < .001$) dimensions of negative self-talk (Table 3).

Hierarchical Regression Analyses

Seven hierarchical regression analyses examined whether dispositional flow and motivational climate would predict students' self-talk. For all analyses, the dispositional variables (the three dispositional flow subscales) were included as predictors at Step 1. To analyze the increment of variance explained by contextual variables on each self-talk subscale, we entered motivational climate subscales at Step 2. Table 4 summarizes the results of these hierarchical regression analyses.

Negative self-talk. With regard to the worry dimension of students' negative self-talk, the results revealed that when entered alone (Step 1), the dispositional flow subscales negatively predicted worry self-talk, explaining 18% of the variance. However, when the five motivational subscales were added (Step 2) as predictors, they significantly improved the prediction equation (R^2 = .27, $p < .001$). Examination of beta coefficients from the entire model showed that unambiguous feedback (β = -.29, $p < .001$) and students' learning orientation (β = -.12, $p < .001$) significantly and negatively predicted students' worry self-talk, whereas students' worry about mistakes (β = .29, $p < .001$) significantly and positively predicted students' worry self-talk. Similar findings were also obtained for the disengagement and somatic fatigue dimensions of students' negative self-talk (see Table 4).

Regarding the predictive power of each predictor variable on negative self-talk dimensions, unambiguous feedback and students' worry about mistakes emerged as the strongest and equal predictors of worry self-talk, followed by students' learning orientation. However, for the disengagement and somatic fatigue self-talk, the strongest predictor was the unambiguous feedback, followed by students' learning orientation and students' worry about mistakes.

Positive self-talk. Similar results were found in the hierarchical regression analyses for predicting students' positive self-talk; that is, when added as predictors at Step 2 of each hierarchical

Table 3
Differences on Students' Dispositional Flow, Perceptions of Motivational Climate, and Self-Talk in Physical Education as a Function of Grade Level

	Grade level							
	6 (n = 132)		7 (n = 266)		8 (n = 250)			
Variable	***M***	***SD***	***M***	***SD***	***M***	***SD***	***F***	***p***
Action-awareness merging	3.62	.95	3.52	1.00	3.55	.89	.47	.625
Loss of self-consciousness	3.35	1.22	3.35	1.24	3.30	1.22	.15	.864
Unambiguous feedback	4.00	.92	3.84	1.02	3.90	.98	1.15	.318
Teacher-initiated learning orientation	3.98	.78	3.78	.97	3.51	.98	11.97	< .001
Students' competitive orientation	3.56	.89	3.50	.94	3.53	.86	.17	.843
Students' worries about mistakes	3.16	.97	3.27	1.00	3.50	.95	6.22	.002
Outcome orientation without effort	3.04	.92	3.13	.97	3.16	.88	.77	.463
Students' learning orientation	4.20	.81	3.94	.95	3.78	.95	9.28	< .001
Worry	.90	.86	.81	.76	1.14	.98	9.54	< .001
Disengagement	.45	.62	.43	.60	.77	.88	15.6	< .001
Somatic fatigue	.74	.73	.71	.70	1.07	.92	14.9	< .001
Psych up	2.69	.96	2.58	1.05	2.66	.98	.66	.517
Anxiety control	2.66	1.17	2.64	1.25	2.64	1.15	.01	.989
Confidence	3.01	1.10	2.93	1.16	2.98	1.12	.25	.780
Instruction	3.05	1.01	2.89	1.14	2.87	1.14	1.25	.286

regression analysis, the five motivational subscales contributed a significant amount to the prediction of each positive self-talk dimension above and beyond that explained by dispositional flow subscales alone at Step 1 (see Table 4). More specifically, examination of beta coefficients from the full model in each hierarchical regression analysis showed that although only unambiguous feedback ($\beta = .24$, $p < .001$) significantly (positively) predicted students' psych-up self-talk, unambiguous feedback ($\beta =.23$, $p < .001$) and loss of self-consciousness ($\beta = .10$, $p = .31$) were positive and significant predictors of students' anxiety control self-talk. Moreover, unambiguous feedback ($\beta = .31$, $p < .001$) and students' learning orientation ($\beta = .10$, $p = .31$) significantly and positively predicted students' confidence self-talk, while unambiguous feedback ($\beta = .31$, $p < .001$), loss of self-consciousness ($\beta = .10$, $p = .31$), and students' learning orientation ($\beta = .10$, $p = .31$) were all positive and significant predictors of students' instruction self-talk. In consistency with our results pertaining to the dimensions of students' negative self-talk (i.e., worry, disengagement, and somatic fatigue), the dispositional flow subscale of unambiguous feedback emerged again as the strongest predictor of students' positive self-talk dimensions.

Discussion

This study examined the relationship between dispositional flow, motivational climate, and self-talk in PE classes. Moreover, differences in all variables were examined as a function of gender, leisure-time sport participation, sport type, and grade level. Findings were remarkable, especially for self-talk. Correlations between self-talk and dispositional flow were highly significant ($p < .001$). In line with research in the sport and physical activity domain (e.g., Camacho Sicilia, Moreno Murcia, & Rojas Tejada, 2008; Jackson & Marsh, 1996; Jackson et al., 2001; Karageorghis et al., 2000), the dispositional flow subscales were positively related to students' positive self-talk dimensions (psych up, anxiety control, confidence, and instruction) and negatively related to students' negative self-talk dimensions (worry, disengagement, and somatic fatigue). According to Csikszentmihalyi (1990), the dispositional flow subscales positively relate to positive outcomes due to the optimal psychological state. In addition, Jackson and Roberts's (1992) quantitative results showed that athletes' best performances were associated with flow characteristics.

Table 4

Hierarchical Regression Analyses Summary for Predicting Students' Negative and Positive Self-Talk Dimensions From Dispositional Flow and Perceived Motivational Climate in Physical Education

Dependent variable	Step	Predictors entered	*B*	*SE B*	β	*t*	R^2	*F*
Worry	1	Action-awareness merging	-.05	.04	-.05	- 1.18		
		Loss of self-consciousness	-.08	.03	-.12	- 2.73**		
		Unambiguous feedback	-.30	.04	-.33	- 7.70***	.18	48.26***
	2	Action-awareness merging	-.08	.04	-.08	- 1.84		
		Loss of self-consciousness	-.05	.03	-.07	- 1.66		
		Unambiguous feedback	-.26	.04	-.29	- 6.54***		
		Teacher-initiated learning orientation	-.02	.05	-.02	-.42		
		Students' competitive orientation	.04	.05	.04	.83		
		Students' worries about mistakes	.26	.04	.29	6.91***		
		Outcome orientation without effort	-.00	.04	-.00	-.08		
		Students' learning orientation	-.11	.05	-.12	- 2.11*	.27	29.43***
Disengagement	1	Action-awareness merging	.00	.16	.00	.05		
		Loss of self-consciousness	-.01	.04	-.01	-.32		
		Unambiguous feedback	-.29	.02	-.39	- 8.82***	.15	38.90***
	2	Action-awareness merging	.00	.04	.00	.06		
		Loss of self-consciousness	.01	.04	.02	.40		
		Unambiguous feedback	-.22	.04	-.29	- 6.28***		
		Teacher-initiated learning orientation	-.02	.03	-.02	-.38		
		Students' competitive orientation	.01	.04	.02	.32		
		Students' worries about mistakes	.15	.05	.20	4.58***		
		Outcome orientation without effort	.00	.16	.00	.11		
		Students' learning orientation	-.19	.04	-.24	- 4.14***	.22	22.44***

Table 4 (cont.)

Dependent variable	Step	Predictor(s) entered	*B*	SE *B*	β	*t*	R^2	*F*
Somatic fatigue	1	Action-awareness merging	.01	.04	.02	.31		
		Loss of self-consciousness	-.07	.03	-.11	-2.54*		
		Unambiguous feedback	-.27	.04	-.32	-7.26***	.14	34.23***
	2	Action-awareness merging	.00	.04	.00	.06		
		Loss of self-consciousness	-.05	.03	-.07	-1.07		
		Unambiguous feedback	-.19	.04	-.24	-5.08***		
		Teacher-initiated learning orientation	-.06	.05	-.07	-1.35		
		Students' competitive orientation	.07	.04	.08	1.61		
		Students' worries about mistakes	.15	.04	.18	4.17***		
		Outcome orientation without effort	-.01	.04	-.01	-.16		
		Students' learning orientation	-.17	.05	-.20	-3.37**	.20	20.31***
Psych up	1	Action-awareness merging	.02	.05	.02	.31		
		Loss of self-consciousness	.04	.04	.05	1.20		
		Unambiguous feedback	.30	.05	.29	6.45	.11	25.35***
	2	Action-awareness merging	-.01	.05	-.01	-.19		
		Loss of self-consciousness	.05	.04	.06	1.39		
		Unambiguous feedback	.24	.05	.24	4.85***		
		Teacher-initiated learning orientation	.03	.06	.03	.54		
		Students' competitive orientation	.01	.06	.01	.12		
		Students' worries about mistakes	.06	.05	.05	1.17		
		Outcome orientation without effort	.01	.05	.01	.17		
		Students' learning orientation	.11	.07	.10	1.68	.13	11.46***

Table 4 (cont.)

Dependent variable	Step	Predictor(s) entered	*B*	SE *B*	β	*t*	R^2	*F*
Anxiety control	1	Action-awareness merging	-.02	.06	-.01	-.28		
		Loss of self-consciousness	.09	.04	.09	2.11*		
		Unambiguous feedback	.35	.06	.29	6.38***	.11	25.89***
	2	Action-awareness merging	-.06	.06	-.05	-.98		
		Loss of self-consciousness	.09	.04	.10	2.16*		
		Unambiguous feedback	.28	.06	.23	4.72***		
		Teacher-initiated learning orientation	.02	.07	.02	.31		
		Students' competitive orientation	.02	.07	.01	.22		
		Students' worries about mistakes	-.03	.06	-.03	-.58		
		Outcome orientation without effort	.10	.06	.08	1.70		
		Students' learning orientation	.15	.08	.12	1.90	.13	11.82***
Confidence	1	Action-awareness merging	.05	.06	.04	.85		
		Loss of self-consciousness	.03	.04	.04	.87		
		Unambiguous feedback	.45	.05	.39	8.93***	.18	47.59***
	2	Action-awareness merging	.01	.06	.01	.26		
		Loss of self-consciousness	.03	.04	.03	.77		
		Unambiguous feedback	.35	.05	.31	6.64***		
		Teacher-initiated learning orientation	.05	.06	.04	.79		
		Students' competitive orientation	.00	.06	.00	.04		
		Students' worries about mistakes	-.06	.05	-.05	-1.09		
		Outcome orientation without effort	.06	.05	.04	1.01		
		Students' learning orientation	.19	.07	.16	2.67**	.21	21.24***

Table 4 (cont.)

Dependent variable	Step	Predictor(s) entered	*B*	SE *B*	β	*t*	R^2	*F*
Instruction	1	Action-awareness merging	.00	.06	.00	.03		
		Loss of self-consciousness	.08	.04	.09	2.01*		
		Unambiguous feedback	.39	.05	.35	7.87***	.15	38.44***
	2	Action-awareness merging	-.03	.06	-.02	-.54		
		Loss of self-consciousness	.08	.04	.09	2.03*		
		Unambiguous feedback	.30	.05	.26	5.65***		
		Teacher-initiated learning orientation	.02	.06	.01	.27		
		Students' competitive orientation	-.01	.06	-.01	-.20		
		Students' worries about mistakes	-.01	.05	-.01	-.24		
		Outcome orientation without effort	.04	.05	.03	.71		
		Students' learning orientation	.22	.07	.18	3.08**	.18	17.62***

Note. df for Step 1 = (3, 644); *df* for Step 2 = (8, 639).
$^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Research has shown that motivation, motivational climate, and flow state (flow experience) are interrelated (González-Cutre et al., 2009; Kowal & Fortier, 1999, 2000; Moreno et al., 2008; Papaioannou & Kouli, 1999). Motivation and motivational climate can facilitate the emergence of the dispositional flow state. More specifically, studies have shown positive associations between flow state, intrinsic motivation (Camacho Sicilia et al., 2008; Deci & Ryan, 1985; Kowal & Fortier, 1999), goal orientations, and task or even ego motivational climates (Bakirtzoglou & Ioannou, 2011; Camacho Sicilia et al., 2008; Daşdan Ada et al., 2013; González-Cutre et al., 2009; Moreno et al., 2008). Furthermore, Daşdan Ada et al. (2013) examined the effects of perceived motivational climate and motivation on dispositional flow state in PE classes. They found that perceived motivational climate and participation motivation moderately predicted the dispositional flow state in PE. However, the participation motivation, compared to the perceived motivational climate, was the strongest predictor of students' dispositional flow. Other researchers (Bervoets, 2013) have stated that self-talk can be reasoned to play a key role in influencing flow.

In this study, we found that dispositional flow state and motivational climate moderately predicted students' self-talk in PE lessons. More specifically, the dispositional flow subscale of unambiguous feedback negatively predicted students' negative self-talk dimensions (worry, disengagement, and somatic fatigue) and positively predicted students' self-talk dimensions (psych up, anxiety control, confidence, and instruction). Moreover, the unambiguous feedback emerged as the strongest predictor for all self-talk dimensions, both positive and negative, even though the strongest relationship was observed between the unambiguous feedback and confidence dimensions of self-talk. The findings of this study make sense if unambiguous feedback refers to the receipt of immediate and clear feedback, usually from the activity itself, which allows the person to know he or she is succeeding in the set goal (Jackson & Marsh, 1996; e.g., I am aware of how well I am performing, It is really clear to me that I was doing well). Csikszentmihalyi and Csikszentmihalyi (1988) stated that the kind of feedback can be very diverse, but the result is the same: information that one is succeeding in one's goal. Thus, it seems reasonable that the kind of feedback the person receives from

the activity itself will strongly (and possibly directly) influence his or her self-talk, as it is more instant and maybe more believable relative to others factors (e.g., feedback from significant others).

The dispositional flow subscale of loss of self-consciousness significantly and positively predicted students' positive self-talk for anxiety control and instruction. The findings of this study suggest that when students are no longer concerned with what others think of them or how others evaluate them, they tend to use more anxiety-control and instructional self-talk. According to Jackson and Marsh (1996), the characteristic of flow of loss of self-consciousness does not mean that the person is unaware of what is happening in his or her mind or body, but rather is not focusing on the information normally used to represent to oneself who one is (e.g., I am not concerned with how others may be evaluating me, I was not concerned with what others may have been thinking of me). The subscale of the task-involving motivational climate of students' learning orientation negatively predicted students' negative self-talk dimensions (worry, disengagement, and somatic fatigue) and positively predicted students' positive self-talk dimensions (psych up, anxiety control, confidence, and instruction). The findings from this study suggest that students with higher learning orientation tend to use less negative self-talk for worry, disengagement, and somatic fatigue and more positive self-talk for psych up, anxiety control, confidence, and instruction, compared to students with lower learning orientation. The findings of this study are consistent with the results in Zourbanos et al.'s (2014) study in PE, which revealed that task orientation positively predicted students' positive self-talk dimensions (psych up, anxiety control, confidence, and instruction) and negatively predicted students' negative self-talk dimensions (worry, disengagement, and somatic fatigue). Similarly, in a study in the sport domain, Hatzigeorgiadis and Biddle (1999) found that athletes' task orientation was negatively related to disengagement thoughts. Our results also align with the plethora of research findings in sport and PE, which have shown that a task orientation and a task-involving (or learning-involved) climate leads to more adaptive cognitive, affective, and behavioral outcomes (e.g., Ames & Archer, 1988; Daşdan Ada et al., 2013; Kavussanu & Roberts, 1996; Ntoumanis & Biddle,

1999; Papaioannou, 1994, 1997, 1998; Papaioannou & Kouli, 1999; Zourbanos et al., 2014).

In contrast, the subscale of the ego-involving motivational climate of students' worry about mistakes significantly and positively predicted students' negative self-talk dimensions (worry, disengagement, and somatic fatigue). The findings of this study suggest that students with higher scores in the worry about mistakes subscale of the ego-motivational climate tend to use more worry, disengagement, and somatic fatigue self-talk, compared to the students with lower scores in this subscale. As the students' worry about mistakes dimension of the ego-involving motivational climate refers to students' concerns about mistakes during task execution and, subsequently, failure in the lesson, it is reasonable and expected for this subscale of ego-involving motivational climate to be associated with more worry, disengagement, and somatic fatigue self-talk. Similar results have also been reported in the literature. More specifically, Conroy and Metzler (2004), in a study with college students who engaged in recreational physical activities, found that the fear of failure was positively associated with students' self-blame, self-attack, self-neglect, and self-talk, whether the students were failing or succeeding.

However, the subscale of the ego-involving motivational climate of students' worry about mistakes did not significantly predict students' positive self-talk dimensions (psych up, anxiety control, confidence, and instruction), while the other two subscales of the ego-involving motivational climate of students' competitive orientation and outcome orientation without effort did not significantly predict students' positive and negative self-talk dimensions. These findings align with studies in sport (Hatzigeorgiadis & Biddle, 1999; 2000) and PE (Zourbanos et al., 2014) that showed that the task orientation has more positive outcomes on the individual's thought patterns, whereas the outcome of ego orientation seems to depend on other personal or situational factors, such as perceived competence.

The practical importance of this study is clear. PE teachers and parents are encouraged to promote a task-involving, or a learning-involved, climate because this approach is more beneficial for students' flow experiences in PE and for students' self-talk. In summary, our results indicate that the dispositional flow subscale

of unambiguous feedback and the students' learning orientation subscale of the task-involving climate positively predicted students' positive self-talk dimensions and negatively predicted students' negative self-talk dimensions. In contrast, the subscale of students' worry about mistakes of the ego-involving motivational climate positively predicted students' negative self-talk dimensions.

Given the exploratory nature of this investigation, further research should address a number of limitations in this study. First, it should be noted that no causal link can be inferred from these findings. It can be speculated that dispositional flow and motivational climate may influence students' self-talk based on models of self-talk antecedents and theoretical grounds of motivation, but it is possible that the identified links reflect bidirectional relationships. For example, given the wide-reaching behavioral, motivational, affective, and cognitive consequences of self-talk (Hardy et al., 2009), students' self-talk may also affect the perceived teacher-created motivational climate and the frequency of students' flow experiences in PE. Thus, longitudinal and experimental research could give us a deeper understanding on the relationships among motivational climate, dispositional flow, and students' self-talk in PE classes. Second, the retrospective self-report methodology that was employed may have limited the information obtained. Nevertheless, self-reports provide access to cognitive processes that cannot be obtained through observation (Guerrero, 2005). Finally, although in this study the Turkish version of the ASTQ-PE showed good psychometric properties, other types of validity could be tested and its factor structure further examined in future research. Despite these limitations, and considering that no other research has examined this kind of relationship, our findings provide valuable information regarding the associations between motivational climate, dispositional flow, and students' self-talk in PE classes and may guide further research on identifying causal relationships among these variable.

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PEDAGOGY

A Content Analysis of Teacher Autonomy Support During a High School Volleyball Unit

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Abstract

Reviews of the literature have confirmed the influence of autonomy-supportive teaching on student self-determined motivation and enhancement of skill in various educational contexts influencing students to be more engaged in their learning in addition to having higher levels of perceived skill improvement. Unfortunately, not much of the literature directly examines the autonomy-supportive language that teachers naturally use in physical education. Therefore, this study determined how and when teachers use autonomy-supportive behaviors within the context of a regular physical education (PE) class. Four high school PE teachers (2 male, 2 female, all Caucasian, M_{age} = 41.25, SD = 11.84) and 140 high school students (M_{age} = 14.90, SD = 1.01) in compulsory co-educational classes participated in the study. Teachers' verbal behaviors were audio recorded during four 90-min classes for three of the teachers and eight 45-min classes for the remaining teacher. Audio data were transcribed verbatim. Class observations and field notes also contributed to the analysis and helped the researchers to contextualize data collected via recordings. Findings indicate that teachers used a variety of autonomy-supportive behaviors, some more

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often than others. Some behaviors were underrepresented and, in some cases, were observed in an interconnected nature. The low use of some behaviors suggests room for improvement, with the benefits of such behaviors more directly influencing student motivation and enhancing skill learning.

Within physical education (PE), there has been considerable focus on how teachers communicate with students to influence motivation for physical activity. Martinek (1997) spoke of teachers who tend to address motivation by "drawing on conventional wisdom and using simplistic techniques" (p. 32). He argued that using oversimplified techniques such as high expectations for all and general praise does little to support student motivation. More recently, literature in PE has focused on more complex explanations of motivation from the perspective of self-determination theory (SDT), which posits that when students' basic psychological needs (autonomy, competence, and relatedness) are satisfied, motivation moves from a more controlled form to a more autonomous form (Deci & Ryan, 2000). In essence, the way that teachers communicate with students can influence students' perceptions of choice, ability level, and relationships with others, which in turn influences motivation. This communication style, autonomy support, is more specifically defined as a collection of "behaviors by a person in position of authority that show respect, allow freedom of expression and action, and encourage subordinates to attend to, accept, and value their inner states, preferences, and desires" (Tessier, Sarrazin, & Ntoumanis, 2010).

Reviews of the literature have confirmed the influence of autonomy-supportive teaching on student self-determined motivation and enhancement of skill in various educational contexts (Wang, Ng, Liu, & Ryan, 2016). Further, a well-established line of research has addressed the positive influence of autonomy-supportive teaching in motivating students to be more engaged in their learning, in addition to increasing students' perceptions of skill improvement (Cheon & Reeve, 2013, 2015). In addition, the use of rating scales in PE has led to the identification of autonomy-supportive teaching behaviors that have been shown to influence student motivational processes and consequences (Haerens et al., 2013; Tessier et al., 2010). While the use of rating scales and the systematic observation of autonomy support have yielded a wealth of knowledge, the list of

behaviors and characteristics of those behaviors in PE is underdeveloped, in the sense that no context has been provided with given examples. Through a more in-depth investigation of language used by teachers in this context, more concrete information could be given, thereby allowing teachers to rely less on conventional wisdom and underdeveloped techniques. This study aims to qualitatively examine autonomy-supportive communication patterns among high school PE teachers, to give a better sense of what teachers say and do to enhance student motivation.

Self-Determination Theory and Autonomy-Supportive Teaching

Within the SDT subtheory of basic psychological needs (Deci & Ryan, 2000), self-determined motivation is enhanced when individuals' basic needs for autonomy, competence, and relatedness are satisfied. Thus, in learning environments, the more control over learning a student perceives (autonomy), the more competent the student feels in performing skills (competence), and the more connected the student feels to others in the learning environment (relatedness), the more self-determined the student's motivation to act will be. Studies using the theory have observed a strong focus on teacher autonomy support over the last 15 years. Consistent with expected associations between key variables in SDT (Vallerand, 1997), models have shown causal links between students' perceptions of autonomy support, need satisfaction, motivation, and success in acquisition of movement skills, sport knowledge, and attitudes toward PE (Langdon, Webster, Hall, & Monsma, 2014; Ntoumanis, 2005; Vierling, Standage, & Treasure, 2007). Further, a series of intervention studies highlight that teachers can learn to be autonomy supportive and maintain such training for up to a year beyond (Reeve & Cheon, 2014).

Studies of autonomy support clearly outline the benefits students experience in PE. With this in mind, interest in defining the role of teachers in supporting autonomy, specifically with what teachers say that may contribute to student satisfaction, has been rising (Haerens et al., 2013; Tessier et al., 2010). Rating scales by Tessier et al. (2010) and Haerens et al. (2013) are based on the original work of Reeve and colleagues (Reeve, 2009; Reeve, Jang, Carrell, Jeon, & Barch, 2004).

Although the types of instruments for classifying autonomy support in PE have differences, collectively they represent a variety of behavior classes that can inform what teachers typically do to support students' basic needs. The first behavior Reeve et al. (2004) identify is nurturing students' internal sources of motivation, whereby teachers provide choices within a structured environment, encourage students to set and reach their own goals, and design tasks that align with students' interest or sense of personal challenge. Haerens et al. (2013) describe this behavior class as providing "variation between or within exercises," asking students "questions about their interests, problems, values, or wishes," in addition to providing differentiated instruction (p. 8). The second behavior, using noncontrolling and informational language, involves using positively or neutrally charged language specific to the learning task, suggesting rather than commanding, and responding positively to student-generated questions. From Haerens et al.'s (2013) behavior descriptions, PE teachers exemplify this behavior class by giving clear instructions. Tessier et al. (2010) also describe this behavior class as providing contingent feedback "in an informational way" (p. 246). The third behavior, providing explanatory rationales, involves explaining why class content (knowledge, skills, and strategy) is important for students to learn. According to some literature, this can include explaining rules and limitations for gameplay (Haerens et al., 2013; Tessier et al., 2010), in addition to connecting individual activities to future participation in exercise and physical activity (Chatzisarantis & Hagger, 2009; Edmunds, Ntoumanis, & Duda, 2007). Finally, the fourth behavior is acknowledging negative affect, which involves recognizing students' negative feelings toward particular tasks and allowing students to voice their opinions without passing judgment. Tessier et al. (2010) also refer to this behavior as showing warmth, sympathy, or humor. Haerens et al. (2013) refer to this behavior in descriptions of relatedness support, whereby teachers "[take] the perspective of the pupils into account" and "[pay] attention to what the pupils are saying" (p. 8).

While not part of the original behavior classes described by Reeve et al. (2004), patience has been regarded as an important component of autonomy-supportive teaching. As such, Reeve (2009) added patience as an autonomy-supportive behavior, describing it

as waiting for students to discover answers on their own, offering hints without disclosing answers, and using phrases such as "almost," "you're close," and "keep trying." Among the 21 behaviors identified by Haerens et al. (2013), patience in PE includes "offering help, new guidelines, tips and advice during exercises"; providing positive feedback; and "allowing students the opportunity to practice independently and solve problems without interference" (p. 8).

Overall, the literature base of SDT as applied to teaching in PE has addressed teacher antecedents for providing autonomy support (Taylor, Ntoumanis, & Standage, 2008), the influence of teacher perceptions of student motivation on teachers' ability to provide autonomy support (Taylor & Ntoumanis, 2007), students' perceptions of autonomy support (Hagger, Chatzisarantis, Barkoukis, Wang, & Baranowski, 2005), observer ratings of autonomy support in PE (Haerens et al., 2013), and the effects autonomy-supportive training programs for teachers to improve student motivation and need satisfaction (Langdon et al., 2014; Tessier et al., 2010). While this information is invaluable to the improved understanding of SDT and its effect on various outcomes in PE, such research could be enhanced by eliciting more descriptive examples of autonomy-supportive behaviors teachers use in a typical PE environment. A better understanding of what teachers say in context could better help teacher educators cultivate such behaviors in preservice teachers. Such a contextual analysis could also be helpful to teachers already in the field who are looking to improve student motivation and achievement. Therefore, this study used content analysis to determine how and when teachers use autonomy-supportive behaviors within the context of a regular PE class.

Method

Participants and Setting

Four high school PE teachers (2 male, 2 female, all Caucasian, $M_{age} = 41.25$, $SD = 11.84$) and 140 high school students ($M_{age} = 14.90$, $SD = 1.01$) in compulsory co-educational classes participated in the study. Teaching experience ranged from 4 to 30 years ($M_{experience} = 12.5$, $SD = 11.93$). Teacher 1 (female) had 6 years of teaching experience and a national board certification. Teacher 2 (male) had 10 years of teaching experience and a national board certification. Teacher 3

(male) had 30 years of teaching experience. Teacher 4 (female) had 4 years of teaching experience. The students in the study included 66 males, 67 females, and 7 who did not indicate gender. Race/ethnicity included 54.8% Black, 18.7% Caucasian, 11.5% other, 3.2% Hispanic, and 0.6% Asian. The students demographics reflected that of the school, with the sample representing 9% of the schools' total population. Class sizes ranged from 37 to 42.

Volleyball, with imbedded fitness activities, was chosen as the principal activity for this study because all four teachers indicated that they felt comfortable teaching volleyball and were planning to teach it as part of the curriculum for the semester. The fitness component of the unit included daily active warm-ups (short runs around the gymnasium, static stretching, curl-ups, and push-ups) and a 1-mile run once a week. Teachers followed a standard delivery of instruction throughout the unit; individual skills were taught first, followed by tournament-style gameplay.

Procedures

Throughout the unit, teachers' verbal behaviors were audio recorded during four 90-min classes for three of the teachers and eight 45-min classes for the remaining teacher. Classes were randomly chosen throughout the unit for recording, with recordings occurring on nonconsecutive days. The number of classes represented 20% of the time spent within this unit of instruction. Audio was recorded during different phases of the unit including individual skill learning, simulated gameplay, and fitness-related activities. For the content analysis, the audio data were transcribed verbatim and class observations and field notes allowed for the data collected via recordings to be contextualized and triangulated.

Data Analysis

Transcribed data were analyzed via deductive content analysis. In preparing the data, the researchers continuously read through the transcripts to get a sense of what teachers said during instruction (Stemler, 2001). As coding continued, a multilevel categorization matrix was designed, which included dividing the transcripts into more meaningful sampling units. Using the notion of task systems (e.g., Rink, 1979; Jones, 1992), the researchers considered several characteristics of a typical PE lesson to define such units. Within task

statements, examples of autonomy-supportive statements were identified through the aforementioned conceptual framework (Reeve, 2009; Reeve et al., 2004): (1) nurturing students' inner motivational resources; (2) using noncontrolling, informational language; (3) providing explanatory rationales; (4) acceptance of expressions of negative affect; and (5) patience. To ensure credibility and trustworthiness of the coding procedures, four researchers conducted several rounds of review. They were familiar with the conceptual framework for autonomy-supportive teaching and provided face validity for sampling units and identification of autonomy-supportive behaviors. Interrater reliability of the coding procedure was tested via Pearson correlations, with agreement of .93 among the researchers for sampling units and .83 for autonomy support. Any disagreements were discussed and consensus reached.

After coding the statements for autonomy support, the primary researcher further identified them by autonomy-supportive behavior class, which was verified by another research team member who was not directly involved in the sampling unit identification process. In this way, all identified statements were classified into one of the five classes outlined by Reeve et al. (2004) and Reeve (2009). Via the content analysis procedures outlined by Stemler (2001), 1,008 sampling units were identified across all four teachers. Three hundred thirty-three (33%) of these statements were coded as autonomy supportive, with each statement represented in only one behavior class for clarity of interpretation. For instances when more than one behavior class was identified, the task statement was labeled with the most prevalent behavior class. In the final portion of the organization process, statements from each behavior class were further examined for how and when such behaviors were used in the PE context. In sum, four research team members analyzed the data across an extended time. Further, they took care to observe teachers in their normal teaching environment and made no effort to change or modify lesson content for the purposes of the study.

Results

As Table 1shows, each teacher exhibited some use of at least four out of the five behavior classes, including nurturing inner motivational resources, using noncontrolling and informational language, providing explanatory rationales, and demonstrating patience. One

of the four teachers minimally acknowledged students' negative affect (less than 1% of total autonomy-supportive statements). This section highlights examples of each behavior class.

Table 1
Percentage of Use of Autonomy-Supportive Behavior Classes Among Teachers

			Teacher							
	Overall		1		2		3		4	
Behavior class	*f*	%	*f*	%	*f*	%	*f*	%	*f*	%
Nurturing Inner Motivational Resources	39	12	14	24	2	2	20	15	3	13
Language	181	54	31	53	105	88	34	26	11	46
Rationales	40	12	2	3	4	3	31	24	3	13
Acceptance of Students' Negative Affect	2	1	1	2	0	0	1	1	0	0
Patience	71	21	11	19	9	8	44	34	7	29
Total	**333**	**100**	**59**	**100**	**120**	**100**	**130**	**100**	**24**	**100**

Nurturing Inner Motivational Resources

Within this behavior class, teachers demonstrated verbal behaviors that relate to students' choice, internal interests, simplistic goal setting, sense of challenge, and internal initiative. These represent a movement from simplistic to more complex application of the behavior.

Choice. Teachers generally provided students with choices in a structured environment, ranging from skills to practice to tournament format selection. During skill practice, Teacher 1 allowed for choice by having students decide which skill they would work on. Teacher 1 gave specific instructions to the students depending on what they chose:

> I want you to choose, those of you who want to work on spiking will stay on the end and practice that. The rest of your group that is not currently working on spiking will continue practicing bump and sets.

Teacher 3 best used choice when teaching serving to his students. Although this choice was confounded by ability level, he still considered motivation, allowing students to decide which serve they were more comfortable with:

> Which way would you like to serve? Overhand or underhand? And I said, because the bleachers are out, you are allowed to step in here, but all I wanted you to do, you normally have to serve from way back here. Anywhere back in here, wherever you are comfortable . . . So anyplace in here, you find where you're comfortable.

In this case, Teacher 3 allowed students to choose not only whether they wanted to use an underhand or overhand serve, but also from where on the court they would like to serve. Some of this was due to structures being in the way (bleachers set out for a pep rally), but in cases when these structures were not in the way, students could still choose to stand in a spot that would ensure a successful serve.

Teacher 2 offered choice by allowing students to decide how they would set up gameplay during one class. Teacher 2 gave this choice later in the unit, after the students had several skill-related lessons and modified gameplay:

> . . . I want to give you the chance to vote right now . . . If you would like to do single gender volleyball league, that would be females playing females and males playing males. Single gender, you get a chance to vote right now. Raise your right hand if that's what you prefer. Okay. Alright. So we got one vote. Now if you want co-ed, raise your right hand. Co-ed, that would mean 3 to 4 girls and 3 to 4 boys on each team.

Internal interests. Teachers supported internal interests of students in various ways, including recognizing students' positive comments toward the game. For example, when discussing student interest in the game, Teacher 2 said, "You're starting to like it, that's what I want to hear." Teacher 3 spent time informing students that they did not have to play at very high levels to be successful in volleyball:

> Like I said, if you don't have the ambitions of playing in the Olympics for volleyball, that's fine. I want you to enjoy the game. I want you to enjoy the camaraderie with your teammates. Enjoy helping each other out.

In another class period, Teacher 3 also discussed where students can engage in volleyball activities outside of school:

> We learned some skills, we can [use] the skills outside, take them home. I know if you remember from church you have church volleyball going on. Tuesday nights I'm over there playing racquetball at the rec center, there's usually two or three teams rotating around playing volleyball.

As Teacher 3 mentions being able to play in the Olympics and getting scholarships, it is clear that many of these students may not have those aspirations or opportunities. In this case, the teacher was describing all possibilities, although the main focus of the discussion was recreational play.

Goal setting. Teacher 2 spent a vast amount of teaching time instructing students how to analyze their peers' success in gameplay and determine why they might have been more successful. Through this process, students came up with their own team goals. Teacher 2 said,

> I want you today to figure out so you can tell me tomorrow why you think your team is not being successful . . . And if you're not playing in a game, what I need for you to do today is to watch how the other teams are playing. And if you can see they're being successful because they are scoring a lot of points, I'd like you to figure out what they are doing right, or correctly, that's allowing them to be so successful.

The formulation of team goals reflects a more complex application of the behavior by Teacher 2. Such an example shows the progression of how teachers can nurture inner motivational resources of students.

Individual sense of challenge. Students' sense of challenge was supported when they were allowed to experiment with different ways of serving the volleyball. Among the four teachers, Teacher 3 was the most expressive with this behavior. He stated, "Alright, which way do

you like to serve the best?"; "Which one do you think you'll be the best at?"; "Which one do you think is easiest?"; and "Try overhand and see what happens." As most of the unit time was spent in skill development, Teacher 3 focused mainly on allowing students to try underhand and overhand serves:

> What happened on your toss? . . . Which way did your body move to get to it? It kind of went backwards. So throw it out in front of you so you can get to it. Try it again . . . Now let's try the underhand serve to see if you can get the ball over with the underhand serve. Then you'll have two ways to choose when you get ready to play the game. Try that again, but this time was pretty good.

Further specific feedback was given to another group on the same day, showing the consistency that Teacher 3 provided a sense of challenge among all students:

> Look here, if I hold the ball over here and I'm going to hit it with this hand, I want this hand to go this way like a pendulum. Is this ball in the way? No, but if I move my hands over here, guess which way it's going to go? If I bring it too far this way, where do you think it would go? Now you gotta try and find a happy medium where you can find contact with the ball in between the two poles. Or in this case, in between the gray lines. See what happens. There you go, much better.

Internal initiative. Teachers supported internal initiative by giving the students the responsibility of analyzing their peers' skill development. During practice and gameplay, they asked students to provide constructive feedback to their teammates to increase success. Students who acted as team "coach" were also responsible for organizing team practices during tournament play and for designing the team lineup. During skill development, Teacher 2 instructed students to make sure they were providing teammates with good starting tosses to practice setting and providing helpful feedback: "Give them a good high toss so they can experience success. And you're able to help give them constructive criticism on what they are and aren't doing well." Teacher 3 also encouraged individual initiative to help others during skill development: "You can be helping

each other, if you see something with the overhand, you can figure out what he's doing and say, this is what you're not doing."

Using Noncontrolling and Informational Language

Using noncontrolling and informational language was the most prevalent use of autonomy support across all teachers. This behavior was exemplified through the use of encouraging language and positive or neutral feedback relevant to the task.

Use of encouraging language. Use of encouraging language was mostly limited to using the word *good* for describing serving skills, working together as a team, setting up a successful rally, and being complimentary to teammates/other students. Some examples of these statements include "A compliment, very good"; "Mike, see somebody could have played that, that was an awesome good job. I want to see that again"; "I like how you guys are working together, good job"; and "Those forearm passes are getting a lot better." Most of these statements were given by Teacher 2, although all four teachers seemed to use this strategy to some degree. In addition, many of these statements were given during gameplay.

Positive or neutral feedback relevant to the task. Teachers also used language that was positive or neutral and relevant to the task. This included complimenting students on the correct technique for individual skills. More specifically, Teacher 1 commented, "Very nice platform that time" and "Jerry you have very nice follow-through with your fingers." Teacher 3 also provided positive and relevant feedback on particular aspects of form during skill practice:

> So far we've got a good job of being on the balls of your feet, one group did a good job of that flat surface. The other group said they had a hard time of staying on the balls of their feet.

Teacher 1 also commented about decision making during gameplay: "I heard one team in particular utilizing calling the ball very nicely. That was the team over on this court." Teacher 3 followed a similar pattern, stating, "One team has very good communication, that is a very good strategy" and "Austin, I like how you started here and you realized it was high and you went here. Good job."

Statements in this behavior class were shorter and given with more frequency. For example, Teacher 1 made several direct comments about several aspects of acquiring the skill of setting:

> Nice flick. Very nice. I want to see those wings when you take off. See you snap it down. Nice jump. Use your wings. Let me see. Those are all the right steps. You got it. In time it will become very smooth . . . Good job. You didn't send it all crazy across the gym, okay.

Teacher 2 also gave such feedback to students while they practiced spiking: "There it is, one more. Is that three, Alissa? Just remember to swing that pendulum going back. A little bit more force behind the ball and you'll be fine. You got this right here. There you go, good." In the same way he initiated internal interest in students, Teacher 3 used several lines of questioning to provide positive feedback to students:

> Trey, instead of catching it, hit it back to us. Good job . . . See if you can get it up there, get underneath it, but good try. Oh my goodness, what do you think you need to do now? [pause for student response] . . . Hit it a little bit harder to get it off the front line and into the back line and into play. Okay, go ahead. Much better, much better, see.

Giving Explanatory Rationales

Only 12% of the autonomy-supportive statements were characteristic of giving explanatory rationales. Specific rationales given related to concepts of success, classroom management, personal relevance, reaching personal goals, skill/rule importance, and gameplay strategy.

Conceptions of success. Teachers collectively made statements or asked questions that focused students on what they felt their own success looked like. Teacher 3, when discussing serve technique with a student, said, "Was that a good serve or a bad serve? How would she do it to do it right? Okay, were you comfortable throwing it up there like that?" This behavior was highly exemplified by two of the four teachers and was discussed throughout individual lessons and during gameplay. To allow for different levels of success, teachers

could modify rules and explain rule changes in modified games. Teacher 3 commented about modifications to rules as students were learning: “It’s okay if you hit it twice now. It’s okay now because we’re just practicing our skills.” Similarly, he stated during another lesson about serving, “Move out as you get more comfortable” and “Think about where you need to be so you can cover your space” when discussing with students where to move on the court during gameplay. Teacher 2 also gave students a conception of success during gameplay, stating “It’s not going to go over every single time. You work at it, you work at it.” He also said, “For the most part, team rotation, it takes a little time to get that down and the rally scoring.”

Classroom management. Relative to the other rationales given, those related to classroom management were few, with only five coded autonomy-supportive statements. These included explanations of why students should not talk while the teacher is talking (to hear instructions), proper protocol for returning a volleyball (under the net for safety reasons), watching a demonstration (so that students knew what to do), and why it is improper to cross the line under the net (for safety reasons).

Communicating personal relevance. Similar to classroom management, a small percentage of the rationales were coded as communicating personal relevance. This encompassed statements that keyed into why a student might want to focus on sportsmanship and skill development. Teacher 4 stated,

> We’re going to have some playtime, but what I am trying to focus on today is sportsmanship. It’s been one of the weakest things in this class. Because, remember, you are not graded on those points on that scoreboard, but you are graded on sportsmanship.

The teacher focused on making the sportsmanship idea relevant by explaining its importance to how students would be evaluated. Although the idea of grading is an extrinsic reward, the rationale provided taps into what the students found to be important.

Reaching personal goals. Rationales related to reaching personal goals accounted for a modest proportion of overall use of this

behavior. Most of these statements were related to explaining how students can communicate with each other for personal improvement, including Teacher 2, stating, "If you didn't hear Taylor, she said we need to do a better job of giving her a toss. Because right now, guys, we want all of you to experience success." Other explanations of why certain groups of individuals might be better skilled than others were given. This came up in a class with Teacher 3, after the students watched a "teachers vs. varsity volleyball players" game during a pep rally. Comparing the performance of students and faculty to varsity volleyball players, Teacher 3 said, "You have to remember something else . . . you guys don't get to practice in here for two hours every night either." Another said, "They [the varsity volleyball players] did a better job setting than we [teachers] did as the faculty because they do it [practice the game] every day."

Overall, these statements were used to explain why students should not perceive their skill level as low and encouraged them to understand that learning the game was a work in progress.

Skill/rule importance and gameplay strategy. Explanations of why skills or rules in gameplay were important represented a larger portion of the coded data than reaching personal goals and classroom management. Teachers explained how timing the proper spike would allow students to hit the ball over the net without touching the net, as would utilizing the ready position before making contact with the ball. Teacher 3 used this strategy to combine skills, by explaining why it is important to pass the ball with height: "That's why we're working on both the bump and the set at the same time. So you can be setting it. Your set may be too low to you, so then you can bump it back to her."

Along with providing rationales of skill/rule importance, teachers explained strategy in terms of what was needed for successful gameplay. Most of the rationales provided in this category included why it is important to maintain control of the ball, placing serves in proper areas of the court, and predicting where the opposing team will hit the ball. For example, Teacher 3 showed an example of space limitations as strategy use among three experienced volleyball players in his class:

> Alright, these three ladies right here kept their game pretty much contained in this area. Okay, so playing volleyball is not a game that the ball should be going wildly all over the gym floor . . . You're limited to your space. That's why you're practicing those skills, to know that your space is contained.

Teacher 3 also used rationales to explain why the serve is important in the game:

> In order to score a point in volleyball, the serve has to be in. And it means it has to be inside the gray lines on the other side of the net that you're standing on. So when you're practicing your serving, you're practicing keeping the ball inside the gray box. Because in order to have a good competitive game of volleyball, you have to be able to put all the skills together.

Acknowledgment and Acceptance of Negative Affect

The smallest representation of autonomy-supportive teaching came through acceptance of students' negative affect. In fact, only one statement supported this behavior class. Teacher 3 provided some support to a student who did not understand why, when executing a spike, the ball could not be thrown down. He responded, "I know, but that's just part of the game," which helped communicate to the student that the teacher had heard his complaint.

Patience

Behaviors displaying patience were the second highest coded autonomy-supportive behavior class. Specific behaviors included general encouragement and questioning. As expected, teachers used general encouragement throughout the unit. This included words such as "good job," "nice work," and "excellent job."

Along with general encouragement, teachers used questioning to reinforce concepts. These questions related to all aspects of skill execution and gameplay, including demonstrating good sportsmanship, deciding which skill execution was most favorable, and how to be successful as a team. The most important aspect of the questioning process was the teacher's ability to wait for student responses, as indicated by Teacher 1: "Well, for someone who is trying to show sportsmanship, what could you do if you had one net? . . . [waits for

student response] . . . You could share, very good." Teacher 3 also showed high levels of patience through questioning while teaching serving:

> Did you watch them do it? [waits for student response] . . . Okay, what did they do? Was it a good serve you think? [waits for student response] . . . Analyze him and see if you can figure out what he's doing. [waits for student response] . . . Right. Now, you do what he did.

Teacher 4 also exhibited this behavior while teaching gameplay strategy to students:

> Where do you think he's going to hit it again? [waits for student response] . . . Yeah, he's going to hit it right in here because he's found somebody that's afraid of the ball.

Teacher 3 exhibited another good example of patience while discussing chemistry of a team:

> What else is there for you to be successful and put six bodies together to make one team? [waits for student response] . . . Chemistry. Unselfishness. There's a good one right there. [waits for student response] . . . Knowing where your position is. So you have to work together, have chemistry, communication. Knowing where you are supposed to be on the floor. All those things work together to make it what? [waits for student response] . . . A team. So I suggest while you are watching these other teams play, you watch to see if there's chemistry. Communication, teamwork, knowing your positions. Seeing maybe that's why your team is not successful.

Discussion

This study used content analysis to determine how and when teachers use autonomy-supportive behaviors within the context of a regular PE class. Generally, the PE teachers in this sample used some of the behaviors more frequently than others. This was especially the case when they gave feedback using noncontrolling and informational language and using nurturing inner motivational resources.

The data suggest that teachers used some of the behaviors in more complex ways than other behaviors, specifically nurturing inner motivational resources and patience. Rationales were provided less frequently than other behaviors, but when used, represented explanations about classroom management and skill development. Few examples of accepting negative affect were observed in the data.

Autonomy Support: How and When

With regard to nurturing inner motivational resources, Sun and Chen (2010) suggest that finding places where choice can be implemented in a controlling environment may be difficult. However, more recent meta-analyses studying interventions indicate that providing autonomy support is possible within controlling environments (Van den Berghe, Vansteenkiste, Cardon, Kirk, & Haerens, 2012). Within the data analyzed for this study, the examples observed are characteristic of simplistic choices, such as what skill will be practiced or how teams will be distributed. The recent literature includes little to no information that suggests that this is an issue, with one study suggesting that autonomy can still be enhanced with these types of simplistic choices (How, Whipp, Dimmock, & Jackson, 2013). As the research into autonomy-supportive teaching advances, however, it would be interesting for researchers to discover if providing more meaningful choice to students can further enhance satisfaction of basic needs in a more profound way.

Internal interests, including relating content to students' interests, were also supported by the PE teachers in this study. It is important for teachers to consistently support students' interests, even when students may not be inherently motivated to complete the task. In this study, teacher were observed encouraging students to apply skills outside of PE and encouraging positive affect. More specifically, teachers encouraged their students by highlighting some of the positive aspects of playing the game, including fun, enjoyment, and camaraderie. Along with internal interests and choice, there was also a brief example of simplified goal setting, with one coach asking students to come back the next day and tell her how they might be more successful. The lack of further evidence and the simplicity with which the goal setting was applied suggest that teachers may not be aware of effective goal-setting practices. Although it is possible that the researchers did not observe this in the days chosen to record,

further investigation into goal-setting practices and their relationship to autonomy-supportive teaching is warranted.

An individual sense of challenge, which is said to nurture inner motivational resources, was also seen, although not by every PE teacher. Teacher 3, in particular, used several student-centered learning techniques to help students challenge themselves. One study conducted in a teacher education program supports this notion, showing that need support can be further enhanced through a gradually introduced student-centered approach (Baeten, Dochy, & Struyven, 2013). Essentially, PE teachers could begin with a more direct approach to teaching basic skills and then move to more student-centered techniques when introducing complex skills, strategy, and full gameplay. This could enhance an individual's sense of challenge and engage internal interests. Connected to this idea, internal initiative was also fostered by the teachers, but not to a great extent. When observed, these statements of internal initiative tended to be shorter than other explanations. The examples provided also hint to a greater sense of responsibility for students, because the teacher asks them to find internal motivation to help other students, which would most likely enhance the experience for all students.

Behaviors associated with using noncontrolling and informational language fell within two distinct categories: encouraging language and positive or neutral feedback related to the task. Within this behavior, many of the statements reflected what was learned in teacher education programs. Most of the encouraging language was used during gameplay and consisted of short, direct, and positively worded statements. For the researchers, this was an interesting finding because currently no literature discusses the provision of autonomy support during gameplay. It is possible that the shortness of the encouragement given is a product of the context, as students would not readily comprehend long-winded explanations while focused on playing the game. The positive or neutral feedback that was relative to the task is also characteristic of what is currently taught in teacher education programs. Three of the teachers had defined strategies for giving feedback that was positive and descriptive enough that students could use the information. This type of feedback also occurred during various times in the lessons, not just during skill acquisition or gameplay.

Low Representation of Specific Behaviors

Although the PE teachers gave many types of explanatory rationales, these represented a very small percentage of the total number of autonomy-supportive statements coded. This is not uncharacteristic of other related studies on autonomy-supportive teaching. Langdon, Schlote, Melton, and Tessier (2017) conducted an intervention with university physical activity instructors and found that the initial use of explanatory rationales was low. Within this behavior, rationales were sometimes for classroom management, which brings to the light the idea that autonomy support could be an effective way of managing students when the educator explains why order is needed in the classroom. In addition, teachers can use explanatory rationales to explain how a game is played so that students not only understand the rules, but also why the rules exist. Gameplay strategy is related to this in that it requires an understanding of cause and effect, where rationales play a large role in helping students understand the game.

An even smaller percentage of statements supported acknowledgment and acceptance of negative affect. With only one statement that supported this behavior, this suggests that it is either not easy for PE teachers to implement or not a focus of PE teachers. Indeed, researchers investigating the implementation of autonomy-supportive teaching suggest that adoption of such behaviors could be influenced by the teacher's conception of what is effective, by the ease of implementation, and by the normativeness of such behaviors in the school context (Reeve et al., 2013). From this perspective, the lack of acknowledgment and acceptance of negative affect could be explained by these reasons. Teachers at this school did not have previous experience in autonomy-supportive teaching, nor were they aware of the importance of accepting negative affect. From a behavior management standpoint, accepting negative affect is not normally recommended. Considering these explanations by Reeve et al. (2013), it may be important for researchers to highlight effectiveness, ease of implementation, and school norms for teachers to enhance their use of this behavior.

Interconnectedness of Behaviors

The results of this study show the existence of the interconnected nature of the autonomy-supportive behaviors. Although the coded

statements highlighted one behavior at a time, some evidence suggests that autonomy-supportive behaviors do not exist in a vacuum. In essence, teachers can use the behaviors simultaneously to provide support to students. For example, the teachers provided explanatory rationales to help students acquire volleyball skills. When connected to the internal interest and sense of challenge aspects of nurturing inner motivational resources, teachers could help students reach their goals, by explaining how communication and skill development lead to success. This was also seen when the teachers provided patience through questioning. Teacher 3 used questioning frequently to engage students in learning, but did so with a great deal of pause between asking the question and getting an answer. From the researchers' point of view, this teacher was more interested in the students' answers than using questioning in a superficial manner.

Limitations

Although the researchers paid careful attention to ensure validity and reliability of the study, generalizability to other teaching contexts is limited. This is mostly due to the low sample size. The results are specific to volleyball instruction in a high school setting and thus may not apply to applications of motivational behaviors in other settings. The data collected represent several time points in the unit of instruction, but more data could also have been helpful and ensured further consistency of the behaviors. Future work in this area should include more observations of teachers in a variety of movement forms and activities among different age groups.

Conclusions

Autonomy-supportive teaching behaviors allow teachers to move past what Martinek (1997) describes as "conventional wisdom and simplistic techniques" (p. 32). Based on evidence from this study, teachers in a high school environment tended to use some of these behaviors more often than others. The use of informational feedback and patience reinforce the idea of a connection between autonomy-supportive teaching and best practices. The lack of evidence of certain autonomy-supportive strategies used in the PE context implies room for improvement. Many of the benefits to students in this context cannot be fully realized unless a wider range of strategies are used. In addition, deeper levels of strategy use could

improve motivation among students. Future studies could address this by training teachers to use a more sophisticated method of goal setting, to better acknowledge negative affect, and to provide more detailed rationales. It would also be pertinent for research to determine the ways that choice enhances feelings of need satisfaction from a student perspective.

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PEDAGOGY

An Assessment of Student Learning and Instructional Methods in a Golf Skills Physical Education Course at a Public University

Kevin M. Fisher

Abstract

Inquiries have shown that students enroll in sport skills courses in college to learn a new activity, have fun, improve skills, and increase physical activity. However, physical education course requirements at 4-year universities have hit an all-time low. This study assessed learning in and student perceptions of a university golf physical education course. Student goals, instructor feedback, and course structure were examined. Twenty-one students enrolled in a university beginner golf class were surveyed about their knowledge and experience in the course. Participants were given a survey related to basic golf knowledge that featured questions that were derived from material in the course textbook and created in collaboration with the course instructor. Participants also completed a survey related to instructional methods. It was developed in collaboration with motor learning experts and assessed perceptions of instruction. Primary student goals included improving swing technique and ball flight. To improve the class, participants suggested a smaller class with more individual instruction, an increased focus on driving, and an allocation of time for playing

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rather than solely practicing. This assessment provided evidence that a golf skills class significantly increased basic golf knowledge, along with self-ratings of knowledge and interest in the sport. These findings provide evidence for benefits of participating in golf skills courses, suggest that such activity courses can be effective at increasing a person's disposition toward participation, and elucidate areas for improvement.

Students at many colleges and universities have the opportunity to participate in physical education courses in a diverse array of sports and activities. Examples range from sports such as golf, softball, and soccer to activities such as dance, yoga, and conditioning. Research has shown that students enroll in such courses to learn a new activity, have fun, improve skills, and increase physical activity (Leenders, Sherman, & Ward, 2003). Students in these courses can learn new skills with formal instruction in a structured environment, and they can take a break from the traditional, quotidian classroom setting. For example, one program website from a state-sponsored, Southeastern university describes the role of physical education courses:

> Sport, dance, and exercise are essential parts of our culture and contribute significantly to healthy and satisfying lifestyles for people of all ages. It is our goal to provide opportunities for the university community in a variety of exercise/performance activities from a theoretical and practical base that will bring enjoyment while teaching the essentials for successful participation. ("Kinesiology, Recreation, and Sport," 2013, Physical Education Activity Program section, para. 1)

However, while these classes can offer benefits to students, physical education course requirements at 4-year universities in America have hit an all-time low, suggesting a decline in an emphasis on participation in such courses (Cardinal, Sorenson, & Cardinal, 2012).

Research concerning physical education courses has not explored sport-specific course outcomes to examine if benefits such as knowledge and feelings of interest are being conferred to students. For the assessment of whether students are learning a new skill adequately, a class tailored to novices should be chosen. Ideally, the activity in question should challenge the learner to increase knowledge

regarding a variety of materials to perform successfully in the course, and participation in the activity should have the potential to confer health benefits. Based on the aforementioned criteria, a beginner golf class was chosen for this study. As research has suggested, golf can be a challenging skill to learn, and walking a typical 18-hole round of golf can yield a step count of approximately 12,000 steps, which exceeds the general 10,000-step recommendation for health benefits (Iwane et al., 2000; Kobriger, Smith, Hollman, & Smith, 2006; Lindsay & Vandervoort, 2014). During an interview with the Physical Education Activity Program director of a Southeastern university, three goals of the golf class were established:

1. to learn tactical knowledge about golf such as rules, etiquette, and strategy;
2. to learn technical knowledge about golf and have some type of reliable swing pattern; and
3. to make new friends and meet people in a golf setting. (E. Catignani, personal communication, September 28, 2012)

In accordance with these outcomes, golf instructors are expected to have prior golf experience and be familiar with the tactical and technical aspects of the game. Golf classes are similar to other physical education classes that require students to learn a new skill: Students are expected to develop fundamental skills from the beginning level through teaching techniques such as verbal instruction, demonstration, and practice (Schmidt & Lee, 2013).

One interesting aspect of the sport of golf is that while it can be enjoyed by men and women, there is a discrepancy in the levels of participation, with significantly and consistently higher numbers of men choosing to play than women (Newport, 2010). Such differences have been attributed to the institutional (i.e., societal) and interactional barriers that females may face when attempting to learn or play golf. Examples of societal barriers include sexism in the form of unwelcoming staff or players at courses; feelings of being ignored, overlooked, or unimportant on golf courses; or instances of verbal or physical sexual harassment (McGinnis, McQuillan, & Chapple, 2005). Because of this difference in participation levels and the persistence of barriers that may be fueling such a discrepancy, an examination of potential sex differences in areas such as course

content knowledge or perceptions of instructional methods could be worthwhile.

Research in motor learning suggests that certain pedagogical methods and practice environments are more conducive to learning, particularly for novices, compared with alternative approaches (Magill & Anderson, 2013). By establishing the structure, content, and atmosphere of practice, an instructor plays a key role in determining how well students learn. Elements of practice such as format (e.g., blocked or random practice), attentional direction (e.g., broad vs. narrow or external vs. internal), and feedback (e.g., content, timing, or delivery) can play a significant role in performance during practice and subsequent learning. Therefore, these important pedagogical aspects should be examined and discussed.

This study evaluates the overall effectiveness of instructional methods in a single golf activity course and offers insight into student learning and perceptions of course content. This study seeks to answer two main questions:

- In this course, are novice participants learning basic knowledge related to golf? Specifically, are students learning tactical knowledge such as rules, etiquette, and strategy, and are they learning technical knowledge such as proper swing mechanics?
- In this course, what is the methodology by which students are learning, and what are their perceptions of these methods? Specifically, what is the content and structure of practice, and are students satisfied or dissatisfied with the various aspects of this approach?

Method

Participants

Participants included 21 students enrolled in a beginner golf activity course at a Southeastern public university. This study was approved by the university internal review board, and all participants signed an informed consent agreement prior to participating in data collection. The average age of participants was 22 years old, with a range from 18 to 24 years. Sixteen students were male and five were female. Participants' responses to survey instruments were kept confidential and anonymous.

Design

This study utilized a pretest–posttest qualitative design to assess students' golf knowledge and the instructional methods (posttest only) of a beginner golf activity course. Students completed a pretest survey related to their knowledge of golf prior to the start of course instruction and a posttest survey related to their knowledge of golf after completing the course. This assessment tool, termed the Golf Knowledge Survey (GKS), featured questions about demographics, course interest, and course material. Questions about course material were created in collaboration with the instructor, based on information from the course textbook (McCord, 2011), and were derived from assessment instruments that had been used in the course in previous semesters. For the purposes of comparison and ruling out the possibility of maturation effects, a control group in a physical education course unrelated to golf was assessed on the GKS at the beginning and end of an 8-week period. During the posttest, students in the golf class also completed an Instructional Methods Survey (IMS), which was designed to provide insight into course structure and content and into student perceptions of these areas. Question formatting, structure, and content were based on research of classroom assessment techniques (Angelo & Cross, 1993; Wright, 2008).

Procedure

Pretest survey data were collected from the golf class and the control group on the first day of class. Participants filled out the GKS and answered open-ended questions related to their golf knowledge. For results from the GKS at both time points to be connected, each participant was assigned a random identification number. The posttest survey was administered at the conclusion of instruction, which took place over 8 weeks, and featured the same questionnaire related to golf knowledge. In addition to the GKS, participants also filled out the IMS during this time.

Data Analysis

Golf knowledge. Descriptive information was averaged for each category. For an analysis of performance on the GKS, students' pretest and posttest surveys on golf knowledge were scored out of

100 points (i.e., similar to a midterm or final examination that might occur in such a course). Scores were then compared for significant differences from the pretest to the posttest via a dependent samples *t* test. Alpha levels were set at .05.

Instructional methods. For an analysis of performance on the IMS, scores on Likert scale questions were averaged for each question. For open-ended survey questions, two independent raters coded themes, and response patterns and consistencies were determined.

Results

Descriptive Information

Participants' average self-rating of golf knowledge during the pretest was 3.05 (SD = 1.43) on a Likert scale from 1 to 7, while the average self-rating of golf knowledge on the posttest was 4.43 (SD = 1.26). A dependent samples *t* test revealed among participants significantly higher self-ratings of golf knowledge on the posttest, $t(20) = 5.26$, $p < .001$. Participants also rated their interest in the game of golf. Participants' average self-rating of golf interest during the pretest was 5.00 (SD = 1.18) on a Likert scale from 1 to 7, while the average self-rating of golf interest during the posttest was 5.68 (SD = 1.20). A dependent samples *t* test revealed among participants significantly higher self-ratings of golf interest on the posttest, $t(20) = 3.84$, $p = .001$. Finally, participants rated their interest in the class. Participants' average self-rating of class interest during the pretest was 5.33 (SD = 1.06) on a Likert scale from 1 to 7, while their self-rating of class interest during the posttest was 5.71 (SD = 1.10). An dependent samples *t* test revealed that participants' increase in class interest was not significant, $t(20) = 2.02$, $p = .057$. Table 1 shows a summary of these data.

Table 1
Self-Perceptions of Golf Knowledge, Golf Interest, and Current Class Interest

	Pretest		Posttest	
Variable	***M***	***SD***	***M***	***SD***
Golf Knowledge	3.05	1.43	4.43	1.12
Golf Interest	5.00	1.26	5.67	1.20
Class Interest	5.33	1.06	5.71	1.10

Data were also analyzed for sex differences in the aforementioned ratings. Pretest results revealed that females demonstrated significantly lower self-ratings of golf knowledge (M = 1.80, SD = 1.30) than males did (M = 3.44, SD = 1.26), $t(19) = 2.51$, $p = .021$. However, posttest results showed no significant differences of self-ratings of golf knowledge between females (M = 3.60, SD = 1.67) and males (M = 4.69, SD = .79), $t(19) = 2.037$, $p = .056$. Pretest results further revealed that females demonstrated significantly lower self-ratings of golf interest (M = 4.00, SD = 1.58) than males did (M = 5.31, SD = 1.01), $t(19) = 2.21$, $p = .039$. However, posttest results showed no significant differences of self-ratings of golf interest between females (M = 4.80, SD = 2.05) and males (M = 5.94, SD = .68), $t(19) = 1.99$, $p = .062$. With regard to class interest, males and females showed no significant differences at pretest, $t(19) = 1.87$, $p = .087$, or posttest $t(19) = 1.21$, $p = .241$.

Golf Knowledge Survey

Participants' average score on the pretest was generally low (M = 51.30, SD = 12.43) and ranged from 24 to 72. Participants' average performance improved on the posttest (M = 63.22, SD = 13.24) and ranged from 45 to 93. Sixteen individuals improved on the posttest, while five individuals performed worse. A dependent samples *t* test revealed a significant improvement in golf knowledge scores, $t(20) = 3.68$, $p = .001$. Control participants' average score on the pretest was generally low (M = 50.72, SD = 10.93) and ranged from 28 to 69, while control participants' average performance on the posttest showed little change (M = 50.74, SD = 13.67) and ranged from 24 to 69. A dependent samples *t* test revealed no change in these scores related to golf knowledge, $t(24) = -.008$, $p = .994$. Figure 1 shows a summary of these data. Additional analyses were performed on data from individuals in the golf class and potential sex differences were examined. Results indicated similar scores on the pretest for females (M = 48.25, SD = 12.91) and males (M = 53.86, SD = 12.40), $t(19) = .875$, $p = .393$, but significantly different scores on the posttest such that females (M = 49.63, SD = 7.15) scored lower than males (M = 67.47, SD = 11.80), $t(19) = 3.169$, $p = .005$. Figure 2 shows these results.

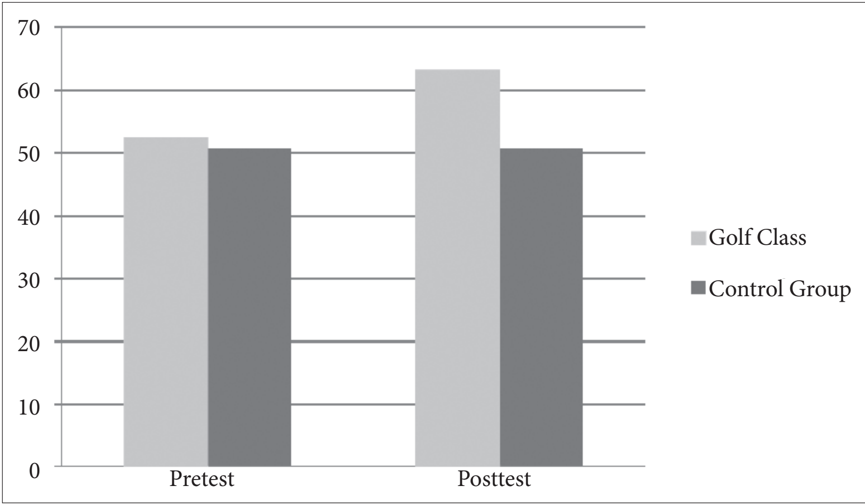

Figure 1. Pretest and posttest scores from the GKS for a golf class and a control group.

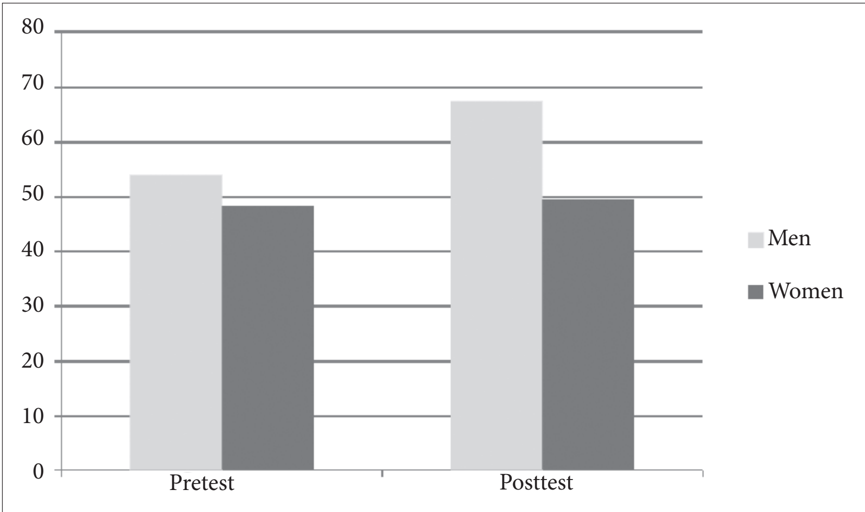

Figure 2. GKS scores by sex for a beginner golf class.

Instructional Methods Survey

Participants' scores on the quantitative questions were recorded and averaged, which provided an indication of students' opinions concerning the quality and substance of instructional methods in the class. Students, on average, reported having 1 to 2 absences throughout the term ($M = 1.14$, $SD = .96$) with a range from 0 to 3 absences. Results generally indicated that participants would start putting during the beginning of class to warm up for 5 to 10 min prior to the day's lesson. After the lesson, half of the class would remain on the putting green to practice putting, while the other half of the class would go to the driving range and practice with wedges or irons. At the midpoint of class, the two groups would switch roles. Participants reported practicing putting and hitting irons on the range the most and chipping and hitting drivers the least. Student goals revolved around learning the fundamentals of the game and improving areas such as swing techniques, contact, or ball flight. A majority of participants ($n = 14$) reported an internal focus of attention ("executing the correct movements"), while four reported an external focus of attention ("outcome of the shot"). The remainder ($n = 3$) focused on both of these. A majority of participants ($n = 13$) reported receiving reinforcing (i.e., positive) and corrective feedback from the instructor. Two participants reported receiving mostly reinforcing feedback, while six students reported receiving mostly corrective feedback. With regard to the strengths of the instructor, students indicated that the instructor was knowledgeable about the subject matter and good at providing instruction and explaining techniques. With regard to improving the class, participants generally reported having a smaller class size for more one-on-one instruction, increasing the instructional time related to driving and chipping, and providing class time to play holes on the course rather than focusing only on practice.

Discussion

The results of this evaluation of a golf activity course provide insight into the knowledge students gained in the class and the instructional methods that were used to teach students. Results indicated that students significantly increased their knowledge base with regard to subjects such as tactical and technical knowledge related to golf, and they demonstrated a significant increase in self-reported

scores of golf knowledge and golf interest. This suggests that the golf class helped students prepare to play and practice golf in the future, and based on the increased self-reported interest in golf, these students may be more likely to continue playing than they were at the start of the course. Because golf provides physical activity and recreational enjoyment, this class could help students become more physically active through engagement in a lifelong sport that is challenging, enjoyable, and social (Haskell et al., 2007; Palank & Hargreaves, 1990; Parkkari et al., 2000; Versteegh, Vandervoort, Lindsay, & Lynn, 2008). As reported by Moore, Harris, Carlson, Kruger, and Fulton (2012), 1 in 4 U.S. adults reports that they engage in no leisure-time physical activity, and such a class could encourage participation in leisure-time physical activity.

However, while this improvement in knowledge scores is significant, the mean scores of the posttest still remain low. This result may indicate a need for instructors to emphasize such material during class, but it may be due to time constraints or the complexity of the game of golf. As the data suggested, the instructor spent most of the class time on certain elements of the game while neglecting others, based on the students' opinions. Presumably, these aspects were emphasized because of their perceived importance to the instructor. Material from a textbook may be read and studied independently, but movement patterns may be shaped with feedback during class. As a result, it seems appropriate for instructors to focus on the latter aspect of golf in class rather than rules or etiquette. As novice players attempt to learn golf, it is necessary for players to balance the amount of time spent engaged in physical practice and the amount of time spent learning rules or strategy, and the acquisition of this knowledge may require more time than an activity course can provide over a semester.

It was interesting that females generally displayed lower levels of self-reported golf knowledge and golf interest prior to the class than males, while the two groups displayed similar levels of these two measures after the class. These results indicate that females increased their self-perceptions of knowledge and interest to levels similar to males, and females may have the most to gain from such a class in these areas because of initial differences in motivation, self-efficacy, or perceived competence related to golf (McAuley & Blissmer, 2000;

Williams & Gill, 1995). Results on the GKS, however, indicated that both groups performed similarly on the pretest, while females performed significantly worse on the posttest than males. While ascertaining the potential reasons behind these findings is difficult, they raise some concerns. In future classes, it might be beneficial for researchers to explore the possibility of establishing an all-female class to increase accessibility to a predominantly male class. Such a class might be more likely to increase engagement in course topics and encourage relevant discussion. Research has shown positive effects in other predominantly male disciplines such as mathematics, engineering, and computer science (Crombie, Abarbanel, & Trinneer, 2002; Wood & Brown, 1997). It would be interesting to examine if similar positive effects may be observed in activities such as golf.

Based on students' accounts of the use of class time and the structure of practice, putting was practiced the most and students generally found this activity beneficial to overall learning and performance. However, it is recommended that to gauge interest, instructors focus class instruction more on underemphasized skills such as chipping and driving so that novice students can achieve a well-rounded experience of the game. Student goals were generally focused on novice techniques and improving fundamentals and thus in line with the scope of the class. With regard to other improvements to the class, it is recommended that the maximum enrollment of the class be limited, if possible, and extra sections added for the instructor–student ratio to be reduced. Such a reduction would provide the instructor with more time to work individually with students and provide specific, one-on-one feedback for improvement. Research in physical education and other academic areas has shown that smaller class sizes tend to produce better learning outcomes (Hastie & Saunders, 1991; Schwarz, Schmitt, & Lose, 2012). Additionally, it is recommended that future instructors consider utilizing a portion of class time to have students engage in playing golf rather than only practicing on a driving range. Playing a few holes might help reduce the monotony of practice and further expose novices to a new experience in the areas of physical activity and leisure or recreation.

Motor learning research suggests that instructors should utilize a random practice structure, instead of temporary performance, to facilitate learning and better simulate the conditions of sport (Schmidt & Lee, 2013). During golf practice on the range, however, it is common for players to hit with the same club or shot repeatedly and engage in a blocked practice style, which may be useful for building confidence on the range, but transfer poorly to the course under playing conditions. Attentional focus research has suggested that learners should adopt an external attentional focus to reduce constraints upon the motor system and improve skill performance (Wulf, 2007). However, in this study, a majority of novice golfers were concerned with their own body movements and thus held an internal focus of attention. Instructors should strive to have students maintain an external focus of attention while practicing even though they may have to draw attention to specific body parts to correct technical or mechanical flaws. Finally, the majority of participants in this study reported receiving reinforcing and corrective feedback, which suggests an instructional style that trends toward a balanced approach, which can have benefits for learning (Cox, 2011). However, with so many critical variables that the instructor needs to consider in providing effective feedback, such as type, timing, frequency, and format (see Salmoni, Schmidt, & Walter, 1984, for a review), it is difficult for the experimenter to determine without direct observation if the instructor was providing effective feedback for learning.

Limitations

This study focuses on outcomes related to a single university golf activity course, and thus, it is unclear if these results generalize to other activity courses. The experimenter utilized previous research in survey design to guide the wording and content of the surveys utilized in this study and consulted with experts in relevant areas, such as a golf instructor regarding content of a knowledge exam and an expert in motor learning regarding instructional methodology. However, the two surveys utilized in this study have not been rigorously tested for reliability and validity and were designed solely for the purpose of this study. Further examination of these instruments needs to determine if their content or format could be applicable to

other golf or activity classes. Additionally, the pedagogical methodology examined in this course was based on the preferences of a single instructor. While this study provides insight regarding the methods utilized in this course, it should be noted that there are diverse ways of teaching motor skills, and thus, these results may not generalize to other instructors. Finally, the number of female participants in this study was limited in comparison to male participants. As a result, it is difficult for the experimenter to draw conclusions regarding sex differences, and future research with more participants needs to address this question.

Practical Applications

The popularity of golf has declined in America in recent years, with fewer individuals willing to invest the time and money to engage in learning the game or playing a full round of 18 holes (Greenfield, 2015; Stachura, 2017). Additionally, current trends suggest that fewer business deals are being conducted on the course, as Americans opt for other avenues to fulfill business and/or leisure needs (Burke, 2017). Based on these trends, changes have occurred in the golfing community to increase participation, such as the USGA introducing its Play 9 campaign in 2014, courses relaxing rules such as those related to dress code, and country clubs adding amenities to increase the allure of membership. In the early 2010s, overall golf participation among individuals aged 18 to 34 was down 5%, compared to the 1990s. This age range could be critical for getting individuals to learn the game and become interested while they are still relatively young in terms of physical age and career pursuits. Golf physical activity courses in higher education could be an important instrument through which the rules, etiquette, and technical skills can be properly taught. Additionally, these types of classes could be a catalyst for stimulating lifelong interest in the sport. Due to these ramifications, it is important that instructors and coaches in such roles understand the needs and perceptions of their students to improve participant satisfaction. Additionally, it is important that instructors and coaches understand fundamental principles of motor learning to improve the quality of instruction and maximize the benefits and efficiency of limited resources such as class time or course utilization.

Conclusions

This study evaluated the instruction and student perception of a golf physical activity course by examining learning outcomes in the form of a content-related exam, instructor methods in the form of a survey related to practice structure, and student feedback in the form of a survey related to course strengths and recommendations for change. From a pedagogical standpoint, it is important for instructors to examine these areas to ensure that students who enroll in such courses receive content knowledge and a positive experience. From a motor learning perspective, it is important for instructors to utilize a practice structure that is most appropriate for the learner and conducive to improvement. Based on the results of this study, a golf activity course can be a medium through which students can significantly increase their fundamental knowledge and interest in the game of golf. These attributes could influence participation rates in the future and lead to higher levels of physical activity or leisure enjoyment. Additionally, some avenues for improving such a course might be a smaller instructor–student ratio and a greater focus on progressing toward playing the game rather than simply practicing. Future research should examine similar outcomes in other activity courses to determine if these results are generalizable to other sports or if there are specific differences. Additionally, more research needs to examine differences in participation levels and experiences across demographic factors such as sex, race or ethnicity, and skill level.

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PEDAGOGY

Bias in Physical Educators' Grading Practices With ELA Literacy

Clancy M. Seymour and Kristin E. Finn

Abstract

As accountability initiatives in public education such as the Common Core State Standards (CCSS) begin to gain traction, it is apparent that physical educators must integrate English Language Arts (ELA) literacy tasks into their daily instruction. This study tested whether physical education (PE) teachers have less experience and exhibit bias when grading ELA literacy tasks, compared to non-PE teachers. Participants from this study included 201 teachers from 77 schools in a local region of New York State. Results revealed that approximately 90% of PE teachers reported having little to no experience with grading ELA literacy assignments. In addition, physical educators were significantly more critical than their non-PE counterparts; ELA assignments were judged as being lower quality, being less neat, having poorer sentence structure, and showing less effort. The lack of consistency between PE teachers and non-PE teachers raises questions about validity and whether there is a need for more professional training should the CCSS mandate continue in PE.

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The educational standards movement in the United States in the early 1990s prompted each state to define its own grade-level proficiencies (Common Core State Standards Initiative [CCSI], n.d.-b). As a result, every state by the early 2000s had developed its own learning standards. While this was a promising improvement, the lack of uniformity among states necessitated a more standardized set of goals (CCSI, n.d.-b). The Council of Chief State Officers and the National Governors Association developed the Common Core State Standards (CCSS) in 2009 to operationalize learning in K–12 English Language Arts (ELA) and mathematics (CCSI, n.d.-a). The CCSS have been adopted in 42 states and four territories in the United States (CCSI, n.d.-b).

Although standards for physical education (PE) were not included within this initiative, the CCSS defined PE as a technical subject and called for it to aid in the acquisition of the CCSS (CCSI, n.d.-c; James & Bullock, 2015). This resulted in the request that physical educators consider integrating ELA and mathematical literacy into daily lessons (James-Hassan, 2014). It should be noted that while the CCSS encourages ELA and mathematics integration, it expects only that physical educators support ELA learning.

The literature addressing the general effects of the CCSS from a positive and negative context is robust (e.g., Accountability Works, 2012; Au, 2013; Conley, 2011; Mathis, 2010; Saltman, 2014), while there is a dearth of research examining the CCSS's implications on PE. At the same time, prescriptive publications that provide useful strategies for physical educators to utilize and integrate the CCSS and ELA are plentiful. For example, Ballinger and Deeney (2006), James and Bullock (2015), James-Hassan (2014), Mercier, Whitley, and Manson (2014), and Scrabis-Fletcher (2016) have suggested techniques such as class projects, entry and exit slips, summary paragraphs, and readings that PE instructors can require K–12 students to complete in and out of class.

The adoption of the CCSS reinforces an interdisciplinary approach to literacy that has been stressed in PE teacher education for quite some time (James & Manson, 2015; Mercier et al., 2014). In a review of the integration literature in PE from 2004 to 2013, Marttinen, McLoughlin, Fredrick, and Novak (2017) found that it may be helpful for physical educators to consider interdisciplinary

themes to reinforce PE's standing as part of a well-rounded education. However, Marttinen et al. (2017) cautioned that the most common subject for integration is mathematics and that the literature on ELA interventions is limited. This is an important point given that the CCSS defines PE as a technical subject with a supportive role for physical educators in reaching the ELA standards.

Conversely, critics of the reform argue that content areas such as PE have not been considered in the development of the CCSS, which devalues the relationship between the mind and body (Magnotta & Darst, 2015). Additionally, Lounsbery and McKenzie (2015) and Seymour and Garrison (2015) argue that the current educational reform agenda has ". . . triggered a possible shift in the goals of PE . . . and have physical educators scampering to comply with mandates that pressure them to adopt traditional methods of assessment that focus on the cognitive domain" (Seymour & Garrison, 2015, p. 406).

Incorporating ELA literacy into PE classes may also be problematic given the current educational climate in public education regarding teacher evaluations. For example, 30 states now use student test scores (value-added model) as part of a teacher's effectiveness rating (Rink, 2013). Seymour and Garrison (2016) recently showed that only 38% of New York State physical educators reported utilizing students' written PE test results for teacher evaluation purposes and 18% reported the use of state-mandated ELA and mathematics tests scores that align to the CCSS. Therefore, in addition to their own disciplinary content, physical educators are being asked to infuse literacy concepts into their daily instruction (Mercier et al., 2014). As a result, physical educators could be utilizing assessments that focus on literacy, yet may need more training with ELA integration strategies and confidence applying these principles in the gymnasium (Constantinou & Wuest, 2015). Furthermore, the integration of literacy content requires that PE teachers learn to assess and evaluate these tasks, which may require additional training and resources for professional development (Collier, 2011; Mercier & Doolittle, 2013). Thus, it seems logical that we question how accurately PE teachers can assess ELA literacy content. This study examined the validity of PE teachers assessing ELA literacy content. Specifically, we compared PE and non-PE teachers on grading an ELA literacy assignment. The following research questions were tested:

1. Do elementary and secondary PE teachers report equivalent experience with grading ELA literacy assignments, compared to non-PE teachers?
2. Are ELA literacy assignments comparably graded by elementary and secondary PE teachers and non-PE teachers?
3. Do elementary and secondary PE teachers rate the quality of work on ELA literacy assignments the same as non-PE teachers do?

Method

Participants

Participants in this study were 201 teachers working in 28 high, 18 elementary, 13 K–8, and 18 middle schools in the Northeastern United States. Over half the teachers (62%) were female. About 8% of teachers were under 30 years of age, 30% were between ages 30 and 39 years, nearly half (48%) were between ages 40 and 49 years, and 14% were 50 years or older. Regarding subject matter, 15% of teachers indicated typically teaching ELA, 17% mathematics, 13% science, 10% history, 6% physical education/health, and 38% other (e.g., language, special education, music, technology). Concerning number of teaching years, experience ranged from first year to 45 years ($M = 16.2$, $SD = 7.0$) of teaching.

Procedure and Measures

Surveys were administered to teachers electronically and in person. Invitations were electronically sent to 80 physical educators, and 68 voluntarily participated in the study (85% response rate). The online data ($n = 68$) were collected through the Qualtrics survey management system. In-person data ($n = 133$) were collected from teachers during a mandatory monthly staff meeting at their respective schools.

Teachers read and evaluated a short handwritten essay written by a sixth-grade student. Teachers were falsely led to believe that in an effort to deemphasize classroom testing, this study was conducted to determine whether individual pieces of authentic classroom writing assignments could be used to validly assess student achievement levels. For an increase in the authenticity of the task, a photograph of the student, fictitious birthdate, age, and grade information

accompanied the essay. After reading the essay, teachers completed a brief survey that assessed ratings of the student's work.

To decrease confounding factors and increase validity, the study investigators included in the research design four essays and four students. Thus, each teacher was randomly assigned to one student–essay combination. The brief essays were typical writing samples obtained from three independent Grade 6 classrooms (one private school, two public schools). As part of a classroom writing exercise, teachers in each school asked students to write a brief essay about health and fitness. The study investigators selected four essays to be used in this study. They chose the essays because they were deemed to be of average writing quality indicative of a Grade 6 student. Three external educators who have expertise in writing skills at the middle school level judged face validity of the essays. They judged essays on overall quality, sentence structure, and word choice. They deemed all essays to be within the range of average quality; no essay received either extremely high or extremely low quality ratings from the external judges. Headshot photographs of four female middle school students were taken by one of the investigators after obtaining parental permission. All of the girls attended schools other than the ones that participated in this study and were the same race (White) with straight shoulder-length hair. The study investigators chose these girls because they were physically deemed to be typical of middle school girls of this age.

Type of teacher. As part of their background information, teachers indicated the subject area they typically teach. Response options included ELA, mathematics, science, history, physical education/health, and other. This variable was dichotomized, which allowed for comparisons between teachers of PE and all other subjects.

Grading experience. A single item, "How much experience do you have grading essays from students in Grades 6–8?" measured grading experience. Teachers responded using a 4-point scale ranging from 1 = *none* to 4 = *a lot*.

Ratings of the work. Teachers graded the essay using seven quality ratings. Overall quality was judged on a 5-point scale (1 = *below average* and 5 = *above average*). Teachers assigned a grade to the essay using a 10-point scale (1 = *F* and 10 = *A*). They also judged essays on sentence structure, vocabulary/word choice, organization,

and creativity. Each rating was based on a 5-point scale ranging from *poor* to *excellent*.

Teachers also judged on a 5-point scale (1 = *extremely low* and 5 = *extremely high*) the amount of effort the student expended when writing the essay. They assessed neatness of the student's work on a 5-point scale (1 = *extremely low* and 5 = *extremely high*). Finally, teachers were asked if they would recommend that the student receive remedial help with writing (1 = *definitely not* and 4 = *definitely yes*).

Analysis

For the first research question, a chi-square test of association examined whether PE teachers reported less experience grading essays than did non-PE teachers. For all other research questions, the data were analyzed with a two-way analysis of variance (ANOVA) model for unequal cell *n*s. Type of teacher and essay were the factors of classification, and ratings of the work were the dependent measures. The primary research analyses addressed whether PE teachers gave equal ratings of work quality, compared to non-PE teachers. While not a primary research question, including the essay factor in the model ensured that the relationship between type of teacher and essay ratings was not specific to any particular essay (i.e., no interaction between type of teacher and essay). Given the nondirectional hypotheses for the main effect of type of teacher, two-tailed tests of significance were used with the alpha level set to .05. Type I sums of squares tested for main effects—controlling for prior main effects in the analysis—and for interactions that held constant the main effects.

Results

Table 1 shows the results for the first research question. The significant chi-square test of association indicated that PE teachers reported different levels of experience grading essays, compared to non-PE teachers, $\chi^2(3) = 22.58$, $p < .01$. Approximately 90% of PE teachers indicated they had either no or little experience grading essays, compared to 60% of non-PE teachers who also reported no or little experience. Further, no PE teachers perceived they had a lot of experience grading essays, compared to 18% of non-PE teachers.

Table 1
Percentages for PE and Non-PE Teachers Who Reported Experience Grading Student Essays

Experience grading essays	Type of teacher		Total
	PE	Non-PE	
None			
Count	42	44	86
% within experience grading essays	48.8	51.2	100.0
% within type of teacher	55.3	35.5	43.0
Little			
Count	26	31	57
% within experience grading essays	45.6	54.4	100.0
% within type of teacher	34.2	25.0	28.5
Some			
Count	8	27	35
% within experience grading essays	22.9	77.1	100.0
% within type of teacher	10.5	21.8	17.5
A lot			
Count	0	22	22
% within experience grading essays	0.0	100.0	100.0
% within type of teacher	0.0	17.7	11.0
Total			
Count	76	124	200
% within experience grading essays	38.0	62.0	100.0
% within type of teacher	100.0	100.0	100.0

The 2 × 4 (Type of Teacher × Essay) ANOVA tested the hypotheses that ELA literacy assignments would be graded and judged differently by PE teachers compared to non-PE teachers. This series of tests examined whether PE teachers assigned different grades and directly assessed writing components of the essay differently than did non-PE teachers (Research Questions 2 and 3). Table 2 shows mean group differences and effect sizes for teacher type.

Table 2
Means and Effect Sizes for PE and Non-PE Teachers on Ratings of Work

Outcome	PE teachers		Non-PE teachers			Cohen's
	n	*M*	*n*	*M*	*SD*	*d*
Overall quality*	76	2.32	125	2.67	.87	.40
Overall grade	76	4.93	122	5.14	1.79	.12
Sentence structure*	76	2.08	124	2.47	.83	.47
Vocabulary/word choice	75	2.36	124	2.52	.75	.21
Organization	75	2.31	125	2.52	.89	.24
Creativity	74	2.22	125	2.26	.89	.05
Neatness*	73	2.73	124	3.27	.69	.78
Effort*	76	2.63	124	3.12	.58	.85
Remedial*	76	2.84	125	2.59	.71	.35

Note. Pooled within-group standard deviation in 2-way model.

*Statistically significant difference between PE and non-PE teachers.

A significant difference between teacher groups was found for ratings of the overall quality of the essay, $F(1, 193) = 7.98$, $p < .01$. Examination of the cell means showed that PE teachers assigned lower quality ratings to the essays, compared to non-PE teachers. The Cohen's *d* effect size was .40, indicating a moderate effect. Although PE teachers judged the essays to be lower in quality, the grade assigned to the essay was not significantly different for PE and non-PE teachers, $F(1, 190) = 0.61$, $p > .05$. On average, PE and non-PE teachers gave an average grade of C+ to the essays. Interactions of teacher type with essay were not significant for quality rating or essay grade.

In addition to these overall assessments, teachers judged essays on specific aspects of writing such as sentence structure, vocabulary/word choice, organization, and creativity. Essays graded by PE teachers were regarded as having worse sentence structure than those graded by non-PE teachers, $F(1, 192) = 10.89$, $p < .01$. A moderate effect size of .47 was found for the difference. There were no significant differences between PE and non-PE teachers on the other writing characteristics. Finally, all interactions of Teacher Type × Essay were nonsignificant, indicating that any assessment differences between

PE and non-PE teachers did not vary as a function of which essay they graded.

Beyond overall grading and structural ratings of the essays, teachers indicated the degree to which the student work was neat, perceived amount of effort the student put forth, and the extent to which they would recommend remedial assistance or tutoring in writing. Results from the ANOVAs showed statistically significant differences between PE and non-PE teachers on all three measures; there were no significant interactions of Teacher Type × Essay. Regardless of which essay was graded, PE teachers judged the handwritten work to be less neat than did non-PE teachers, with a large effect size of .78, $F(1, 189) = 28.15$, $p < .01$. PE teachers, compared to non-PE teachers, reported that the students put forth less effort on the assignment, $F(1, 192) = 33.69$, $p < .01$. This effect was also large ($d = .85$). Finally, PE teachers, compared to non-PE teachers, were more likely to recommend that students receive tutoring or remedial help with writing, $F(1, 193) = 5.94$, $p < .01$, $d = .35$.

Discussion

This study reports what experiences physical educators have with grading ELA literacy assignments and determines validity or reliability issues, compared with experiences of non-PE teachers. As a whole, PE teachers reported significantly lower levels of experience with grading these types of tasks, compared to non-PE teachers. More specifically, not a single physical educator in this study indicated a high degree of practice with grading ELA literacy projects. This is cause for concern given the trends in teacher evaluation where PE teachers are being held accountable for content they may not directly teach (Mercier et al., 2014; Rink, 2013; Seymour & Garrison, 2016).

The comparison of grading ELA literacy tasks between physical educators and non-PE teachers produced important findings. While PE and non-PE teachers generally graded essays with the same grade (C+), there were significant differences on their subjective judgments about the work. As a whole, physical educators were harsher in grading the overall quality of the essays. They judged the students' work to be of lesser quality, to have worse sentence structure, and to be less neat. Furthermore, physical educators were more likely to perceive that students put forth less effort on the assignment and more often would recommend remedial writing assistance.

These inconsistencies between teachers suggest that physical educators have little experience with grading ELA literacy assignments in PE and/or may find this challenging. It is unknown whether the critical appraisal among PE teachers is a more valid assessment of the ELA literacy task. That is, PE teachers may have a more accurate view of the work quality and effort than non-PE teachers, although this seems less plausible given PE teachers' self-reported lack of experience grading essays on the merits of writing. On the other hand, one may expect physical educators to be less critical because of their limited knowledge about literacy instruction and what is developmentally appropriate for a child. Similarly, as a result of their experience grading student writing assignments, non-PE teachers may be more gracious in their feedback. Future research comparing the grading of more extreme student writing exemplars (i.e., very high or low quality) between PE and non-PE teachers may reveal more about this issue. In addition, more research comparing the results of grading ELA literacy tasks among trained PE teachers, untrained PE teachers, and non-PE teachers would contribute more to this discussion.

In either case, the reading and writing levels of students within any classroom can vary significantly (Kozub & Hodge, 2014). This poses a challenge for classroom teachers who specialize in ELA pedagogical principles, let alone physical educators who do not specialize in ELA learning yet are being asked to support it. Therefore, PE teachers may have unrealistic expectations for ELA-oriented tasks in PE class, which may result in bias. For example, physical educators in this study were asked to grade components of writing such as sentence structure, vocabulary/word choice, organization, and creativity. However, little consideration was given to whether physical educators know how to identify student writing exemplars that are deficient in these traits (i.e., what is poor sentence structure?). Better support would clearly define these writing attributes for evaluation so that PE and non-PE teachers can be compared accordingly. This is important if the CCSS ELA literacy mandate is to continue, and it suggests that physical educators need more training on implementing and assessing ELA integrative tasks in PE class. This could include weekly journals, writing projects, and entry/exit slips in response to PE-related content. Future studies investigating how PE teachers can

work with their non-PE teacher counterparts in creating and evaluating some of these literacy tasks may be beneficial.

Overall, this study had limitations that may have affected generalizability. First, broader conclusions may not be possible given the small region in New York State where the study was conducted. Second, the online format of our study may have been less realistic in terms of grading writing samples. However, our examination of the online and in-person data revealed the same pattern of results for both formats of data collection.

In conclusion, as the current focus on the CCSS in educational reform endures, the need for physical educators to integrate ELA literacy tasks will likely continue. At the same time, the PE profession's limited selection of valid and reliable assessments other than fitness (Rink, 2013) in today's accountability era in public education means that physical educators may be evaluated on content that they do not teach (Mercier et al., 2014; Rink, 2013; Seymour & Garrison, 2016). While interdisciplinary instruction in PE is not a new approach, a focus on ELA literacy tied to the CCSS is a new concept that requires careful thought. For this initiative to be supported in an effective way, it appears that physical educators need to be trained on administering and evaluating ELA literacy tasks, not only for their own benefit, but also to enhance learning for their students.

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PEDAGOGY

Study Habits and Learning Experiences of Undergraduate Students in a Physical Education Major Online Kinesiology Course

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Abstract

This study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. The study was based on the theory of transactional distance. Seven undergraduate physical education majors enrolled in an online course at a Midwestern public university in the United States participated in this study. Data were collected via face-to-face interviews, e-mail communication, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project. Four interrelated themes underpinned by the theory of transactional distance emerged. Data were interpreted through a constant comparative method including (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity. The ideal online course puts a set of student tasks (i.e., lectures, projects, and assignments) at the center of the course to constitute the learning experiences of students either independently

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or collaboratively. Although the study was conducted in the context of the lifespan motor development online course, the recommendations can be applied across different content areas in the kinesiology field.

In the past decade, online learning has grown in popularity as a form of education being embraced at undergraduate and graduate levels. In the United States, approximately 5.5 million students took at least one online course in 2012 (U.S. Department of Education, 2014). This translates to nearly 33% of all students in higher education having enrolled in a minimum of one online course (Allen & Seaman, 2013).

In the field of kinesiology, numerous programs have transitioned to online platforms and have been developing places in the online education market (Bryan, 2014). This shift toward online courses has occurred primarily because of low enrollment in programs; more specifically, kinesiology programs have been identified as a "low completer" (i.e., they do not meet the requirements of the higher education institution) in the number of majors and content areas (e.g., physical education, sport management, athletic coaching, physiology, biomechanics, or motor behaviors; Bryan, 2014). Thus, modifying programs to an online format is often thought of as a catalyst that could attract more students in the academic majors.

Research suggests that online education can deliver outcomes similar to (Hollerbach & Mims, 2007; Navarro & Shoemaker, 1999) or greater than (e.g., Koory, 2003; Platt, Raile, & Yu, 2014) traditional face-to-face instruction. As with most educational practices, properly implemented online courses can positively affect student learning, while poorly implemented courses likely may not (Bernard et al., 2009). However, the effective approaches in online learning contexts have been revealed as distinctly different from the ones in face-to-face learning contexts. Thus, effective online education cannot be achieved simply through adapting the structure and modes of interactions of a face-to-face classroom environment; rather, cognitive expectations, instructional choices, and supportive practices need to be carefully reconsidered in online education (Peters, 2003). For example, in online learning, educators become facilitators at the center of an active learning environment, rather than the instructor of the content (Junco & Mastrodicasa, 2007). Because

of these differences, faculty and students in kinesiology often face frustration of transitions from face-to-face to online instruction. Therefore, while some researchers find online courses to be effective in promoting student achievement, other researchers have demonstrated better results from traditional face-to-face classes than online courses (Mentzer, Cryan, & Teclehaimanot, 2007).

However, considering the increased numbers of online courses, providing beneficial learning experiences and activities in online instruction is critical (Bryan, 2014). It has been claimed that the ideal online kinesiology course focuses on a set of student tasks (i.e., lectures, projects, and assignments) that constitute students' learning experiences in either independent or collaborative contexts (Carr-Chellman & Duchastel, 2000). Researchers have conducted studies examining effectiveness of online courses for undergraduate students (Sato & Haegele, 2018), graduate students, and in-service physical education teachers to deliver the contents of physical education/adapted physical education (PE/APE). These studies looked at participants' experiences (Sato, Haegele, & Foot, 2017b), participants' engagement (Sato & Haegele, 2017b), online course materials and content (Sato, Haegele, & Foot, 2017a), and graduate professional development (Sato & Haegele, 2017a) of those students. The results of these studies demonstrated that in-service physical education teachers had positive experiences of learning how to teach students with disabilities, and the online APE courses also helped participants store and access online reading materials and assessment tools (Sato et al., 2017a). The in-service teachers also believed that the online courses helped them develop strategies to improve the quality of APE classes at their own school districts (Sato et al., 2017b).

As such, research has begun to look at graduate students' and in-service physical education teachers' experiences in online coursework in APE contexts. However, few studies have looked at the effectiveness of online courses and materials or the experiences in online courses of undergraduate students outside of APE contexts. This is problematic because the findings in the prior studies in APE contexts with graduate students and in-service teachers may not be transferable to undergraduate students or other content areas in kinesiology (e.g., motor development, exercise sciences, biomechanics,

or physiology). Further, few guidelines regarding developing and implementing an appropriate educational experience for undergraduate students enrolled in online courses are available. Thus, experiences in other content areas with undergraduate students must be examined so that it can be determined if these content areas can be effectively and appropriately disseminated through online modalities (McFarlin, Weintraub, Breslin, Carpenter, & Strohacker, 2011).

Thus, this study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. This course was selected because lifespan motor development is a common prerequisite for all kinesiology majors, and thus, the shift toward online education in this course affects a large number of undergraduate students in the kinesiology field. The research questions that guided the study included the following: What were undergraduate students' habits and experiences in the online lifespan motor development course? What are the differences between face-to-face instruction and online instruction? What learning strategies did the students utilize in the online lifespan motor development course?

The theory of transactional distance (Moore, 1997) underpins this study. It focuses on the physical distance between the teacher and students, which is inherent to distance learning. The theory explains that the physical distance between the teacher and students "leads to a communication gap, a psychological space of potential misunderstandings between the instructors and the learners" (Moore & Kearsley, 2005, p. 224). Further, it explains how teachers and students share "a transactional relation"; namely, the theory describes how they contribute to developing the learning experience and how they learn from each other (Rouse, 1991).

Transitioning from face-to-face to online course formats is challenging for teachers and students because their roles and responsibilities between these two learning contexts are significantly different (Anderson, Rourke, Garrison, & Archer, 2001). When transitioning from face-to-face to online learning contexts, teachers and students need to explore their new roles as teachers and learners (Dockter, 2016). Another challenge in online courses is the instructional materials and pedagogy a teacher uses. In the face-to-face

learning contexts, these play a role in the teaching process. However, in online courses, once materials have been uploaded to an online platform, teachers cannot always anticipate how students will interact with those materials; teachers do not know whether students read those reading materials, how students reacted to those readings, or how students' previous experiences influenced their understanding (Dockter, 2016). Therefore, in online teaching contexts, it is important that instructors bridge this "transactional distance" with students by using special teaching techniques (Moore & Kearsley, 2005).

Moore (1983, 2007) identifies three factors that determine the transactional distance: teachers, learners, and means of communication. Without any of these factors, no educational transaction occurs (Moore & Kearsley, 2005). Further, Moore (1983, 2007) identifies three variables that determine the level (high or low) of transactional distance: dialogue, structure, and learners' autonomy. Dialogue refers to what extent online course components can accommodate individual learners' needs (Moore & Kearsley, 2005), which also includes the instructional communication between teachers and students (Moore, 1993). Structure refers to the organization of the online course, such as delivery of the course (e.g., communication media and pedagogical approaches) and facilitation of dialogues between teachers and students (Moore, 1993). Learners' autonomy refers to learners' perceived sense of both independence and interdependence while they engage in the course. This intimately relates to a learner's sense of self-direction and self-determination, which are significantly influenced by the dialogues between instructors and students and the relationship between course materials and students (Giossos, Koutsouba, Lionarakis, & Skavantzos, 2009). Moore (2013) emphasizes the concept of learner's autonomy as a way of determining the transactional distance in the structure of the courses and dialogue dichotomy.

Collectively, the theory of transactional distance describes that teachers and learners participate in the shared experience of exploring a common world (Keegan, 1993). Learning happens through mutual sharing and negotiations between the teacher and learners. Further, the locus of control shifts from one to the others constantly through a feedback process, which Saba (2007) calls the "feedback

loop" (Gokool-Ramdoo, 2008). Learners who believe that the outcome of a situation is contingent on their own behaviors have a strong locus of control. Those who have a strong locus of control appear to have higher rates of task completion than those who have weaker locus of control (Parker, 2003). This is perceived to be a determinant of learners' self-efficacy and can have strong links with self-directed learning. Because of the inherent relatedness of the theory of transactional distance to online learning, this theory provides a critical underlying concept for understanding undergraduate students' online learning experiences.

Method

Research Design

This study adopted a descriptive-qualitative methodology using an explanatory case study design (Yin, 2003). Qualitative studies typically focus in depth on purposefully selected participants' perceptions, beliefs, or experiences, using relatively small samples, even a single case ($n = 1$; Patton, 2002). The main principle of the case study is to better understand complex educational and/or social phenomena and retain the holistic and meaningful particularities of real-life circumstances (Yin, 2003). Thus, an explanatory case study is appropriate for the purpose of this study, which explores undergraduate students' experiences in an online lifespan motor development course.

Settings

Participants were undergraduate students enrolled in an online lifespan motor development course at a Midwestern university in the United States. This is a mandatory course for several programs of study in the university. This online course prepares students to investigate the parameters of physical growth and development, continuing with motor skill acquisition, and progressing to correlates of motor development. While several sessions are offered in the semester, the participants of this study were selected from one session. Twenty-five students from different programs of study enrolled in this online lifespan motor development course, and the course was taught by the primary researcher. The course lasted 15 weeks, with 15 sessions each semester.

Participants

After the institutional review board from the primary researcher's institution approved the study, the study was initiated. Participants were contacted via e-mail by the primary researcher and were asked to voluntarily participate in this study. Seven students (5 females, 2 males; Katheryn, Nina, Ashley, Vicki, Katie, Zack, and Chuck) in the online course agreed to participate in the study. Pseudonyms were assigned to all participants for anonymity of the findings. While 25 students in this class studied areas such as exercise and physiology, special education, and occupational therapy, this study focused on physical education majors' learning experiences. Therefore, the primary researchers asked all seven students in this study, who were from a physical education major, about their learning experiences. Generally, the students in the physical education major are in the first or second year of the program, and those students often seek to enroll in the physical education teacher education program when they determine their major in their third year of the program. All participants provided permission for the researchers to use data from two interviews with the lead researcher, several assignments (e.g., bulletin board discussion logs and research writing projects), and e-mail communication. No participants had any experiences with online kinesiology-related courses prior to enrolling in the lifespan motor development course.

Data Collection

Data were collected from face-to-face interviews, e-mail communication, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project. The theory of transactional distance (Moore, 1997) suggests course instructors should consider and provide learning opportunities that are not isolated events in time. Therefore, we believe that these data sources must connect what students have learned from learning experiences to the future.

Face-to-face open-ended interviews. According to Yin (2003), the researcher has two roles in conducting interviews: (a) to follow the interview case study protocol and (b) to ask the participants factual (conversational) questions. Using a face-to-face interview approach, the lead researcher asked participants factual questions

and their opinions of online content, technology, learning tools, and academic experiences associated with their perception of the online course. Examples of questions included (a) How do you describe your learning experiences and outcomes of online lifespan motor development course? (b) In what ways could online lifespan motor development courses serve your educational needs? (c) How did the amount of coursework in your online lifespan motor development compare with traditional in-class instruction? The questions were carefully worded, which ensured relevancy to the study (Yin, 2003). Two face-to-face interviews were conducted for 60 to 90 min per interview with each participant during her or his midterm and final exam weeks.

Bulletin board peer discussion log. Every other week bulletin board peer discussion logs were analyzed and student experiences of the online course explored.

Students used the online discussion to enhance their learning through sharing ideas and resources with peers, reflecting deeply on learning motor development content, and assessing multiple perspectives to expand their thinking and understanding of theory and practices (Agee & Smith, 2011). At the same time, it is important that the online course instructor respects different ways of approaching involvement in bulletin board discussions (Du, Zhang, Olinzock, & Adams, 2008). The online instructor's tasks, prompts, and feedback should be properly structured so that all students can engage in higher order thinking and critical thinking skills (Mauriano, 2006). The information exchanged in the online discussions should move beyond surface-level information (Agee & Smith, 2011).

For the purpose of the study, the questions of the bulletin board discussion logs were revised from the original versions developed by Yang and Cornelius (2004), Sato et al. (2017b), and Sato and Haegele (2017a). The answer for each question was limited to two paragraphs maximum (100–150 words) and was submitted as a bulletin board discussion post on the course webpage. Participants were also required to write comments and feedback on classmates' posts.

Computer-based quizzes and exams. Quizzes and exams were utilized as a way of evaluating the students' learning outcome of module content, taught every other week, of the lifespan motor development course. Three exams consisted of 40 items and five quizzes

consisted of 10 items including true and false, multiple choice, fill in the blank, short answer, and one essay. All answers were recorded on Microsoft Word documents and submitted through blackboard systems. Students were allowed 2 hr to complete exams and 1 hr to finish quizzes. The instructor graded the exams and quizzes manually, and students received feedback and comments, along with correct answers, on their exams and quizzes.

Research writing assignments. A motor development portfolio was used as a way of assessing undergraduate students' research writing skills within their online course. Students reviewed journal articles in the context of motor development. Instructors proofread and gave feedback for first and second drafts of literature reviews. Students also wrote about their experiences accessing an electronic library of data-based and practical journals, graphics, images, and/or video clips. They selected articles from journals such as the *Journal of Physical Education, Recreation and Dance*; *Strategies*; and *Research Quarterly for Exercise and Sport*. Students chose topics including the theory of motor development, skill analysis of motor development, developmental delays of students with disabilities, or exercise science and motor behavior. The instructor read the reports, provided feedback, and allowed undergraduate students to revise materials before they uploaded their final research writing assignments to the blackboard system. The reports of these research writing assignments demonstrated students' learning progress during their online course experiences.

Data Analysis

Data were interpreted through a constant comparative method (Boeije, 2010), which allowed themes to emerge. Data analyses were completed in seven steps. First, the first and second authors independently coded the first set of interviews to extract potentially meaningful pieces of data in the transcripts. For differences, they discussed the data until agreeing on the themes. Second, the first author analyzed the second set of interviews, the bulletin board peer discussion logs, and research writing assignments, and then the second author checked the findings. Third, the researchers conducted a second round of coding to detect key terms in the transcript data. Some codes were combined during this process, whereas others were split into subcategories (subthemes).

Fourth, two peer debriefers reviewed the codes to avoid potential researcher biases. Coded data from each participant were compared and similarities and differences in key terms identified. Fifth, the researchers examined the final codes and organized them into a hierarchical structure by individual and group coding percentage. Sixth, all data and definitions of key terms were sent back to all participants for a second round of member checking for final confirmation. Last, the researchers grouped the codes into thematic categories, which they then refined into recurring themes (Boeije, 2010).

Trustworthiness

Trustworthiness of the findings in the study were secured through triangulation, member checking, and peer debriefing. Triangulation involves the use of multiple resources for evaluating the accuracy of the data (Merriam, 1998). In this study, four data resources (i.e., face-to-face interviews, bulletin board discussion logs, computer-based quizzes and exams, and a research writing project) were utilized for triangulation. Member checking reduces the effect of subjective bias with participants being asked to acknowledge the accuracy of the data (Patton, 2002). In this study, the researcher sent copies of the analyzed themes from the assignments, online peer discussions, and transcribed interview data to the participants and asked them to verify the accuracy of the findings. Peer debriefing involves data analysis not only by the inquirer's implicit mind but also by a distinguished peer, who separately analyzes the data (Patton, 2002). In this study, two debriefers reviewed the codes from the transcribed interview data in the data analysis.

Results

Across the four data sources, four interrelated themes underpinned by the theory of transactional distance emerged (Moore, 1997). Those included (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity.

Transition From Experiential to Visual Learning

The first theme that emerged was the concerns in the transition from experiential to visual learning. All participants expressed

anxiety about transitioning from experiential to visual learning in the online course format. They were concerned about their instructor's visual use of video clips, photo images, and slideshow presentations in the lectures, written assignments, and discussion assignments. In the face-to-face courses, with which the participants had experience (i.e., the invasion games or the target games course), they had experiential learning opportunities in pedagogy, assessment, and evaluation of children's movements. Experiential learning can direct students' attention toward motor skills and relevant pedagogy on professional and resource relations (Knop, Tannehill, & O'Sullivan, 2001). One male participant, Zack, said,

> Differences of face-to-face and online kinesiology courses were that my course instructor helped [me] to assess what and how to observe children's motor skills during game courses. I think that kinetic learning experiences were helpful to gain knowledge and skills when I teach and coach motor skills [that were developmentally age appropriate for children]. (Interview)

Zack also said,

> Online course format was convenient, but I had to have good writing skills for explaining what and how to observe motor skills. I also did not receive instant feedback of how to teach and coach in [a] timely manner. I was afraid of making mistakes in online courses and I had to become an independent learner who could solve learning barriers in [an] online course. (Interview)

Another participant, Katheryn, posted and shared that she had some challenges with video analysis of locomotor and object control skill assessment:

> I had to assess and evaluate elementary children's locomotor and object control skills through watching video clips. I am [a] kinetic learner, so I can move and change my standing positions, find appropriate positions (standing or knee down), and evaluate children's motor skills, but in video clips, I could review and evaluate their performance from only one

> angle. That was a challenge. The benefit of video clips, I could rewind and forward using slow motion analysis. (Bulletin Board)

Katheryn felt that face-to-face and online course formats had advantages and disadvantages. She also mentioned, "I should not compare pros and cons with face-to-face and online courses, but it was important that the instructor had clear expectations and predicted our learning outcomes from this online course" (E-Mail Communication). She believed that the physical separation of learners and teachers profoundly affects teaching and learning.

How to Use a Textbook in an Online Course

The second theme that emerged was the changes in using a textbook in an online course. Participants struggled to use the course textbook in the online course, because the instructor did not follow learning goals, key components, and terminology from the textbook, because he believed that the textbook was not designed for an online course format. The students believed that the textbook may become less effective in an online course than in a lecture course. However, participants relied on the textbooks for test preparation, research writing projects, or video assessment analysis. In contrast, the students appreciated that the instructor uploaded several supplemental reading materials (practical teaching articles of how to teach children motor skills from the *Journal of Physical Education, Recreation, and Dance* and *Strategies*) that helped their learning. Vicki explained,

> I had a hard time [using the] motor development textbook, because in face-to-face courses, [the] instructor could stop their lectures and re-explain the concepts. This means that he or she could check for understanding based on observing students' facial expressions, but in this online course, the instructor could not do [that]. (Discussion Log)
>
> Vicki also had concerns about her online course:
>
> I could not ask questions about chapter contents to [the] online course instructor. Then, I kept reading and problems were remaining and unsolved. I was less motivated to read the textbooks. On the other hand, supplemental reading

> materials were great, because they included short, concise charts and graphs that were helpful for my learning experiences. (Interview)

Vicki felt that the textbook was not designed for the online course. She believed that supplemental reading materials or open-access reading materials are helpful for online courses. Similarly, Chuck explained,

> I used the textbook when I had to work on quizzes, exams, and research writing projects. I used it, because I did not want to miss any information on quizzes and exams as well as research projects. I think our textbook was difficult to use in the online course, because kinesiology courses must be practical, but the textbook was written in the forms of history, model, and theory. I feel PowerPoint lectures already covered [that] information. I am less motivated to read [a] textbook in the online course, but again I [used] it, because of my exam, quizzes, and research projects. (Interview)

Chuck also said, "If I understood concepts and terminology from reading the textbooks, I do not think I [would] need [the] course instructor" (Interview). In this interview, he suggested that the online course instructor may need to decide if students should achieve similar or different learning goals and objectives in online and face-to-face courses. Another participant, Ashley, was concerned that students would have lower academic writing skills if the course instructor did not require them to read the textbook, because she believes that reading would result in improving writing skills. She said, "I think I [improved] my writing skills through reading the textbook. I am sure that many students struggle to overcome their low academic writing skills" (Interview).

Computer-Based Test Anxieties

The third theme that emerged was the students' anxieties of computer-based tests. Students were extremely nervous about taking midterm online exams. They had debilitating text anxiety with symptoms including an inability to concentrate, a fast heartbeat, and headaches. They also had difficulty controlling calm breathing and positive thoughts while they were taking exams, because they tended

to overanalyze questions. When the students wanted to ask questions to the course instructor, they did not know how to formulate their questions. Nina said,

> When I was taking online exams, I was allowed to use my notes and textbooks, but when I saw the exam format, there were true and false questions, matching, [fill in the blanks], short answers, and essay questions. I had to demonstrate my memory skills, critical thinking, and application of knowledge. (Interview)

Nina said that it was difficult to answer some questions of online exams:

> That was tough and I was nervous about answering questions, especially short answers and essay question. These questions were 25% to 30% of [the] total grade. I had extra pressure that I had to answer them correctly, but when I was answering, I was not sure my answers were in a right track or not. I wanted to ask the course instructor, but I had to submit it before the deadline, so I was unable to do. This was quite a challenge of [the] online course that I did not know how to control my anxiety. (Interview)

Nina overanalyzed some short-answer questions and lost a few points from the answers. She said, "It did not mean that I did not know, but my anxiety and nervousness negatively caused my test results" (Interview). She learned that it would be helpful if the course instructor posted exam-taking tips for completing an online test successfully. Another participant, Katie, said,

> I struggled to manage time periods. I only had two hours to complete exams. It depends on how fast I executed questions. I felt that short-answer and essay questions would take more time, I wanted to reread sentences and make some edits before the submission. That made me more anxious and nervous during the exams. One exam covered five to six different chapters and the course instructor showed me to use textbooks and PowerPoints, but if I began to use them, I would lose time, and would not be able to answer some questions. That was tough. (Interview)

Katie explained that the time limit during the online exams caused her anxiety. Upon reviewing her test results, she noticed that she repeatedly rephrased definitions of terminology on a few occasions in the essay question.

Social Justice and Diversity Sensitivity

The fourth theme that emerged was students' concerns about social justice and diversity sensitivity (what and how to communicate with other classmates) in the online course. They reported their concerns because they did not know anything about their classmates' ethnicity, culture, geographical location, and academic backgrounds. They were afraid that they may offend others by positing their own norms and opinions about motor skills, sport, culture, and behavior based on their backgrounds. One example in the discussion board was that Chuck unintentionally posted his comment about stereotypes regarding White- and African American–dominant sports. Chuck and other participants felt that undergraduate students must be sensitive to social justice and diversity issues, or otherwise they might unintentionally disrespect others' equity and equality and adversely affect other classmates' feelings and emotions in the online course. Chuck explained,

> I posted in the discussion board that African American athletes have natural skills of power, agility, and strength. My post [included] my stereotype viewpoints. One of [my] female classmates pointed out that my comments were not culturally sensitive. I realized that that female classmate was African American, I recognized based on her first name. It is hard to identify who read my posts and comments. I was too sensitive and did not want to be rude to others' emotions. (E-Mail Communication)

Chuck agreed that he had limited social justice and diversity context-specific knowledge of African American students. Katheryn also said,

> In online course, I had to understand something invisible behind the scene of online courses. I never knew or understood my classmates' appearance, academic backgrounds, majors, and communication patterns. I had to assess students' gender,

> academic majors, and cultural backgrounds. No one told me about how to become sensitive. (Interview)

Katheryn also explained,

> I had to analyze my classmates and used my imagination before replying [to] my classmates' posts. That was quite [challenging]. I had to try to see something invisible about other classmates. Online or cyber communications were [a] very unique format compared to face-to-face situation. I started to think about how to respect human diversity from this course. (Interview)

In the writing assignments, participants were required to answer, for example, the question, "You are a physical education teacher. You teach fitness. One of your boy students is an international student from the Middle East and practices Ramadan (not allowed to eat and drink in a daily fast from sunrise [Sahur] to sunset [Iftar], which lasts between 28 and 30 consecutive days). How do you treat this student? Do you require him to participate in fitness activities? If he does not, what grade (A, B, C, D, F) do you give?" Participants studied this controversial case using online research, an e-reserve library search, and state educational law and regulations from the state department of education website. Zack described,

> It was difficult to answer these questions in [a] writing assignment. I felt that there were no right and wrong answers, but I had to explain my justification and rationale of why I took actions. I think these questions were so important, but I began to think about how the online course instructor responded. I checked many websites, read articles, and did research studies. I think social justice and diversity topics were so important for this course. I thought that this course is about motor skills and analysis. I think it is more than that. (Interview)

Zack explained that the lifespan motor development course consisted of scientific learning components such as kinetic terminology, physical and physiological growth, and a medical model. However, he felt that it was important for the online course instructor to

provide assignments that required students to demonstrate critical thinking in the course.

Discussion

This study investigated undergraduate students' study habits and learning experiences in an online lifespan motor development course. Four themes emerged across the four data sources: (a) transition from experiential to visual learning, (b) how to use a textbook in an online course, (c) computer-based test anxieties, and (d) social justice and diversity sensitivity.

Reconstructing the Roles of Teachers and Learners Is Essential

The first theme, transition from experiential to visual learning, illustrated that the students had difficulties transitioning from experiential learners to visual learners, and they felt that they were left to determine their new role as the online learners and how to perform that role within the online space. In previous face-to-face kinesiology courses, these students had experiential learning (e.g., assessing other students' game performance) that helped them connect with the subject matter in ways that cannot be done through textbooks or lectures alone (Wright, 2000). Plus, the students had a clearer sense of the roles that teachers and students should play in face-to-face courses than they had in the online course. These physical education majors agreed that the online course included four components: (a) *performance*: views, estimated minutes watched, subscriber; (b) *engagement*: audience, retention, comments, shares, and favorites; (c) *demographics:* geographies; and (d) *discovery:* location or sources in motor skills and chapter introductory video clips, slideshow presentations, and images.

Based on the theory of transactional distance, when the online course instructor includes multimedia in online teaching, the transactional distance can get higher (Moore, 2013). For example, in this study, the instructor (primary researcher) believed that implementing short chapter introduction videos into the online lifespan motor development course seemed useful at decreasing the distance with students. However, prerecorded videos increased the distance between online course instructor and students because online course teaching was highly structured and included minimal teacher–learner dialogue (Moore, 2013).

Korkut, Dornberger, Diwanji, Simon, and Marki (2015) suggest that visual images and videos can be connected to online course assignments. Students can rewatch the same video many times while taking notes. In addition, the use of video and images for reviewing, analyzing, and discussing critical aspects of motor skills can facilitate an expansion of experiential learning and professional (coaches, instructors, and therapists) vision (Lewis, Moore, & Nang, 2015). In fact, the students in this study found that the video assessment analysis assignment helped them improve their video-reflective practices and observational skill development. The objective of this practice was for the students to understand why they screen and monitor a child's gross motor skills the way they do, to shake off any constraints to video assessment, and to produce new perspectives into students' learning experiences (Palloff & Pratt, 2009).

Use of a Textbook Needs to Be Reconsidered

The second theme, how to use the textbook in an online course, showed that all participants in the study were uncertain about how to use their textbooks in the online course. They relied on the online course instructor's slideshows and supplemental materials more than the textbook as sources of knowledge (Murden & Gillespie, 1997). This might have been because they did not have sufficient time to complete the reading tasks or did not have the skill to do so (Clump, Bauer, & Bradley, 2004).

The students perceived that they would learn more in an online course module when the textbook was not the central element (Marek & Christopher, 2011). They only tended to skim through their textbook at least once a week. They acknowledged that the online course would be more enjoyable and less difficult if supplemental readings were the main source of course content, as opposed to a traditional textbook. When distance increases between online course instructors and students, students may choose not to read textbooks because (a) they lack interest in the class, (b) they may have had bad experiences with past online general required courses, (c) they may believe that reading the textbook is not worth their effort, or (d) they may not have developed good strategies for reading and using textbooks in online courses (Moore, 2013). The theory of transactional distance claims that in the face-to-face class, providing students with opportunities to ask questions or to see other students asking

questions can decrease the relational distance between teacher and student (Dockter, 2016). However, in the online learning environment, those opportunities are lacking, which results in an increased transactional distance between the instructor and students.

Hence, it is crucial for instructors of online courses to use technologies and active learning techniques to engage students and promote learning. Further, in online learning environments, instructors need to consider the use and the role of textbooks in facilitating students' learning (Murden & Gillespie, 1997). In general, undergraduate students are more likely to complete their readings if the instructor has them take a quiz or exam to check for their understanding, rather than telling them that they would benefit professionally from the knowledge in the textbook (Marek & Christopher, 2011). In fact, one study indicated that a third of the undergraduate students completed the required readings and showed a lack of intrinsic motivation for reading textbooks in online courses (Clump et al., 2004). Thus, in online courses, developing systems that make students accountable of their learning is critical.

Different Options for Exams Are Recommended for Different Learning Styles

The students felt that online exams were intimidating. They wrestled with a concerning fear during the exams without having anyone to share their feelings with (Clair, 2015). Test anxiety comprises affective (psychological arousal and emotionality), cognitive (worry), and behavioral (procrastination and avoidance) components, which together may interfere with academic achievement (Zeidner, 1998). These anxiety components adversely affected individuals and impaired their performance when they used a computer system (Schult & McIntosh, 2004).

Moreover, in this study, the instructor used only a standard format of the online exams with a 2-hr time limit. The students were allowed to take the exams when they felt ready to take them, and thus, the students had a freedom to determine when to take the exams (Hartley & Nicholls, 2008). However, the number of memory retrieval cues available to students declined, and this offset any performance gains (context-dependent memory effect). It is common that instructors of online courses fail to realize the value of developing multiple ways that students can access the exams of online courses

(Dockter, 2016). Hence, instructors' effective communication and providing multiple ways for assessing students' understanding could increase students' learning (Moore, 1993).

Understanding of Social Justice and Diversity Sensitivity Need to Be Addressed

Through the online platform, these physical education majors learned the concepts of social justice, diversity, leadership, and civic engagement by participating in the writing assignment and bulletin board discussion and communication. They believed partnering up with classmates from different cultural backgrounds (e.g., race, ethnicity, and gender) to support each other's learning through sharing perspectives, clarifying questions, and sharing responsibilities (i.e., partner-sharing learning) enhanced their own learning (Ukpokodu, 2008). However, some students explained that they faced challenges related to social justice and diversity sensitivity through the online course. This is not surprising considering some students have not been exposed to wide variety of social justice and diversity issues nor have they cultivated the cognitive and relational abilities necessary for identifying and interpreting key experiences that become essential to their learning (Guthrie & McCracken, 2010).

Related to these challenges, online courses are especially challenging because students typically do not know each other (Oblinger, Barone, & Hawkins, 2001). In addition, typically there is no single checklist for evaluating students' learning outcomes through their viewpoints, values, and needs of the online course. Therefore, providing opportunities for students to critically reflect their assumptions and beliefs is essential in online learning contexts (Mezirow, 2000). Specifically, the online technologies (e.g., the form of social networks or blackboard, e-library) and available resources (e.g., open-access resources, videos) to be accessed throughout the semester need to be reconsidered (Guthrie & McCracken, 2010).

Overall, the students faced some challenges in transitional learning experiences from experiential (i.e., face-to-face instruction) to visual (i.e., online instruction) learning including the use of the textbook, anxiety of online exams and quizzes, and the lack of social interactions. However, the participants believed that the online courses helped them learn to use new technologies and online supplemental reading materials (how to access and store) that

would help their future teaching and coaching. Further, the students believed that the online courses helped them develop their time management skills, critical thinking skills, and application of their knowledge and skills to future teaching and coaching settings. As the theory of transactional distance describes, the findings of this study further support the transactional relation between teachers and students in online learning environments (Rouse, 1991).

Recommendations

The undergraduate students in this study faced new challenges and experiences in the online lifespan motor development course. The students raised several concerns. Based on those concerns, four recommendations for enhancing the quality of online course experiences for undergraduate students are given.

First, the online course should adopt learner-centered activities, such as group activities. As one of the students pointed out, experiential activities play a critical role for students' learning. Thus, adopting learner-centered activities that students can physically engage in would help them to understand course content (Kaifi, Mujtaba, & Williams, 2009). Further, with these types of experiential activities (a group assessment of motor skill analysis), students could determine how to work together within their group (Hannafin, Hannafin, & Gabbitas, 2009). By exchanging ideas as they progress through the exercise, they can understand course material more thoroughly and develop meaningful engagements with peers.

Second, instructors who teach online courses should provide extensive feedback or guidance before students take exams. As the students explained, they faced anxieties when taking quizzes and exams in the online setting. Further, they described that additional guidance could be helpful. Thus, providing extensive feedback and/or guidance before students take quizzes and exams is recommended.

Third, instructors should consider providing students options on testing environment, such as either online or in a classroom. In the study, the students explained their emotional challenges of taking quizzes or exams online. Considering that students' performance could be better when they experience normal emotion than when they are under pressure, providing different options of the test environment could create an inclusive environment for different types of learners.

Last, instructors of online courses should provide opportunities for students to collaborate with other students and reflect on it (Palloff & Pratt, 2009). As reported, the students face challenges relative to social justice and diversity among their peers in the study. Sujo de Montes, Oran, and Willis (2002) suggested, "As online courses become more culturally diverse . . . it is not safe to ignore issues of race, ethnicity, and power, because the students are not physically visible" (p. 268). Thus, instructors in online courses should pay attention to social justice and diversity aspects in courses within the context of technologies.

Conclusions

The results and subsequent recommendations in this study are intended to improve students' learning during online courses. This study found that the instructor needs to explain how students could improve on assignments. Students believed that feedback is a useful tool that develops cognitive understanding, motivation, engagement, and interpersonal connections (Mandermach, Gonzales, & Garrett, 2014). It not only helps students learn online, but also keeps them motivated, engaged, and connected to the online course. The ideal online kinesiology course focuses on a set of student tasks (i.e., lectures, projects, and assignments) that constitute the learning experiences of the students either independently and/or collaboratively (Carr-Chellman & Duchastel, 2000). Although the study was conducted in the context of the lifespan motor development online course, the recommendations are applicable across different content areas in the kinesiology field.

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PEDAGOGY

Physical Education Class and Body Image Perception: Are They Related?

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Abstract

In this study, we examine if school physical education (PE) policy initiatives are related to body image among adolescents. Problems with body image often peak during adolescence, and it is important that there are ways of improving body image among youth. This cross-sectional study used data from the Health Behavior in School-Aged Children 2001–2002 survey and examined the relationship between PE (requiring PE, number of days spent in PE, and number of minutes spent exercising in PE) and both perceived body size and perceived attractiveness. Regression analyses were conducted with the three PE variables predicting perceived body size and perceived attractiveness. Among boys, requiring PE and the number of minutes spent exercising in PE were negatively related to body size perception. Among girls, number of days in PE and number of minutes spent exercising were negatively related to body size perception. The number of days spent in PE and the number of minutes spent exercising in PE were positively related to perceived attractiveness among boys, while requiring PE was negatively associated with perceived attractiveness among girls. Based on the results of this study, PE may be an important and cost-effective way of reducing negative body image among adolescents, although

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special consideration may be needed for reducing negative perceived attractiveness among girls. Therefore, school policy implications are discussed. Expanding school programs that promote physical activity, such as PE class, may be a great way of improving body image for a large number of students.

Adolescence is a critical period of physical and emotional development, and problems surrounding body image often peak during this time (Littleton & Ollendick, 2003). The repercussions of negative body image, which include perceived attractiveness and perceived body size as distinct constructs (Flament et al., 2012; Wiederman & Hurst, 1998), are far reaching. Negative body image is associated with depression and low self-esteem (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006), steroid use (Kanayama, Barry, Hudson, & Pope, 2006), suicide ideation (Brausch & Muehlenkamp, 2007), excessive dieting (Nowak, 1998), disordered eating (Neumark-Sztainer et al., 2006; Stice & Shaw, 2002), physical health (Ramseyer Winter, O'Neill, & Omary, 2017), and sexual health (Ramseyer Winter, 2016). Eating disorders in particular take a tremendous psychological and physical toll (Klump, Bulik, Kaye, Treasure, & Tyson, 2009) on adolescents and are difficult to treat (Cooper, 2011). Therefore, it is crucial that researchers determine factors associated with negative body image and, in particular, discover positive methods of improving body image among adolescents.

School is the ideal setting for reaching adolescents for physical (Foster et al., 2008) and mental (Ruini et al., 2009) health intervention and prevention efforts. Using or refining existing programs, such as physical education (PE) classes, may be a low-cost way of reaching a large amount of youth. PE classes encourage and provide a space for physical activity within schools. In adolescence, physical activity can lessen anxiety and depression (Ströhle, 2009), both of which are related to body image (Kostanski & Gullone, 1998). However, the relationship between physical activity and body image is uncertain (Sallis, Prochaska, & Taylor, 2000), and the direct relationship between school PE classes and body image components, such as perceived body size and perceived attractiveness, is unknown.

This study wants to determine if school PE policy initiatives are related to body image. Specifically, we want to know if requiring PE, the number of days youth spend in PE, and the number of minutes adolescents spend exercising in PE are related to perceived body size and perceived attractiveness. We hypothesized that all three PE factors would be related to better body image for boys and girls.

Method

We tested our hypotheses using Health Behavior in School-Aged Children, 2001–2002 (U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau, 2008), a cross-national representative study of 11, 13, and 15 year olds. The approximately 45-min survey was administered in schools across the United States. Of the 465 schools selected to participate, 340 agreed to do so, representing a 73.2% participation rate. The survey used a three-stage stratified design: the school district (Phase 1), the school (Phase 2), and the classroom (Phase 3). Additionally, the study oversampled Hispanic and Black youth, and the student response rate was 81.9%. Surveys were also completed by an administrator (N = 329) and the lead health education teacher (N = 320) from the participating schools.

Participants

Participants included a nationally representative sample of sixth to 10th graders in the United States (N = 14,732). Just over half of the sample were female (n = 7,729; 52.2%), and the mean age was 13.31 years (SD = 1.56). Twenty percent of the sample identified as Hispanic or Latino (n = 2,889). With regard to race, 62.6% of the sample identified as White (n = 8,271), 23.1% as Black or African American (n = 3,051), 4.3% as Asian (n = 572), 4.0% as American Indian or Alaska Native (n = 531), 1.2% as Native Hawaiian or Other Pacific Islander (n = 157), and 4.8% as two or more races (n = 639). The majority of participants reported being born in the United States (n = 13,646; 92.6%), 42.5% reported currently living in an urban area (n = 6,140), 28.6% reported living in a suburban area (n = 4,127), and 28.9% reported living in a rural area (n = 4,165). For a list of participant demographics by gender, see Table 1.

Table 1
Participant Characteristics

Characteristic	Girls		Boys	
Grade in school (*n*, %)				
6th grade	1,506	22.6	1,462	24.0
7th grade	1,290	19.4	1,167	19.1
8th grade	1,273	19.1	1,148	18.8
9th grade	1,285	19.3	1,206	19.8
10th grade	1,308	19.6	1,112	18.2
Race (*n*, %)				
White	3,892	64.4	3,595	65.6
American Indian/Alaska Native	177	2.9	240	4.4
Asian	253	4.2	243	4.4
Black/African American	1,370	22.7	1,074	19.6
Native Hawaiian or Other Pacific Islander	56	0.9	75	1.4
2 or more races	299	4.9	253	4.6
Hispanic/Latino	1,212	18.5	1,115	18.7
Urbanicity (*n*, %)				
Urban area (city)	3,356	44.6	2,784	40.3
Suburban area (near a large city)	2,022	26.9	2,105	30.5
Rural area (not near a large city)	2,144	28.5	2,021	29.2
Country born in (*n*, %)				
United States	7,137	92.8	6,509	92.4
Other	553	7.2	533	7.6
Continuous Variables (*M*, *SD*)				
Age	13.26	1.55	13.35	1.58
BMI	20.77	4.31	21.24	4.36

Instruments

Perceived body size. Perceived body size was measured in the student survey with one item: "Do you think your body is…?" Response options included *much too thin* (0), *a bit too thin* (1), *about the right size* (2), *a bit too fat* (3), and *much too fat* (4). Thus, a larger score indicates a larger perceived body size.

Perceived attractiveness. Perceived attractiveness was measured in the student survey with one item: "Do you think you are…?" Response options included *not at all good looking* (0), *not very good looking* (1), *about average* (2), *quite good looking* (3), and *very good looking* (4). The variable was reverse coded so that a higher score indicates better perceived attractiveness.

Physical education required. One item, completed by an administrator at each participating school, measured whether PE was required by the school: "Is physical education required for students in Grades 6 through 10 in this school?" Response options included yes, no, and I don't know. The variable was recoded to no (0) and yes (1). Those who reported not knowing (n = 23) were excluded from analyses with this variable.

Number of days in physical education. Students completed the following item regarding the number of days they spent in PE each week: "In an average week when you are in school, on how many days do you go to physical education classes?" Response options included: 0 days, 1 day, 2 days, 3 days, 4 days, 5 days, and at least 1 day. Those who reported at least 1 day (n = 391, 2.8%) were excluded from analyses with this variable.

Amount of time exercising in each physical education class. This variable, completed by students, was measured with the item, "During an average physical education class, how many minutes do you spend actually exercising or playing sports?" Response options included I do not take PE, less than 10 minutes, 10–20 minutes, 21–30 minutes, more than 30 minutes, and unknown number of minutes.

Sex. Biological sex was completed by students and measured with one item: "Are you a boy or a girl?" Response options included boy and girl.

Covariates. Body size was measured by computing body mass index (BMI) from self-reported weight and height. Age at the time of the survey was calculated from reported month and year of birth.

Data Analysis

After conducting descriptives (see Table 2) and meeting necessary assumptions, we performed a series of linear regressions to test our hypotheses. We conducted analyses using IBM SPSS 23.

Additionally, we utilized a weight in all analyses, which adjusted the data for school and student nonresponse. The weight also adjusted data so race/grade category matched national data.

Table 2
Study Indicator Descriptives

Characteristic	Girls		Boys	
	n	%	*n*	%
Perceived body size				
Much too thin	129	1.9	140	2.3
A bit too thin	576	8.7	803	13.3
About the right size	3,483	52.5	3,516	58.3
A bit too fat	2,096	31.6	1,410	23.4
Much too fat	344	5.2	158	2.6
Perceived attractiveness				
Not at all good looking	186	2.8	156	2.6
Not very good looking	491	7.4	366	6.1
About average	2,837	43.0	2,580	43.1
Quite good looking	1,746	26.5	1,382	23.1
Very good looking	1,337	20.3	1,498	25.0
PE required				
No	727	10.0	639	9.6
Yes	6,549	90.0	6,009	90.4
Average number of days/week in PE				
0 days	1,652	22.4	1,220	18.4
1 day	481	6.5	421	6.4
2 days	849	11.5	853	12.9
3 days	966	13.1	920	13.9
4 days	336	4.6	250	3.8
5 days	2,921	39.6	2,745	41.4
At least 1 day	172	2.3	219	3.3
Number of minutes exercising in average PE class				
I do not take PE	1,643	22.3	1,202	18.2
Less than 10 minutes	309	4.2	286	4.3
10–20 minutes	820	11.1	631	9.6
21–30 minutes	1288	17.5	985	14.9
More than 30 minutes	3226	43.7	3395	51.5
Unknown number of minutes	88	1.2	99	1.5

Results

Physical Education Required

Required PE was regressed on perceived body size, BMI, and age for boys and girls separately. The regression model was significant for boys, $R^2 = .15$, $F(3, 5640) = 326.14$, $p < .001$, and girls, $R^2 = .15$, $F(3, 6234) = 370.75$, $p < .001$, accounting for 15% of the variance in perceived body size among boys and girls. However, requiring PE was significantly inversely related to perceived body size among boys, b = -0.11, $t(5640) = -2.20$, $p < .05$, 95% CI = [-0.21, -0.01], $\beta = -.03$, but not girls, b = 0.08, $t(6234) = 1.50$, $p = .13$, 95% CI = [-0.03, 0.19], $\beta = .02$. Requiring PE was related to a smaller body size perception for boys.

Required PE was regressed on perceived attractiveness, BMI, and age for boys and girls separately. The regression model was significant for boys, $R^2 = .03$, $F(3, 5593) = 51.92$, $p < .001$, and girls, $R^2 = .03$, $F(3, 6202) = 64.22$, $p < .001$, accounting for 3% of the variance in perceived attractiveness for boys and girls. Required PE was not significantly related to perceived attractiveness among boys, b = 0.01, $t(5593) = 0.25$, $p = .80$, 95% CI = [-0.07, 0.09], $\beta = .003$. Requiring PE was significantly inversely related to perceived attractiveness for girls, b = -0.08, $t(6202) = -2.11$, $p < .05$, 95% CI = [-0.15, 0.01], $\beta = -.03$, with required PE related to a worse perception of attractiveness.

Number of Days in Physical Education

The average number of days in PE each week was regressed on perceived body size, BMI, and age for boys and girls separately. The regression model was significant for boys, $R^2 = .16$, $F(3, 5525) = 338.18$, $p < .001$, and girls, $R^2 = .16$, $F(3, 6271) = 383.96$, $p < .001$. The regression model accounted for 16% of the variance in perceived body size among boys and girls. The average number of days in PE each week was not significantly related to perceived body size for boys, b = -0.01, $t(5525) = -1.13$, $p = .26$, 95% CI = [-0.03, 0.01], $\beta = -.01$. For girls, the average number of days in PE each week was significantly related to perceived body size, b = -0.02, $t(6271) = -2.60$, $p < .01$, 95% CI = [-0.04, 0.00], $\beta = -.01$, with more days in PE associated with smaller body size perception.

Next, we regressed the average number of days in PE on perceived attractiveness, BMI, and age. The model was significant for boys, $R^2 = .03$, $F(3, 5488) = 59.53$, $p < .001$, and girls, $R^2 = .03$, $F(3, 6237) = 63.50$, $p < .001$, and accounted for approximately 3% of the variance in perceived attractiveness for boys and girls. The average number of days in PE class was positively associated with perceived attractiveness for boys, b = 0.02, $t(5488) = 2.43$, $p < .05$, 95% CI = [0.00, 0.03], $\beta = .03$, but not significantly associated for girls, b = -0.003, $t(6237) = -0.47$, $p = .64$, 95% CI = [-0.01, 0.01], $\beta = -.01$.

Amount of Time Exercising in Each Physical Education Class

The number of minutes exercising in the average PE class was regressed on perceived body size, BMI, and age. The regression model was significant for boys, $R^2 = .15$, $F(3, 5672) = 337.45$, $p < .001$, and girls, $R^2 = .16$, $F(3, 6402) = 397.18$, $p < .001$, accounting for 15% of the variance in body size perception among boys and 16% of the variance among girls. Among boys, the number of minutes exercising in the average PE class was significantly inversely related to body size perception, b = -0.03, $t(5672) = -2.62$, $p < .01$, 95% CI = [-0.05, -0.01], $\beta = -.03$, with more minutes related to a smaller body size perception. Among girls, the number of minutes exercising in the average PE class was also inversely associated with perceived body size, b = -0.04, $t(6402) = -3.35$, $p < .01$, 95% CI = [-0.06, -0.02], $\beta = -.04$.

The number of minutes exercising in the average PE class was regressed on perceived attractiveness, BMI, and age. The regression model was significant for boys, $R^2 = .03$, $F(3, 5632) = 64.21$, $p < .001$, and girls, $R^2 = .03$, $F(3, 6370) = 63.34$, $p < .001$. The number of minutes exercising in the average PE class was significantly associated with perceived attractiveness for boys, b = 0.03, $t(5632) = 4.12$, $p < .001$; 95% CI = [0.02, 0.05], $\beta = .06$, but was not for girls, b = 0.01, $t(6370) = 1.21$, $p = .23$, 95% CI = [-0.01, 0.02], $\beta = .02$. More minutes exercising was related to better perception of attractiveness for boys. Refer to Tables 3 and 4 and for regression statistics for boys and girls, respectively.

Table 3
Regression Statistics for Boys

Variable	Perceived body size				Perceived attractiveness			
	b (*SE*)	95% CI (b)		β	b (*SE*)	95% CI (b)		β
Constant	-0.73 (.16)	-1.04	-0.41		3.69 (.12)	3.45	3.93	
Independent Variable								
PE Required	-0.11 (.05)*	-0.21	-0.01	-0.03	0.01 (.04)	-0.07	0.09	< 0.00
Covariates								
BMI	0.13 (< .00)***	0.12	0.14	0.40	-0.03 (.00)***	-0.04	-0.03	-0.14
Age	-0.06 (.01)***	-0.08	-0.04	-0.07	-0.03 (.01)***	-0.05	-0.02	-0.06
Constant	-0.92 (.16)	-1.23	-0.61		3.72 (.12)	3.49	3.95	
Independent Variable								
Avg. # days in PE	-0.01 (< .00)	-0.03	0.01	-0.01	0.02 (.01)*	0.00	0.03	0.03
Covariates								
BMI	0.13 (< .00)***	0.13	0.14	0.41	-0.03 (.00)***	-0.04	-0.03	-0.15
Age	-0.06 (.01)***	-0.08	-0.04	-0.07	-0.04 (.01)***	-0.05	-0.02	-0.06
Constant	-0.73 (.17)	-1.06	-0.40		3.54 (.13)	3.29	3.79	
Independent Variable								
# of min/avg. PE class	-0.03 (0.01)**	-0.05	-0.01	-0.03	0.03 (.01)***	0.02	0.05	0.06
Covariates								
BMI	0.13 (< 0.00)***	0.12	0.14	0.40	-0.03 (< .00)***	-0.04	-0.03	-0.15
Age	-0.06 (.01)***	-0.08	-0.04	-0.07	-0.03 (.01)**	-0.05	-0.01	-0.05

*$p < .05$. ** $p < .01$. *** $p < .001$.

Table 4
Regression Statistics for Girls

	Perceived body size				Perceived attractiveness			
Variable	**b (*SE*)**	**95% CI (b)**		**β**	**b (*SE*)**	**95% CI (b)**		**β**
Constant	-1.72 (.17)	-2.06	-1.39		3.87 (.12)	3.63	4.10	
Independent Variable								
PE Required	0.08 (.05)	-0.03	0.19	0.02	-0.08 (.04)*	-0.15	-0.01	-0.03
Covariates								
BMI	0.14 (< .00)***	0.13	0.15	0.39	-0.03 (< .00)***	-0.04	-0.03	-0.14
Age	0.01 (.01)	-0.01	0.04	0.01	-0.05 (.01)***	-0.07	-0.03	-0.08
Constant	-1.50 (.17)	-1.83	-1.18		3.78 (.12)	3.56	4.01	
Independent Variable								
Avg. # days in PE	-0.02 (.01)**	-0.04	-0.01	-0.03	-0.00 (.01)	-0.01	0.01	-0.01
Covariates								
BMI	0.14 (< .00)***	0.13	0.15	0.39	-0.03 (< .00)***	-0.04	-0.03	-0.14
Age	< 0.00 (.01)	-0.02	0.03	> 0.00	-0.05 (.01)***	-0.06	-0.03	-0.08
Constant	-1.35 (.18)	-1.70	-1.00		3.69 (.12)	3.45	3.94	
Independent Variable								
# of min/avg. PE class	-0.04 (.01)**	-0.06	-0.02	-0.04	0.01 (.01)	-0.01	0.02	0.02
Covariates								
BMI	0.14 (< .00)***	0.013	0.15	0.39	-0.03 (< .00)***	-0.04	-0.03	-0.13
Age	< -0.00 (.01)	-0.03	0.02	< -0.00	-0.05 (.01)***	-0.06	-0.03	-0.07

*$p < .05$. ** $p < .01$. *** $p < .001$.

Discussion

This study seeks to understand the relationship between PE programs in schools and body image perception for adolescents, specifically dimensions of perceived attractiveness and perceived body size. Understanding the relationship between PE and perceived body image can help schools utilize or improve PE classes to improve body image for adolescents. This is important because positive body image is linked to beneficial physical (Ramseyer Winter et al., 2017), mental (Gillen, 2015), and sexual (Ramseyer Winter, 2016) health outcomes.

In general, the PE variables were related to decreased body size perception among girls and boys. Required PE among boys, number of days spent in PE among girls, and number of minutes exercising among boys and girls were associated with viewing oneself as thinner. Requiring PE class does not account for the quality of physical activity during PE. It appears that for girls, increased physical activity (more days spent in PE and more minutes being physically active, rather than just requiring PE) decreases body size perception. This may be an accurate perception, as increases in physical activity are related to decreased weight gain (Must & Tybor, 2005), although we do not know if youth in this study were meeting the recommended amount of moderate to vigorous physical activity each day. Current recommendations are for youth to have at least 60 min of physical activity per day (U.S. Department of Health and Human Services, 2008). The majority of youth in this study selected the category "more than 30 minutes" when asked how many minutes they exercised in PE, but that is as much detail as the survey provided.

For boys, although days spent in PE was not associated with a decrease in body size perception, required PE and increased minutes exercising in PE were related to a decrease in body size perception. However, smaller body perception may not be interpreted as positive body image for boys, since being smaller is less likely to meet societal standards of attractiveness for men (Olivardia, Pope, Borowiecki, & Cohane, 2004). Boys who perceive themselves as smaller may simply feel like they are exercising for a longer time in PE, because of social anxiety surrounding having to exercise in front of others (Akehurst & Thatcher, 2010).

PE had a different effect on boys' and girls' perceptions of attractiveness, with PE related to an increase in boys' perceived attractiveness and a decrease in girls' perceived attractiveness. Two factors (number of minutes exercising in PE and number of days of PE) were positively related to boys' perceived attractiveness. Increased physical activity, in terms of days or minutes, among boys was related to how physically attractive they viewed themselves. Self-concept, including physical appearance perception, has been linked to physical activity in adolescents (Strong et al., 2005), and this may explain this finding. Physical activity increases endorphins and raises the mood of adolescents (Paluska & Schwenk, 2000). Being more positive and having confidence is associated with increased feelings of attractiveness (Langlois et al., 2000). Only one factor, requiring PE class, was negatively associated with girls' perceived attractiveness; however, number of days spent in class and minutes spent exercising during PE were not associated with perceived attractiveness for girls. Simply requiring PE was enough to decrease feelings of attractiveness. As Stankov, Olds, and Cargo (2012) state, "The 'beauty cost' of messy hair, runny make-up and breaking finger-nails deters at least a sub-group of girls from physical activity which may signal their interest in looking attractive and forming relationships with boys" (p. 13). Worse perceived attractiveness could also be related to social physique anxiety, since young women in PE are often required to change clothes in front of each other (Leary, 1992). Girls are likely more susceptible to the negative effects of social comparison (Myers & Crowther, 2009), which could occur in locker rooms as part of required PE class. Additional research is warranted so that these relationships can be better understood.

This study has school policy implications, as PE initiatives at schools may contribute positively to adolescent boys' and girls' body image. This study suggests that overall, adolescents may benefit from PE classes, as PE is related to decreased body size perception. The impact of PE on attractiveness is also positive for boys, although more work that combats the association between requiring PE and decreased feelings of attractiveness among girls needs to be done. Differently structured physical activity classes may be important (Couturier, Chepko, & Coughlin, 2007) to counteract the finding that requiring PE decreases girls' perceptions of attractiveness, as

the benefits of PE may outweigh the negatives. Girls might benefit more from structural changes to PE classes than their male counterparts do, reporting many barriers to participation with PE classes associated with locker rooms, including changing or showering in front of others (Couturier et al., 2007). Young girls have reported feeling a tension between desiring to feel feminine and attractive and being more active, which is associated with being more muscular and sweaty (Cockburn & Clarke, 2002). Adolescent girls may benefit from having PE classes at the end of a school day so they can avoid feeling sweaty through later class periods or having longer amounts of time to shower and change privately (Couturier et al., 2007). These potential changes could lead to improvements of girls' perceived attractiveness and continued maintenance of adolescent boys' body image. It is important that schools not only require PE, but also have a substantial number of days in PE and number of minutes spent exercising while in PE to reap the maximum benefit for body image. Although participation in PE classes has remained stable in the last few decades, the rate of physical activity is still lower than national physical activity guidelines for youth (Centers for Disease Control and Prevention, National Physical Activity Plan Alliance Secular Changes in Physical Education Exposure Ad Hoc Committee, 2016). Future studies should determine the ideal amount of physical activity needed for improving body image.

Limitations

One limitation of this study is the cross-sectional nature of the data, and therefore, causality among study variables could not be determined. Future studies should test the impact of PE on body image over time. In addition to the cross-sectional nature of the data, variables in the study came from self-report and may not be as reliable as measured data. For example, having youth recall how many minutes they spent exercising may not be as accurate as observing amount of time spent exercising. We did not have access to information such as if a school required changing for PE class, and additional information such as this may have helped in drawing stronger conclusions. Another limitation is that we cannot determine if the body image variables are viewed as positive or negative for adolescents. Although we may be able to reasonably infer that as perceived attractiveness increases body image also increases, we cannot make the

same claim for perceived body size. Larger body size is stigmatized in our culture (Latner, O'Brien, Durso, Brinkman, & MacDonald, 2008), but the ideal body type differs for boys and girls with boys expected to be larger and expectations for girls expected to be thin and curvy (Ahern, Bennett, Kelly, & Hetherington, 2010; Olivardia et al., 2004).

Conclusion

In conclusion, in addition to the physical health benefits of PE classes for adolescents in schools, PE programs could improve body image among youth, thereby possibly improving other health outcomes. Requiring some form of PE is not necessarily enough, although it may be a good start based on the results of this study. Schools should also provide PE on multiple days of the week and ensure students spend a significant amount of time exercising during PE each week. Sixty minutes or more of physical activity is recommended for youth, although specific recommendations for physical activity to improve body image is not yet known (U.S. Department of Health and Human Services, 2008). Although requiring PE is related to a more negative view of appearance among girls, special accommodations or adjustments may help alleviate these concerns. Utilizing and reforming existing programs, such as requiring more students to take PE or increasing the amount of time spent exercising in PE, would be of minimal cost but could have a beneficial impact on body image among youth.

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PHYSICAL ACTIVITY

Effect of an Elementary School Walking Program on Physical Activity and Classroom Behavior

Jill W. Lassiter and Amanda L. Campbell

Abstract

This study examined the effect of a physical activity program on student activity during recess and on disruptive classroom behavior. The program was implemented during recess for 5 weeks in a rural elementary school. Prior to and during the program, teachers recorded observations of sedentary students during recess and of disruptive classroom behavior before and after recess. The number of sedentary students during recess decreased significantly during the program ($p < .05$) and classroom behavior significantly improved after recess ($p < .001$), differences that were not seen prior to the start of the program. Physical activity initiatives can improve student participation in physical activity during recess while costing little and maintaining student choice. Increased physical activity during recess improves children's ability to meet daily activity recommendations and may improve the classroom environment by decreasing disruptive behaviors.

The Physical Activity Guidelines for Americans provided by the U.S. Department of Health and Human Services (USDHHS, 2008) state that children and adolescents need a minimum of 60 min of daily physical activity (PA). The American Academy of Pediatrics (AAP, 2013) and the Centers for Disease Control and Prevention

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(CDC; USDHHS, 2008) recommend that for children and adolescents to meet these guidelines, schools provide quality physical education and recess each school day. However, an examination of school wellness policies nationally revealed that less than 7% of school districts included in the study required a set amount of time for PA during the school day (CDC, 2014). Furthermore, only three states require daily physical education and only eight require daily recess for elementary school students (Society of Health and Physical Educators [SHAPE America], 2016). In terms of scheduled physical education time, only five states plus the District of Columbia require the recommended 150 min/week of physical education in elementary school (SHAPE America, 2016). Thus, despite the myriad of health-related benefits of PA, it appears that the current academic climate and school-specific barriers limit the amount of time available for students to regularly participate in PA during the school day.

Recess has been defined as regularly scheduled periods during the school day for unstructured PA and play (CDC, 2000). In 2013, the AAP issued a policy statement citing recess as an important and necessary break from the demands of school that offers benefits for the development of the whole child. Recess is also an essential component of a Comprehensive School Physical Activity Program (CSPAP; CDC, 2013). Participation in recess has been associated with cognitive and academic benefits, social and emotional development, and increases in PA (SHAPE America, 2016). Yet current trends point to a reduction in time allotted for recess in schools, most notably driven by pressure on schools to dedicate more time to academic tasks (Evenson, Ballard, Lee, & Ammerman, 2009; Lee, Burgeson, Fulton, & Spain, 2007; Pellegrini, 2005). Additional challenges related to recess include playground conflicts and bullying, inclement weather, providing adequate supervision, and lack of adequate space and play facilities (Chicago Public Schools, 2012; Evenson et al., 2009). Students in high poverty schools and in urban settings tend to have less recess time than students in low poverty schools. Even when school policy encourages or even mandates daily recess, schools often withhold recess from students as punishment or to allow time for them to complete schoolwork. In 2006, the CDC found that 81.5% of elementary schools nationwide allowed faculty or staff to withhold recess for poor behavior (Lee et al., 2007).

Overall, researchers have found it difficult to accurately assess recess policy and trends, since recess practices vary from school to school, and even from teacher to teacher within the same school (AAP, 2013; Pellegrini, 2005).

Amid growing concerns about an increasingly sedentary youth population, recess provides schools with an important opportunity as part of a CSPAP to increase PA among children during the school day. In addition to physical and health benefits, which are well documented, a growing body of research has shown that the benefits of PA extend beyond physical health and into the classroom (AAP, 2013). Although there has been debate in the past, a meta-analysis of over 59 studies revealed a significant positive effect of PA and fitness on children's academic achievement and cognitive outcomes (Fedewa & Ahn, 2011). Aerobic activity was found to have the greatest effect, compared to other forms of activity. Even short activity breaks have been correlated with increased reading and math scores (Erwin, Fedewa, & Ahn, 2013). This is of particular interest because school performance is largely measured with standardized test scores, and administrators sometimes eliminate opportunities for PA to dedicate more time for academics.

In addition to academic achievement and performance, PA positively affects students' attention, concentration, and classroom behavior (CDC, 2010; Maeda & Randall, 2003; Mahar et al., 2006; Pellegrini, Huberty, & Jones, 1995; Pellegrini & Smith, 1993; Trudeau & Shephard, 2008). This is encouraging, since attentiveness can positively affect cognitive performance, and minimizing disruptive student behavior can positively affect the learning environment and student success (Luiselli, Putnam, & Saunderland, 2002). A minimum of 15 min of recess has been shown to improve teacher ratings of classroom behavior, attention to classroom tasks, and other academic performance indicators (Barros, Silver, & Stein, 2009; Jarrett et al., 1998; Pellegrini et al., 1995). However, not all students are physically active during recess. In one study, researchers noted that much of the time on the playground was spent socializing rather than participating in vigorous activity (Jarrett et al., 1998). It is still unclear whether simply having a break from the demands of schoolwork positively affects classroom behavior or whether some degree of PA is the mediating factor. The direct relationship between PA

during recess, classroom behavior indicators, and positive academic performance warrants further investigation.

While recess provides opportunities for children to be physically active during the school day, it should not be used for prescribed, structured PA. An important element of recess is the notion of student choice, and therefore, recess should be considered a child's personal time (Ramstetter, Muray, & Garner, 2010). However, a number of strategies promote PA during recess, including providing age-appropriate equipment, having adequate supervision, and providing semistructured activity stations (CDC, 2013). Reinforcement and goal setting have also been found to increase the number of steps that children take during recess (Hayes & Van Camp, 2015).

This study used the theory of planned behavior as a framework for developing a PA program that encourages walking and other locomotor behaviors during recess. The theory posits that individuals who have positive attitudes toward a behavior, believe that significant others are also engaging in or will support the behavior, and perceive that they have the competence and control over their behavior, develop stronger intentions and ultimately are more likely to engage in the behavior (e.g., PA; Ajzen, 1985). A number of studies exploring PA behavior support the theory of planned behavior (Chatzisarantis & Hagger, 2005; Jones, Courneya, Fairey, & Mackey, 2004; Keats & Culos-Reed, 2009; Tsorbatzoudis, 2005). While more research needs to evaluate PA interventions built upon the theory of planned behavior, it is a useful framework for developing programs that increase PA.

While studies have shown the benefits of recess, this study expands upon the literature by evaluating the effect of recess when there were concerted efforts to build a physically active recess environment that respected best practice guidelines for recess time and was minimally resource intensive. Thus, the purpose of this study was twofold. First, the study examined the effect of the PA program on student participation in PA during recess. Second, the study explored the relationship between increased PA during recess and student classroom behavior. The researchers hypothesized that the PA program would increase participation in PA and that would have a resultant positive effect on classroom behavior.

Method

Participants

All students from 27 kindergarten to fifth grade classes from a single elementary school were invited to participate in a 5-week recess PA program. Four teachers, one each from Grades 1 to 4, consented to participate in data recording for this study. The four classes included 83 students, 19% of the participating student body (441 students). The public elementary school is located in a small rural town in the southeastern United States. The demographic makeup of the school was 53% male, 47% female, 84% White, 10% Hispanic, and 5% other ethnicities, and 27% of students qualified for free and reduced lunch. The average class size was 21 students.

Instruments

Teachers recorded observations of their own class daily for 2 weeks prior to the start of the PA program and daily during the 5-week program. Observations included

- number of students sedentary for 75% or more of the recess period and
- number of behavior-based disruptive incidents in the classroom before recess and after recess.

Group-based classroom behavior was assessed on a 5-point Likert scale modified from an item from the Children's Behavior Rating Scale-Short Form (Putnam & Rothbart, 2006), with 1 representing frequent misbehavior within the group and 5 representing an exceptionally well-behaved group. Individual student behavior was not assessed, as this scale evaluated the overall classroom atmosphere. Classroom behavior was recorded twice daily: just before recess (assessing the time from the start of the school day to the start of recess) and at the end of the school day (assessing the time from return to classroom after recess to the end of school day).

Intervention

The school allotted 15 to 20 min of daily recess to each class, during which time children have free-choice outside play. During recess (both prior to and during the intervention), students have the option to participate in a variety of unstructured physical activities such as

student-organized games (e.g., kickball, basketball, tag), swinging, or playing on the play structures, track, or open areas around the playground. Students can also choose to do sedentary activities such as sitting at a table talking to their friends. During the intervention, each student was invited to spend recess time walking, running, skipping, or somehow moving around the track to earn miles toward the destination. The goal of the intervention was to encourage elementary students to choose to be more physically active during recess. To motivate students and influence their PA behavior, the program was designed around the constructs of the theory of planned behavior, which purports that an individual's behavior is predicted by his or her intentions and that behavioral intentions are determined by one's attitudes, subjective norm, and perceived behavioral control. Students were encouraged to spend part or all of their recess time engaged in walking or other locomotor activities for which they already had high levels of perceived behavioral control.

Students recorded the distance traveled while participating in these activities each day, and records were verified by the teachers. They received necklace beads for each mile recorded, which served as a token incentive and helped to influence individual attitudes and the subjective norm as they observed their peers' necklaces growing. In addition, each class was challenged to cumulatively walk the route of the Lewis and Clark expedition. Total distance traveled for each grade was displayed on a wall in the gym, serving as a friendly competition to see which grades could complete the expedition. This competition element, along with interdisciplinary activities related to the "journey" along the Lewis and Clark expedition, encouraged students to see walking as fun and connect it to their learning, thereby influencing attitudes toward PA. Teachers were also encouraged to walk during recess, which further reinforced positive attitudes and subjective norms around being physically active. This was the second year of the intervention, with only a change in the destination but not the structure of the initiative. The PA initiative was designed for outdoor activity and therefore did not occur on days when classes were required to be indoors for recess, such as bad-weather days, which accounted for 23% of class days during the 5-week program.

Procedure

The walking initiative was a 5-week program; data collection began 2 weeks prior to the intervention and continued throughout the 5 weeks. Each day teachers observed student activity during recess and recorded total number of sedentary students from their class. Sedentary students were defined as any student participating in activities that do not require physical exertion (e.g., standing or sitting and talking, socializing, playing cards or hand-clapping games) for the majority of the recess period (75% or more). Distance walked per student was recorded for programmatic purposes only. The independent variable in this study was the number of sedentary students, not distance walked. Teachers also recorded classroom behavior, the dependent variable, in the morning (start of school to start of lunch) and in the afternoon (postrecess to end of day).

Prior to the intervention, the researchers provided verbal and written training during a faculty meeting for teachers on how to use the behavior recording instrument. They also provided ongoing support throughout the intervention when teachers had questions. Responses to all questions were addressed to the entire group of teachers, which ensured that all teachers received the same instructions for use of the recording instrument.

Data Analysis

Data were analyzed using SPSS 19, with a significance level of .05. Descriptive statistics (mean, standard deviation) and inferential (paired t) tests for significant differences were calculated. The researchers' decision to use students as the unit of analysis despite students being nested in classes followed recommendations from Stevens (1996).

Results

Every student at the elementary school (N = 547) was encouraged to participate in the PA program. Of those, 441 (81%) chose to participate. Among the four classes participating in the research component of the project, representing Grades 1, 2, 3, and 4, 100% of students participated in the PA program at least once over the 5 weeks. Daily participation rates ranged from 70% to 100% of the students in each class. Students averaged 1.34 miles (SD = 0.46)

walked per student on each outdoor recess day, an average of 4 laps around the school's one-third-mile track around the play area. Class size ranged from 20 to 23 students. In each class, the teacher walked with the students at least some of the days. The classes had outdoor recess 16 of 23 (70%) class days during the 5 weeks of the PA program and 25 of 33 (76%) class days during the 7 weeks of data collection.

The number of sedentary students during recess decreased from a class mean of 3.37 ($SD = 4.65$) before the start of the PA program to a class mean of 1.41 ($SD = 2.05$) during the 5-week PA program, a statistically significant difference, $t(102) = -2.384$, $p < .05$. The range of sedentary students per class was 0 to 12 prior to the start of the PA program and decreased to 0 to 6 during the PA program.

Figure 1 depicts mean teacher rating of classroom behavior before and after recess, during the PA program and before it had started. For the 2 weeks prior to the start of the program, there was no significant difference in teacher ratings of classroom behavior after recess ($M = 3.600$, $SD = 1.06$) compared to before recess ($M = 3.400$, $SD = 0.94$), $t(34) = -1.871$, $p > .05$. During the program, there was a significant improvement in teacher ratings of classroom behavior after recess ($M = 3.870$, $SD = 0.86$) compared to before recess ($M = 3.594$, $SD = 0.77$), $t(68) = -4.043$, $p < .001$. There were no significant differences in behavior improvement between grade levels, $F(3, 64) = 2.013$, $p > .05$.

Because of the limited data collection period, only nine observations were made on days without an active recess period (students spent recess in the classroom, not outside or in a gym). Those observations showed no change in classroom behavior; the mean difference from before recess ($M = 3.89$, $SD = 0.78$) and after recess ($M = 3.89$, $SD = 0.93$) on those days was 0.00. The small n restricts testing for significant differences between days with an active recess and days without an active recess.

Discussion

Current trends in the United States demonstrate that childhood obesity is on the rise, while opportunities for children to be physically active during the school day are on the decline (Lee et al., 2007; Pellegrini, 2005). Thus, it is important for elementary schools to encourage PA through CSPAPs within the constraints of the school day, with recess being a prime opportunity. This study assessed the

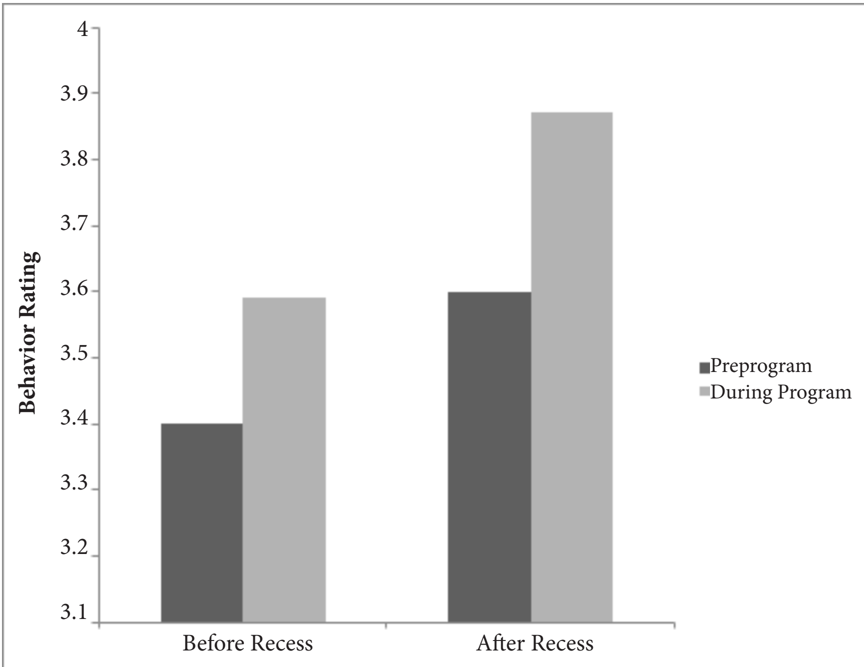

Figure 1. Mean teacher-rated classroom behavior before and after recess.

effect of an established PA initiative on participation in locomotor physical activities during recess and the resultant effect on overall classroom behavior. Data collection was positioned within the context of a 5-week PA program that encouraged and incentivized students at a rural elementary school to engage in walking or jogging for a self-selected amount of time during recess. The results of this study demonstrate the value of such a program to reduce sedentary behaviors during unstructured recess time and to positively affect the classroom learning environment.

The findings demonstrate that programmatic initiatives can increase student participation in PA during free-choice recess time and that class participation in active recess may have a positive effect on the classroom learning environment. This initiative resulted in a greater number of students participating in PA during recess, with significantly fewer sedentary students at recess during the program (M = 1.4/class) compared to prior to the program (M = 3.7/class). This represents a meaningful improvement in the number of children

who are making progress toward meeting the daily PA recommendation of 60 min/day (USDHHS, 2008).

The simple design of the program, which encouraged elementary-aged students to participate in individual locomotor activities that they had already mastered, and incentivized them to be active, added structure and encouragement for children to participate in PA during recess time without jeopardizing student autonomy. This program employed strategies such as teacher participation, class goal setting, and public reinforcement for participation (which provided individual reinforcement and influenced the subjective norm), consistent with Ramstetter et al.'s (2010) recommendation for maintaining student choice and Hayes and Van Camp's (2015) recommendation for using reinforcement and goal setting. Additionally, this program did not require additional equipment or space, rendering it sustainable and transferrable to other settings and eliminating some of the perceived barriers to recess time (Evenson et al., 2009). The simplicity and inclusivity of the activity (i.e., walking and other locomotor movements) allowed all children the opportunity to participate and experience success, without increasing opportunities for playground conflict that sometimes arise during competitive recess games.

This study examined the effect of an established PA initiative on reducing sedentary behavior and improving classroom behavior. While the constructs of the theory of planned behavior guided this initiative, the theory was the guiding framework for creating a successful program, not the focus of the research question. The positive results of this study could be extrapolated to any initiative that reduces sedentary behavior during recess and thus adapted to the preferences and needs of a variety of school settings.

Teacher ratings of classroom behavior were consistently more positive after a recess break with opportunities for PA (outside or in a gym) than before recess, prior to and during the PA program. During the PA program, more children participated in specific locomotor physical activities; thus, the researchers hypothesized that classroom behavior would be significantly better. This study demonstrated a trend toward improved classroom behavior (higher teacher ratings) during the PA program, though was unable to demonstrate a statistically significant difference. In further support of this

hypothesis, on days without an active recess period there was consistently no change in behavior (mean difference score across all grades was 0.0). This is consistent with Jarrett et al.'s (1998) findings that demonstrated a positive effect of recess time on classroom behavior. However, both studies indicate that recess alone, even without the additional programmatic initiatives for increasing PA participation, may be enough to have a positive effect on overall classroom behavior. This trend warrants further exploration over a longer time or during a different season when inactive or indoor recess is more common.

Lee et al. (2007) found that the majority of schools allow faculty and staff to withhold recess for poor behavior; however, the findings of this study indicate that withholding recess may be counterproductive. Instead, an active recess period may reduce disruptive behavior in the classroom. Taking away recess can be detrimental to the individual student who might struggle to achieve the daily 60 min of PA, and to the classroom learning environment. Therefore, schools should consider alternative disciplinary policies that do not include taking away recess. This is consistent with recommendations from the AAP (2013), the Council on School Health (2013), and SHAPE America (2016).

Elementary school administrators and faculty should deliberately ensure that students have an opportunity for active recess every school day, through policy and programmatic initiatives. Recess is essential not only for students' physical health but also for creating a classroom environment supportive to learning. Recess time positioned at midday can assist teachers and students in creating a more positive classroom environment in the afternoons. When students must stay in the classroom during recess time due to weather or other factors, active movement options should be made available. Activities such as dance, brain breaks, and hallway walking are potential options for indoor recess activities.

To further maximize the positive impact of recess, the time should be structured to encourage all students to participate in some type of physical activity, thus reducing the number of sedentary students during recess time. In this study, intentional and repeated encouragement to walk or jog proved effective in reducing the number of sedentary students during recess. Teacher role modeling and

small incentives such as sticker charts, verbal praise, class goal setting, and small cumulative rewards can further motivate students to be active. These initiatives will take some organizational effort by teachers but have relatively low financial costs. Concerted efforts by teachers to provide physically active recess periods and to encourage all students to participate in PA could serve purposes of helping individual students meet the recommended 60 min of daily PA and of improving the classroom learning environment with improved group behavior.

Limitations

While this study supports active recess from a classroom management perspective, it is not without limitations. The primary limitations of this study are the small sample size and measurement instrument, which pose serious threats to validity and reliability. The four classes that participated in data collection represented a diversity of grades (first through fourth) and a total of 83 students, which was 12% of the student body and 19% of the total number of students who participated in the PA initiative. The 83 students were members of intact classes, which resulted in a unit of analysis issue; therefore, results should be interpreted with caution. A replication study at multiple schools with many classes would be valuable such that results could be analyzed at the class level. Furthermore, the four teachers who self-selected to participate in data collection represent a potentially biased sample of teachers who have a tendency to support enrichment activities and therefore may already be influencing the classroom environment differently than other teachers do. To the extent possible, this variable was controlled for by the consistency in program administration across classes and grades. Students, whether or not their teachers were recording observations, were encouraged to participate in the same PA initiative and were given the same information and external reinforcement to be active during recess. In addition to the small sample size, the limited time for data collection presents additional challenges for comparing active recess and no recess days due to the limited number of days without recess (14% of class days during the data collection period).

Another notable limitation of this project was the measurement instrument. Group behavior recording instruments that are feasible for teachers to use in the classroom setting are virtually nonexistent.

This instrument was adapted from one item on the Children's Behavior Questionnaire-Short Form (Putnam & Rothbart, 2006) and used a Likert scale with 1 representing frequent misbehavior within the group and 5 representing an exceptionally well-behaved group. This instrument was selected for its simplicity and ease of use by teachers. The Children's Behavior Questionnaire-Short Form was developed as a parent-report, though was recently modified for use by teachers (Teglasi et al., 2015). In this study, individual student behavior was not assessed, as this scale evaluated the overall atmosphere of the classroom. Interrater reliability was not established; however, teacher training and support for using the data collection instrument was provided throughout the study. Although individual teachers may have different personal criteria and thresholds for exceptional behavior or misbehavior, each class was measured consistently by the same person (the primary teacher) every day; therefore, difference scores are accurate representations of changes in behavior even if individual teachers scored specific behavior patterns slightly differently.

A common limitation to school-based participatory research is the inability to control for confounding variables that threaten the validity of results. For example, changes in daily schedules and specific student absences can affect the classroom environment. The option for teachers to participate in the PA initiative could affect their perceptions of student behavior. Additionally, for assessment of difference in behavior between days that students did and did not have active recess, additional factors can affect behavior on days without recess. For example, the most common reason that classes did not have outdoor recess was bad weather, a factor that could independently have an adverse effect on behavior regardless of lack of recess. A strength of this study was the focus on behavior changes from before recess to after recess, which minimized the effect of some factors that would affect an entire day of instruction and thus could be accounted for by the data analysis and allow for meaningful results despite the limitations.

Conclusion

This study demonstrates the effect of recess-based PA initiatives at the elementary school level. Intentional efforts to encourage individual students to participate in locomotor activity during recess can

effectively decrease the number of sedentary students, which has individual student and classroom-level benefits. The benefit of PA on children's health is well documented, and recess can be one way that helps students reach their recommended 60 min of daily PA. Furthermore, by providing daily time for active recess, teachers can realize a more productive learning environment through improved group classroom behavior.

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PHYSICAL ACTIVITY

Effect of Situational Interest and Social Support on College Students' Physical Activity Motivation: A Mixed Methods Analysis

Joseph O. Otundo and Susan K. MacGregor

Abstract

Given the low levels of engagement in physical activity among young adults, this mixed methods study was designed to increase our understanding of the factors that influence their participation. Interest motivation theory provided the framework for examining the multidimensionality of situational interest as a component that is predictive of engagement in physical activity. College students enrolled in tennis classes at a large research university were recruited to participate in the research. A survey assessing the sources of situational interest was administered to 82 students, and eight students were interviewed so that we could obtain a deeper understanding of the quantitative results. A stepwise multiple regression model revealed four sources (enjoyment, novelty, exploration, and attention demand) that operated as predictors of total situational interest ($r^2 = .93$). From the interpretive analysis of the interview data, three themes emerged (autonomy, competence, and social support). Given these findings, recommendations for modifying physical activity classes are provided.

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Physical inactivity has been recognized as a significant public health concern. Despite recommendations by the World Health Organization (2017), many young adults remain inactive. For instance, in the United States, nearly half of youth aged 12 to 21 years do not meet the recommended physical activity (PA) levels (Centers for Disease Control and Prevention, 2017). Additionally, the National College Health Assessment survey across 124 higher education institutions indicates that 53.6% of females and 49.6% of males do not meet the guidelines for moderate, vigorous, or combination of both levels of exercise (American College Health Association, 2017). Motivation is a key predictor of an individual's participation in PA (Lewis & Sutton, 2011). Interest theory and self-determination theory (SDT) may help us understand the connection between motivation and PA engagement. In addition to suggesting a link between interest and SDT, this study proposes that the two theories are associated with PA engagement. More specifically, it theorizes that situational interest is a vital motivational component that emerges from person–task interaction and social factors. Even though research has focused on causes associated with person–task interactions (Chen, Darst, & Pangrazi, 1999; Knogler, Harackiewicz, Gegenfurtner, & Lewalter, 2015), interest in investigating social factors as potential sources of situational interest is increasing (Deci, 1992; Ding, Sun, & Chen, 2013). Consequently, the literature review provides a discussion of interest theory, including types and causes of person–task interaction, SDT, and their connection with interest theory.

Interest is a unique motivational and psychological state that results from person–task interaction (Flowerday, Schraw, & Stevens, 2004; Hidi & Renninger, 2006). Theorists have established two types of interest: personal and situational. Personal interest is a preference of one activity over others and is influenced by experience. Further, students carry a cognitive and affective quality to their PA classes (Flowerday et al., 2004). In addition to being internal, personal interest is specific to an individual and difficult to alter (Hidi & Renninger, 2006). Personal interest comprises individual characteristics, including self-efficacy, and thus is less amenable to change.

Situational interest is a context-specific form of interest that emerges from person–activity interaction in a social context (Ding

et al., 2013; Koopman-Boyden & Richardson, 2013; Linnenbrink-Garcia, Patall, & Messersmith, 2013). Even more, situational interest is spontaneous, transitory, and environmentally activated (Hidi & Renninger, 2006). Hence, person–task interactions, as well as social factors, influence situational interest (Greaney et al., 2009). Evidence points to five sources of situational interest related to person–task interaction: novelty, challenge, attention demand, exploration intention, and enjoyment (Sun, Chen, Ennis, Martin, & Shen, 2008). Students are motivated with tasks that are new (novelty), test their competence (challenge), and create fun (enjoyable). Tasks ought to provide students with opportunities to explore new skills (exploration intention) and that require special effort (attention demand). However, the effect of social aspects on motivation is not clear.

To explain the connection between situational interest and social factors, Deci (1992) theorizes a link between interest theory and SDT. SDT emphasizes intrinsic motivation, rather than extrinsic motivation, as a means for increasing students' PA engagement. According to SDT, three nutriments (also called basic psychological needs) are vital for motivation: autonomy, competence, and relatedness (Deci, 1992). Autonomy is one's sense of ownership of feelings and activities and implies that one acts with a sense of choice and volition (Deci & Ryan, 2011). Competence is the feeling of mastery of a task and the ability to develop new tasks (McDavid, McDonough, Blankenship, & LeBreton, 2016). More specifically, competence is the ability to complete a task effectively and meet future challenges related to the task (Deci & Ryan, 2011). Relatedness is the need to feel connected to others through engaging in interactions with others (Deci & Ryan, 2011). In summary, attainment of these basic psychological needs is a motivational factor in a PA setting. However, the connection between basic psychological needs and social factors is not clear.

Social factors refer to the immediate physical and social setting that support basic psychological needs. In a PA setting, social factors that support basic psychological needs include student affiliation to their peers and the pedagogies implemented by the instructor (Greaney et al., 2009). Examples of instructional pedagogies include establishing an interactive class environments, student-centered instruction techniques, technology-aided instruction (e.g., video games), and group activities (Ding et al., 2013; Kim et al., 2015; Linnenbrink-Garcia

et al., 2013; Madonia, Cox, & Zahl, 2014; Melton, Bland, Harris, Kelly, & Chandler, 2015). Interactive class environment entails the use of teaching strategies that provide opportunities for students to interact freely with their peers while performing assigned tasks. Student-centered instruction shifts the focus of instruction from the instructor to the students. Technology-aided instruction entails the use of technology to supplement instruction, for example, use of videos to demonstrate basketball skills.

There is agreement that situational interest is affected by the pedagogical approaches implemented by instructors (Duncan, Duncan, & Strycker, 2005; Durik & Harackiewicz, 2007). A key premise for PA classes in higher education is that programs should plan classes that offer physical activities that are popular for the geographical area and that emphasize social interaction (National Association for Sport and Physical Education, 2017). For example, teaching and coaching techniques that incorporate collaborative activities, such as group work, may trigger situational interest. Ideal group work is the use of small groups that provide students with the opportunity to develop a sense of belonging and autonomy. Situational interest is generated and maintained when instructors implement appropriate pedagogical approaches that reflect their mastery of content knowledge and motivational instructional strategies (Duncan et al., 2005).

Several studies focusing on college students support the effect of situational interest and social factors on PA. For instance, Greaney et al. (2009) revealed the influence of social support on PA engagement. Another study reported that students' PA interest was linked with content area and instructional strategies (Melton, Hansen, & Gross, 2010). In support of interest theory, Gu, Zhang, and Smith (2015) found association between group cohesion, competence, and interest. Recently, a mixed methods study found that students' PA motivation is triggered and maintained with an autonomous learning environment (Tracy, 2016). Rotgans and Schmidt (2011) revealed how students' interest can be predicted from instructors who are friendly, socially and emotionally connected with the students, and skilled in pedagogy. Specifically, the study revealed an association between subject mastery and situational interest. In addition, an association was found between situational interest and course content, class structuring, tasks, and activities (Tin, 2006). A strong connection

exists between teaching pedagogies and situational interest. Several instructional techniques are likely to increase situational interest in the classroom, including the provision of meaningful choices to students, selection of relevant topics, structuring classes to invoke active participation, and provision of relevant background knowledge relevant to the task (Linnenbrink-Garcia et al., 2013).

In summary, the literature suggests that improving pedagogy, including teaching strategies, pedagogical knowledge, and mastery of subject matter is relevant to the enhancement of situational interest. Even though quantitative studies have validated person–task interaction sources of situational interest, the question of how these sources affect interest has yet to be answered from a qualitative perspective. In addition, limited research has combined person–task interaction and social sources of situational interest.

This research wanted to determine factors that are important for identifying pedagogical approaches that motivate students to engage in PA in PA classes conducted in the higher education environment. The following research questions guided the study:

1. To what extent do person–task interaction sources predict situational interest of students enrolled in a PA class?
2. In what ways do sources of situational interest affect students' perceptions of their interest in PA within the context of a PA class?
3. In what ways do social factors influence motivation to engage in physical activity in the context of a PA class?

Method

An explanatory sequential mixed methods design provided the framework for this study. This two-phase design began with the collection of quantitative data, followed by the collection of qualitative data (Creswell, 2015). Mixed methods research entails gathering, integrating, and drawing interpretations based on quantitative and qualitative data so that the research problem can be understood (Collins, Onwuegbuzie, & Jiao, 2007). Qualitative data were collected so that the initial quantitative results could be explained and expanded on. The rationale for using mixed methods in this study was that complementarity could be established and then more complete interpretations obtained (Morgan, 2014). Qualitative methods

are sensitive to contextual factors (Green et al., 2007; Klassen, Creswell, Clark, Smith, & Meissner, 2012), and therefore, combining them with quantitative methods contributes to the current theoretical and practical understanding of college students' PA behaviors.

Participants

This study was designed with a large probabilistic sample for the quantitative component and a small purposive sample for the qualitative component (Clark & Creswell, 2011), which lends itself to justifying interpretative consistency. A parallel sampling strategy was implemented (Collins et al., 2007), meaning that individuals with characteristics like those who participated in the quantitative component (survey), but who did not participate in the survey were selected to participate in the qualitative (interview) component.

The criterion for participant selection in the quantitative component of the study was enrollment in a tennis class at the time of data collection. Students (n = 82) who participated in the quantitative phase of data collection were between 19 and 34 years of age (*Mdn* = 21), predominantly seniors (seniors, 58.5%; juniors, 18.3%; sophomores, 20.7%; and freshmen, 2.4%), Caucasian (n = 73, 89%), and female (n = 59, 72%). The findings from Phase 1 suggested the need for interviews, which could provide more in-depth understanding of the issues. Participants (n = 8) were selected for participation in the interviews at Phase 2 via a purposive quota sampling strategy. Selection was based on race, year of study, and age, and reflected the demographic characteristics of the survey participants (Table 1).

Setting

This research was conducted with students enrolled in tennis classes at a large research university in the Mid-South region of the United States. This region has some of the highest levels of physical inactivity, with more than 32% of the adult population not engaging in any form of PA (Centers for Disease Control and Prevention, 2017). Additionally, this course was chosen because tennis requires more than one player, which resonates with interest theory, which emphasizes the importance of social support and its influence on situational interest (Linnenbrink-Garcia et al., 2013). Therefore, the selection of the course provided the opportunity for examining the PA interest of college students, a population about which there is

Table 1
Qualitative Phase: Participant Demographics

Identification	Gender	Age	Year of study	Race
R1	Female	22	Senior	Caucasian
R2	Female	19	Sophomore	Caucasian
R3	Male	20	Junior	Black
R4	Female	24	Senior	Black
R5	Male	22	Senior	Black
R6	Female	20	Sophomore	Caucasian
R7	Male	19	Freshman	Caucasian
R8	Male	21	Junior	Black

little information. Tennis is an activity course at this university that draws a large enrollment of male and female college students. There are four sections (average of 21 students/section) taught by two instructors. The class met 3 times/week, each session lasted 1 hr, and classes took place on the university tennis courts. When introducing a new task to the students, instructors began the class by explaining the task, including steps to follow and precautionary measures. Instructors then demonstrated the new task before instructing students to practice the task. Instructors also walked around the court, providing instant feedback to students who were engaged in practicing the skills.

Approval from the university institutional review board was acquired before the study commenced. Consent forms were administered to all potential participants, and those who signed were recruited for participation in the study. The researcher informed participants of the purpose of the study, the handling of the data, reasons for audio recording and confidentiality, but kept them blind of the finer details of the study. Surveys were administered in person in the middle of the semester. The surveys were administered in 2 days to four sections of the tennis course. All the students (n = 82) who attended class on those days were given the opportunity to participate in the survey, and all of them agreed to participate. The surveys were administered during the spring semester, whereas the interviews were conducted during the following fall semester.

Measures

Phase 1: Quantitative procedures. A situational interest survey (Chen et al., 1999) was administered in person to 82 participants enrolled in three sections of a PA class, immediately at the end of a class hour. The survey was designed to measure person–task interaction sources of situational interest in a PA setting. The situational interest survey included 24 items on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). Chen et al. (1999) reported internal validity ranging from α = .78 to .95. Example items included "This activity is new to me," "This activity is difficult to do," and "It is an enjoyable activity to me."

Phase 2: Qualitative procedures. Following the analysis of the survey data, semistructured individual interviews (Table 2) were conducted with the eight selected participants. Prior to the interviews with the selected sample, the interview protocol was piloted and the interview questions refined. During the interviews, students were asked to express their views and experiences related to their interest in PA and the importance of peer support. Each interview session lasted between 10 and 20 min. As recommended, the interviewer gave the participants opportunities to provide their personal perspectives and opinions (Creswell, 2015). The interviews were recorded and transcribed verbatim, and the researcher excluded any personally identifiable information.

Table 2
Qualitative Phase: Interview Questions

1	What are some of the physical activities you like to do during your free time?
2	In general, how have your experiences in tennis class influenced your interest in tennis?
3	What is interesting or disinteresting about tennis?
4	How do your peers affect your participation in tennis?
5	How have peers made tennis more interesting or disinteresting?

Data Analysis

At Phase 1, statistical analyses were conducted in the Statistical Package for the Social Sciences. Descriptive statistics provided information about the demographic characteristics of the sample population. A correlational model was developed and determined the relationship between the predictor variables (sources of situational interest) and the dependent variable, situational interest. The predictor variables were derived from a 24-item scale (Chen et al., 1999), with six subscales (four items each) measuring the five sources of situational interest (attention demand, exploration intention, challenge, novelty, and enjoyment) and overall situational interest. Internal validity, from Cronbach's alpha, for each source was .94, .83, .89, .78, .75, and .44 for overall situational interest, exploration intention, enjoyment, novelty, attention demand, and challenge, respectively (Chen et al., 1999). Cronbach's alpha source scores were .95, .78, .80, .90, .90, and .95 for overall situational interest, exploration intention, enjoyment, novelty, attention demand, and challenge, respectively. Stepwise multiple regression analysis was applied and predicted overall situational interest from the sources of situational interest. A stepwise multiple regression model was developed and tested whether the five hypothesized sources of situational interest were predictors of overall situational interest in a PA setting. An independent-samples *t* test compared potential differences between the situational interest of male and female students.

At Phase 2, an inductive analysis was applied wherein each text was read and reread line by line and codes and meaning were identified. The coding process began by the researcher looking at the first transcript and labeling single words, phrases, and paragraphs that contained significant information related to each idea the participant expressed. The codes were identified based on the research questions (interest and peer support). Codes that shared a relationship were linked and subthemes were created. For instance, "someone to play with" and "sharing equipment" created the subtheme of companionship. The last step involved identifying themes that emerged from the linkage of subthemes and provided an explanation that was reasonable considering the various patterns that emerged at the descriptive level (Clark & Creswell, 2011).

Results

Quantitative Results: Predictors of Situational Interest

Results partially confirmed the hypothesis (sources of situational interest directly relate to overall situational interest) by showing that four sources of situational interest (enjoyment, novelty, exploration intention, and attention demand) were significantly related to overall situational interest. At Step 1 of the analysis, enjoyment was statistically related to overall situational interest, $F(1, 80) = 679.18$, $p < .001$. At Step 2, enjoyment and novelty were statistically related to overall situational interest, $F(2, 79) = 433.38$, $p < .001$. At Step 3, the dependent variables of enjoyment, novelty, and exploration were statistically related to overall situational interest, $F(3, 78) = 307.63$, $p < .001$. At Step 4, enjoyment, novelty, exploration, and attention demand entered the regression equation and were significantly related to overall situational interest, $F(4, 77) = 241.89$, $p < .001$. The multiple correlation coefficient was .92, indicating that enjoyment, novelty, exploration, and attention demand accounted for 92.2% of the variance of overall situational interest. Challenge did not enter the equation at Step 4 of the analysis ($t = .43$, $p > .05$). Probably, the statistically insignificant association between challenge and situational interest was due to the low internal validity ($\alpha = .44$). Table 3 shows the regression analysis results. An independent-samples *t* test revealed an insignificant difference for gender, $t(80) = .50$, $p = .62$, suggesting that gender has no effect on overall situational interest.

Table 3
Regression Results for Students Enrolled in Physical Activity Classes

	Unstandardized coefficient		Standardized coefficient			95.0% CI for B	
Model	**B**	***SE***	**β**	***t***	**Sig.**	**Lower bound**	**Upper bound**
(Constant)	-.292	.152		-1.919	.059	-.594	.011
Enjoyment	.655	.068	.635	9.577	.000	.518	.791
Challenge	.019	.044	.015	.429	.669	-.070	.108
Attention Demand	.124	.060	.102	2.065	.042	.004	.244
Exploration	.143	.060	.136	2.362	.021	.022	.263
Novelty	.173	.054	.158	3.204	.002	.065	.280

Note. $R^2 = .922$. CI = confidence interval.

Qualitative Results: Influence of Social Factors on Personal Interest

The analysis of the interview data revealed three major themes: (a) autonomy, (b) competence, and (c) social support (see Table 4).

Table 4
Qualitative Phase: Emerging Themes

Theme	Subthemes	Example
Autonomy	Free Play in Class	Because you know learning, the technique is never fun. But, actually playing the game is fun. She gives us time to play in the field. I find pleasure playing more and more.
	Informal Play	I feel like playing recreationally on the weekends does help because in the class, you know, ah. . . . the instructor can just focus on you all the time. But if you just play outside class, you try new tricks and improve on your skills…
Competence		I think the feeling after accomplishing a task. Like . . . if you are learning a specific skill like serve or backhand, it . . . feels good to demonstrate it.
Social Support	Instrumental Support	The greatest support is showing up for a game or practice session. Because tennis is not a sport you can play alone. So if you call a tennis match, and you turn up alone, then there is no tennis match. So the social support that comes in is when friends come in together to be able to play the game.
	Emotional Support	For example, when I hit the ball and the other person hits the ball like a rainbow . . . everybody gets excited. Everybody says, oh my gosh! They smash rackets. They say it is so good. You know, things like that.

Autonomy. Subthemes that reflected autonomy included free play and informal play in class. Most of the participants who were interviewed described feelings of motivation when the instructors allowed them free play during class. Several participants believed that playing under the supervision of the instructors denied them the opportunity to have fun. Even though it is expected that instructors will teach and demonstrate new skills, they should also give students time to engage in free play. For instance, R3 said, "We enjoy when we play freely." R1 addressed the concept of informal play, describing how she finds time over the weekend to play with her peers: "I feel like playing recreationally on the weekends does help."

Students noted the significant effect of free play on their PA interest and commented that they enjoyed engaging in free play more than in structured and supervised activity classes. Students expressed the concern that the time they have in class is not adequate for working on their skills. They said that the instructors spent most of the class time on assigned tasks, but provided only minimal time for practicing the learned skills. Engagement in tennis activities outside of class increased students' interest. For instance, R7 said, "We both want to get better. So . . . in class, we get 15 minutes, three times per week to play. So . . . we go to the weekend we get more hours. That's strictly playing and not anything else."

Competence. Students' PA interest stemmed from their perceived competence levels. R8 stated, "I think the feeling after accomplishing a task. Like . . . if you are learning a specific skill like serve or backhand, it really feels good to demonstrate it." To this end, competence implies having the required skills for executing a skill comfortably. When probed about why she likes tennis, R7 said, "It's when you learn, and you feel like you are confident enough. You know the skill and you feel more confident." In this study, participants expressed their competence in terms of improving their skills to the extent that they felt confident executing a task.

Social support. Social support comprises the subthemes of instrumental support and emotional support. Most participants expressed the importance of peer support. Instrumental support denotes tangible help that others can provide such as access to necessary sports equipment, having friends avail themselves for play, and transportation to the activity site (Duncan et al., 2005). They

acknowledged that the nature of tennis requires that individuals have playmates. Playmates do not necessarily have to be classmates. R6 said, "I have friends who are not taking the course, but they come to practice with me." Sometimes schedule conflicts with others made it difficult for participants to get playmates, which negatively affected their interest. The importance of instrumental support was further expressed by R2: "I did not play a lot, because my friends were not interested." Upon probe of why she is not so much engaged in tennis, R1 said, "I would if I had someone to play with."

Forms of emotional support that participants expressed included encouragement and peer approval. All participants voiced the importance of encouragement and when received from peers how it boosted their interest.

> In tennis, I can say my friends . . . those that I play tennis with would be there to encourage me. We would say we are tired, we do not need to go, but because they are there in my house, they would say we need to go to class, we need to go play. (R3)

On further probe, R3 said,

> My peers have played a big role in making me play this game. Even when I feel like I do not want to do anything, they would be there for me. I would also be there for them. Because it is like a team. It is like a clique. We complement and help each other. When one is feeling low, we say no, you are winning this game. Keep going, keep going. At the end of it when one wins or loses, we are still supportive. We encourage each other.

Participants discussed peer approval as another form of emotional support, noting that it facilitated a sense of contentment. Peer approval of one's actions might be expressed verbally and through body language. R5 explained, "You may have three sets to play, and when you reach the second set, pain starts coming and you need some people who can cheer you." Body language that participants frequently mentioned included clapping of hands and players jumping up and smashing rackets in the air.

Findings from this research suggest that the instructor's pedagogical approaches and peer interactions are vital aspects of motivation. For example, R6 said, "It is getting to play together. I enjoy playing, making new friends, and giving others a chance to play a sport. It has been a fantastic opportunity to bring together people from all walks." Generally, the importance of emotional support was expressed more commonly by the female participants.

Discussion

This study revealed three conceptual findings. First, the quantitative findings pointed to the significance of sources of situational interest. Second, the qualitative findings revealed the emergence of autonomy and competence, which support SDT. According to SDT, autonomous motivation is influenced indirectly by learning environments that support attainment of autonomy, competence, and relatedness. Thus, qualitative findings seem to support SDT by highlighting the influence of social support.

First, findings from this study are relevant to the association between sources and overall situational interest. Further, they are consistent with studies that point to five sources of situational interest (Chen et al., 1999; Chen, Darst, & Pangrazi, 2001; Huang & Gao, 2013; Sun et al., 2008). However, regression results from this study showed four sources (enjoyment, novelty, exploration intention, and attention demand) of situational interest.

As evidenced in previous studies (Pasco, Roure, Kermarrec, Pope, & Gao, 2017), the quantitative findings in this study indicate a strong positive correlation between enjoyment and overall situational interest ($r = .94$). This finding suggests that enjoyment is associated with overall situational interest, in addition to mediating the relationship between sources of situational interest and overall situational interest. Therefore, PA instructors should consider strategies that elicit situational interest including designing learning tasks that provide instant enjoyment, are novel (avoid monotony), allow opportunities for students to practice (exploration intention), and capture the cognitive aspects (attention demand) of students. The strong correlation between enjoyment and overall situational interest can be explained further based on responses from the interviews. Having fun has been associated with enjoyment, and this was revealed through the

interviews. Several participants believed that classes that incorporated free play were more enjoyable.

In contrast to previous findings (Chen et al., 1999; Vazou, Ntoumanis, & Duda, 2005), the quantitative results did not establish an association between challenge and overall situational interest. However, this finding aligns with that in other research that did not find an association between challenge and situational interest (Ding et al., 2013). As observed in this population, the level of challenge was not significant. This may indicate a mismatch between task difficulty and the skill status of the participating students and suggests a relationship between perceived levels of competence and task challenge.

Second, the qualitative findings strengthened the quantitative findings by revealing how opportunities that support autonomy and perceived competence influence students' interest. This finding is consistent with results in research that found autonomy to be a predictor of situational interest (Deci & Ryan, 2011). Elements of autonomy that influenced situational interest in this research included free play and informal play. Free play involves students engaging in activities while in class, but without instructor supervision. Informal play occurs outside of the classroom. Many of the participants discussed free play and informal play as important grounds for either developing or losing interest in PA. Students described free play as opportunities to practice their skills within the class time, whereas informal play occurred when students arranged to engage in PA outside of the class environment.

According to researchers, individuals derive autonomous satisfaction when they have a sense of volition and perceive that they are the origin of their behavior (Adie, Duda, & Ntoumanis, 2008). Therefore, to enhance students' sense of autonomy, instructors should consider structuring the learning environment in a way that supports a variety of autonomous actions, for example, student selection of playmates; choice of side of the court on which to play; and alteration of rules, which provides an element of fun for all students (Niemiec & Ryan, 2009; Adie et al., 2008).

Findings from this study support studies (Deci & Ryan, 2011) that associated competence with students' interest in PA. In addition, revelations from the qualitative interviews were consistent

with research that found the influence of competence on interest in PA to be important (Madonia et al., 2014). Researchers have suggested that tasks should be not only challenging for students, but also congruent with students' abilities (Sun et al., 2008). The flow model (Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005) provides a theoretical explanation for the low correlation of challenge with situational interest in this research in that when tasks are either too easy or too difficult, boredom or anxiety may be elicited. During the interviews, several students noted that the tasks required in their tennis classes were too easy. Challenge may trigger situational interest if it is congruent with students' competence. A positive association between novelty and overall situational interest links motivation to new but easy tasks. That is, tasks should not be presented at a novice level only, but the difficulty level (challenge) should be modified so the varying levels of students' competence can be met. Perceived competence encourages students to seek avenues to practice the learned tasks and thus encourages exploration intention.

Finally, findings from the qualitative interviews revealed ways that social support influences students' situational interest. The participants explained how instrumental and emotional support affected their PA interest. Generally, students are motivated by learning environments that support their emotional and instrumental aspects. In other words, situational interest may emerge in a learning environment that encourages connectedness and interactions among students. Research reveals that students strongly value the social support they receive from their peers (Li et al., 2016; Prochaska, Rodgers, & Sallis, 2002). Students valued the emotional support (e.g., encouragement) and instrumental support (e.g., transportation to the activity site).

The importance of social support is congruent with the relatedness component of SDT (Deci, 1992; Deci & Ryan, 2011). This population expressed relatedness in the form of peer approval (Deci & Ryan, 2011). Students become motivated when the learning environment provides opportunities for peer interaction. Instructors can motivate students by establishing interactive and student-centered learning environments (Mikkonen, Ruohoniemi, & Lindblom-Ylänne, 2013; Prochaska et al., 2002; Rotgans & Schmidt, 2011).

In summary, results from this study conform to postulations that supportive social environments enhance self-determined motivation (Deci, 1992; Niemiec & Ryan, 2009). In conclusion, this research revealed ways of increasing interest in PA among college students. Specifically, situational interest is influenced by novelty, exploration intention, attention demand, enjoyment, support for autonomy and competence, and social support.

Theoretical Models

This study was grounded in interest and self-determination theories. The findings support studies reporting associations between sources of situational interest and overall situational interest (Ding et al., 2013; Durick & Harackiewiecz, 2007). With quantitative and qualitative results pointing to connections between sources of situational interest (from interest theory) and the social environment (from SDT), these two theories seems to be connected. In conclusion, the qualitative findings explaining the quantitative outcomes in this study affirm the role of a mixed methods explanatory study design (Creswell, 2015).

Limitations

Despite the findings, this study had limitations. The use of a parallel sample for the qualitative component might have some disadvantages, as the experiences of the participants might not be the same as the experiences of those who responded to the survey. However, the researchers selected a demographically comparable sample for both components and included individuals who had been enrolled in tennis activity classes taught by the same instructors. The activity of focus in this study was tennis, which can be played individually or in pairs, and therefore, the function of teamwork may not be clear in this study. To further this line of research, this study could be replicated with a variety of sports offered in postsecondary PA classes.

Conclusions and Recommendations

Perhaps, most important, this study revealed that interest in PA within a university context can be increased in a learning environment that supports novelty, attention demand, exploration intention, and enjoyment. Along with supporting the well-established sources

of situational interest, this research adds knowledge to the literature with respect to the importance of incorporating social factors as a source of situational interest. These findings suggest that the social environment influences the motivation and engagement of students participating in PA. The need for instructors in postsecondary contexts to create socially supportive environments is a major step toward increasing interest in PA. Socially supportive environments include elements of autonomy, competence, and emotional support.

Instructors can establish an autonomy-supportive environment through strategies such as providing more choices for students to select the tasks they prefer and allowing students to choose their groups. They can enhance students' competence by demonstrating or having a student demonstrate tasks, before asking the rest of the class to engage in the task; using technology to teach a task; allocating more time for students to practice acquired skills; encouraging students to use more effort when executing difficult tasks; and using group work as a tool for improving students' competence. Instructors can provide emotional support to students through physical proximity, social conversation, sensitivity to student needs, encouragement, empathy, and a pleasant demeanor. Finally, to increase PA among young adults, instructors can consider implementing pedagogical strategies that align with interest theory and with a long-term goal of promoting PA for a future healthy lifestyle.

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PHYSICAL ACTIVITY

The Effect of Physical Education Teacher Physical Appearance on Student Physical Activity

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Abstract

This study examined how a physical educator's physical appearance affected student physical activity. Students (N = 142) from fourth- to sixth-grade physical education classes wore pedometers. Classes were assigned to a female teacher either wearing a fat suit or not wearing a fat suit. A 3 × 2 × 2 ANCOVA data analysis revealed a statistically significant Grade × Group interaction, $F(2, 129) = 6.48$, $p = 0.002$, $\eta^2 = 0.09$. Fourth-grade students displayed a higher number of steps per minute with the fit-appearing teacher ($p < 0.001$, $d = 0.39$), while sixth-grade students displayed a higher number of steps per minute with the teacher wearing a fat suit ($p < 0.001$, $d = 0.89$). The fourth graders performed a higher number of step per minute with the fit-appearing teacher and a lower number of steps per minute with the overweight-appearing teacher. Opposite results came with the sixth graders, who displayed a lower number of steps per minute with the fit-appearing teacher than with the overweight-appearing teacher.

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More than one third of adults in the United States are considered obese (Centers for Disease Control and Prevention [CDC], 2016), and in 2015, no U.S. state had a prevalence of obesity less than 20% (CDC, 2015). Not only is this problematic for obese adults, but it also has strong negative effects on children. The bodies and behaviors of adults may determine the academic and health futures of students (Schee & Gard, 2014). Adults are role models to youth in behavior and action. Role modeling is no different when it comes to physical health. Specifically, adult physical and health educators and coaches are role models of good health (Cardinal, 2001). According to Wilmore (1982), physical educators communicate more by who they are than by what they say. Therefore, the physical appearance of physical and health educators may play a role in youth learning and physical activity (PA). It is hard to expect students to care about fitness, active lifestyles, and skillful performance when the teaching is done by unfit, inactive, and low-skilled teachers (Mitchell, 2007). Teachers should emulate the characteristics that they teach and be healthy role models inclusive of a fit physical appearance.

Physical educators play an important role in youth PA (Gold, Petrella, Angel, Ennis, & Woolley, 2012). This article also states that physical educators should exhibit the behaviors and appearances consistent with the message they teach of healthy living (Gold et al., 2012). Evidence also displays the expectations for physical education (PE) teachers and what is necessary for a successful role model. For example, McCullick (2001) had practitioners share their perspectives on possible necessary characteristics for participants in a PE teacher education (PETE) program. The study mentions physical fitness as one characteristic that teachers should possess to be role models for students and that they should be able to perform adequately in sport-related activities. Body composition is one component of physical fitness and inherently incorporates physical appearance. The study also addressed student needs and explained that the teacher is similar to a salesperson for fitness. If students can tell that the teacher takes fitness seriously, they will be more inclined to do so as well (McCullick, 2001). Student inclination to perform healthy behaviors should be at the forefront for every physical educator and be visible in their physical appearance.

The rationale that physical educators often model behaviors that they want students to learn is helpful to this study and is found in social learning theory (Bandura, 1977). This theory explains the vital role that a significant person in one's life can play in the development of behaviors and attitudes. Bandura (1977) states that learning can occur vicariously through the observation of another person's behavior and that most of people's behaviors are learned, either deliberately or inadvertently, through the influence of example. This is fundamental for this study in that, according to Bandura (1986), the behavior and attitude of a teacher can affect the behavior and attitude of a student through modeling. This behavior includes, as mentioned, physical fitness and therefore includes body composition as one component. Cardina (1994) also mentions that social learning theory can be useful for educators because it addresses a broad collection of variables that influence behavior change and not just individual's motivation for behavior change.

Physical and health educators have a unique opportunity to have a positive effect on youth during the school day. Melville and Hammermeister (2006) mention that future PE teachers will be required to lead their schools and communities in the process of regular PA and better eating habits and to create a more positive ideology surrounding health as a whole. Wilmore (1982) discussed that those in the profession must make personal commitments to have their own levels of physical fitness in the healthy zone for the promotion of these healthy zones for students, the focus for this study being the component of body composition and physical appearance of such. Students will possibly be most successful when leaders in schools become role models to everyone around them by living healthy and practicing what they teach. Another article also reiterates that the accomplishment of academic achievement when the teachers are healthy can inspire good health among the children they teach (Schee & Gard, 2014). The link between academic achievement and healthy teachers further supports the importance of teachers' ability to inspire good health among their students, with physical appearance being one component and the focus of this study.

The effects of physical appearance have been studied with other groups such as medical residency applicants (Boor, Wartman, & Reuben, 1983), teacher education majors (Buck & Tiene, 1989),

hospital-based nurses (Zapka, Lemon, Magner, & Hale, 2009), physicians (Hash, Munna, Vogel, & Bason, 2003), sport psychology practitioners (Lubker, Visek, Watson, & Singpurwalla, 2012), and sports dietitians (Lovell, Parker, & Slater, 2013). Only a small amount of research has examined PE teachers' physical appearance and its effect on student outcomes for PA. The research covers the area of cognitive skills that students have and how physical appearance influences these cognitive skills or abilities (Conlin, 2010; Dean Adams, & Comeau, 2005; Melville & Maddalozzo, 1988; Thomson, 1996).

In one foundational study, Melville and Maddalozzo (1988) used the physical appearance of one male PE teacher to determine the effect of teaching success on the students. They used instructional videotapes of a PE teacher during a PE lesson. The lessons were identical, except that one lesson was taught by the instructor, who was seemingly fit, and the other lesson was taught by the same instructor wearing a fat suit, who was seemingly overweight. This study found that PE teachers' physical appearance had an effect on student success; more specifically, students performed lower on the exam with an overweight-appearing teacher (Melville & Maddalozzo, 1988).

Thomson (1996) completed a replication study of the Melville and Maddalozzo (1988) study, but instead of measuring student success on an exam, Thomson measured student success on a 15-item quiz. Results from this study supported the research and showed differences between a fit- and an unfit-appearing teacher on student success, with students performing higher on the quiz with a fit-appearing teacher.

Dean et al. (2005) examined how a female physical educator's physical appearance affected the cognitive performance of junior high students. This research used 6 weeks of teaching time, compared to the aforementioned studies, which lasted for only one PE class period. This study also supports the other studies, concluding that a teacher's obese physical appearance negatively affects junior high students' test scores on health-related fitness knowledge (Dean et al., 2005).

In a dissertation, Conlin (2010) investigated if student test scores changed when content knowledge was delivered by average-appearing female and male PE teachers compared to overweight-appearing

female and male PE teachers. The results were not the same, however, with no significant main effect for student test scores on fitness knowledge tests when students were taught by average-appearing PE teachers or overweight-appearing PE teachers. Conlin speculated that the students may not have been exposed to healthy-weight adults and may have an altered view of what a healthy role model should appear to be in general, especially based on physical appearance alone, and would not have had a negative association with teachers who appear overweight. This research contradicts the previous results, but is also 10 years advanced, and the overweight and obesity prevalence has since changed. Research needs to address this issue, contradicting results or not, to stop this obesity trend and create healthy role models for students today.

However, in an area of study focused on PA the majority of the time, no research has examined how the physical appearance of a PE teacher affects the PA levels of students. This study measured student PA levels rather than exam and quiz performance, as previous studies have done. Additionally, it used the measure of weight bias, the inclination to form judgments that are unreasonable because of a person's weight (Washington, 2011), to add to the literature. Student activity levels were measured with pedometers, which kept track of step counts for each student. This study measured the weight bias of students to assess whether a preconceived weight bias would affect student PA levels. Findings from Andreyeva, Puhl, and Brownell (2008) showed that weight/height discrimination has increased and the prevalence is comparatively close to reported rates of race and age discrimination. The reduction of weight bias is needed for the protection of obese and overweight individuals at all age levels. If weight bias in students is measured, the effects of the bias on PA behaviors could be analyzed. This weight bias in students might also be why physical educators' appearance might influence PA, possibly answering why students would have a poorer attitude toward teachers who are overweight.

It is apparent that more evidence is needed so that it can be determined whether a PE teacher's appearance can influence student PA levels. Therefore, this study examined how the perception of a physical educator's physical appearance affected student PA levels, as measured with pedometers. Within a social-cognitive theoretical

framework, it was hypothesized that students with the fit-appearing teacher would have higher step counts than students with the overweight-appearing teacher. The results of this study could help future educators prepare to teach and be successful with students by teaching them to be a role model in their own physical appearance.

Method

Participants

Participants (students) were recruited from an elementary school in the Salt Lake Valley and participated in the study, which took place in their PE class. Students were recruited via a convenience sampling procedure from fourth-, fifth-, and sixth-grade classes and ranged in age from 9 to 13 years old. This took place during the school day, and all students in the aforementioned parameters were included (151 students). Institutional review board approval and district approval were obtained prior to data collection, and parental/guardian permission forms for the students, which explained the study and the data to be collected, were given out at school and sent home with the students. This allowed parents/guardians and students to choose if the student wanted to opt out of participating in the study. Consent forms informing them of study procedures and protocol were also given to parents/guardians, administrators, and teachers.

One female teacher participated in the study as the PE class teacher. The teacher was chosen based on her seemingly fit appearance with a weight of 170 lb and a height of 6 ft tall. These dimensions equated to a normal weight body mass index (23.1). The guest teacher taught a Zumba fitness lesson to the PE classes involved. The lesson incorporated dance, plyometric cardio, rhythm, and stretching with accompanying music. Half of the classes ($n = 3$) saw her as her true fit-appearing self, and the other half ($n = 3$) saw her as an overweight-appearing educator, through the use of a fat suit worn underneath her clothing (see Figures 1 and 2). The fat suit was a padded garment that added pseudo-fat tissue to the torso region of the body. Measurements for the teacher were taken in her fit state and overweight state. The results of this were a 35-in. chest, 32-in. waist, 38-in. hips, 22-in. thighs (left and right), and 12-in. arms (left and right) for the fit-appearing teacher. For the overweight-appearing teacher, the measurements were a 35-in. chest, 38-in. waist, 40-in.

hips, 22-in. thighs (right and left), and 12-in. arms (right and left). Her lessons were structured the same and her mannerisms and teaching style remained the same for each class. This ensured that all the students received the same opportunity to be physically active and that the only changing variable was the teacher's appearance. She also wore a pedometer throughout the data collection to ensure that her own PA levels remained the same throughout all the lessons, fat suit or no fat suit.

Figure 1. Fit-appearing female teacher.

Figure 2. Overweight-appearing teacher.

Instrumentation

A student attitude and behavioral intention questionnaire (Melville & Maddalozzo, 1988) assessed student attitudes toward the physical educator. This questionnaire was based on a 5-point Likert scale with eight items. This instrument was created and used by Melville and Maddalozzo (1988), as well as in other studies (Conlin, 2010; Dean et al., 2005). The questions used for this study included (1) I think I would like having Coach T. as a PE

teacher, (2) Coach T. knows a lot about PE, (3) a PE teacher should be physically fit, (4) Coach T. appears physically fit, (5) I will try to use the information Coach T. talked about to improve my own physical fitness, (6) I believe Coach T. leads a healthy lifestyle, (7) I think Coach T. exercises regularly, and (8) Coach T. motivates me to exercise and lead a healthy lifestyle. The scale for these questions was 1 = *strongly disagree*, 2 = *disagree*, 3 = *don't know or uncertain*, 4 = *agree*, or 5 = *strongly agree*.

Pedometers (CW-701 Yamax Digiwalker) measured step counts through ambulatory movement of students. These provided a valid and reliable assessment tool for measuring ambulatory activities (Welk, 2002). The pedometer was worn near the thigh midline of the waist/hip area of each student and connected to a belt or clothing. Behrens, Hawkins, and Dinger (2005) mention that this brand is one of the most accurate pedometers for collecting step count data.

An adapted version of the Figure Rating Scale (Stunkard, Sorenson, & Schulsinger, 1983) assessed weight bias that students might have had before they saw the PE teacher in this study. The students rated two figures, one fit appearing and one overweight appearing, and answered the question, "How good of a PE teacher do you think each of these people would be?" This was done similarly in the study by Tiggemann and Wilson-Barrett (1998). The two figures were not pictures of real people, but rather were drawn depictions of cartoon people. The scale used was 1 = *very bad*, 2 = *bad*, 3 = *neither bad or good*, 4 = *good*, or 5 = *very good*. Change score was used, which can be interpreted as the difference score. Therefore, a higher change score equated to higher weight bias due to students choosing higher and lower scale scores for each figure.

Procedures

During the week of data collection, students were given a pedometer as they came into their PE class in the gymnasium. They were then instructed to wear the pedometer for the entire class time and not to mishandle or misuse it in any way. Steps were recorded by the students after the PE class lesson was finished, and then the difference in step counts and activity levels between a fit-appearing teacher and an overweight-appearing teacher was examined. Pedometers were collected at the end of the class time.

A preliminary Figure Rating Scale questionnaire was given to students before the week of data collection. Their responses to the questionnaire provided the author with a measure of weight bias for the study and allowed her to see what they thought a PE teacher should look like as a role model. The author then used these data to see the influence of weight bias on the students and their perceptions of their teacher. The scale questions were given to students in a separate PE class time, not during pedometer data collection.

During the week of data collection, a questionnaire of how they thought and felt about their teacher was given to students at the end of their PE class time, with questions based on the Likert scale. The students also recorded step counts on the same questionnaire through self-report.

The guest PE instructor wore a fat suit during one class of one grade and then did not wear the fat suit with the other class of the same grade. This was done for each grade level of classes, which totaled six lessons. Lessons were taught the same by the guest instructor and monitored by the teacher's pedometer, and the lesson topic was on Zumba fitness, giving students a higher opportunity to move and be physically active. The teacher was a certified Zumba instructor and used the same routine and music for each lesson.

Data Analysis

Means for total PE class step counts were computed. To control for pedometer wear time, the author computed step rate by dividing mean steps by PE lesson wear time in minutes. A complete or valid day required the child to wear his or her pedometer the entire class period without taking it off. Data were screened for outliers through boxplots and influential cases through Cook's distance and checked for Gaussian distributions through k-density plots. A quasi-experimental design was employed, and therefore, there was no random assignment due to class scheduling.

A 3 × 2 × 2 analysis of covariance (ANCOVA) examined the effect of grade level (fourth, fifth, and sixth grades), sex (male and female), and condition of PE teacher (fat suit or no fat suit) on PE lesson step rate, controlling for the effect of weight bias, which was used as a covariate. The Figure Rating Scale (weight bias measure) score was calculated as the change score, or the difference between

the two scores. The higher the change score, the higher the weight bias. The mean scores for the student attitude questionnaire were also used as a covariate. The assumption of homogeneity of regression slopes were examined and the validity of the use of weight bias as a covariate was determined. A Bonferroni post hoc test was not employed, because a grade main effect was not found.

The potential findings were partially explained through additional exploratory analyses. A one-way analysis of variance (ANOVA) examined the effect of Figure Rating Scale change score (difference score) on grade level (fourth, fifth, and sixth grades). An additional one-way ANOVA examined the effect of the Figure Rating Scale change score on sex (male and female). A one sample *t* test compared the scores of the Figure Rating Scale for the overweight-appearing teacher and the fit-appearing teacher. The Student Attitude Questionnaire scores were analyzed by group, grade, and sex through one-way ANOVA analyses. All analyses used an initial alpha level of $p \leq 0.05$ and SPSS 23.0 (Armonk, NY, USA).

Results

Of the 151 students in all six classes combined, 142 had complete, usable data (94%). All data were retained due to the lack of extreme and influential cases within the data set. Assumption issues were attenuated due to the relatively large sample size. There were more female students ($n = 78$) than male students ($n = 64$). The participants were mostly in the fifth grade ($n = 54$), followed by fourth grade ($n = 48$), and least in sixth grade ($n = 40$). The number of students with an overweight-appearing teacher was almost identical to the group with a fit-appearing teacher ($n = 72$, $n = 70$). Table 1 shows the descriptive statistics results (see also Figure 3).

Table 1

Descriptive Statistics for Each Group Steps per Minute by Sex

Sex	Group	*M*	*SD*	*n*
Female	Fit	60.69	26.13	39
	Overweight	68.45	19.04	39
Male	Fit	60.68	20.70	31
	Overweight	62.10	27.40	33

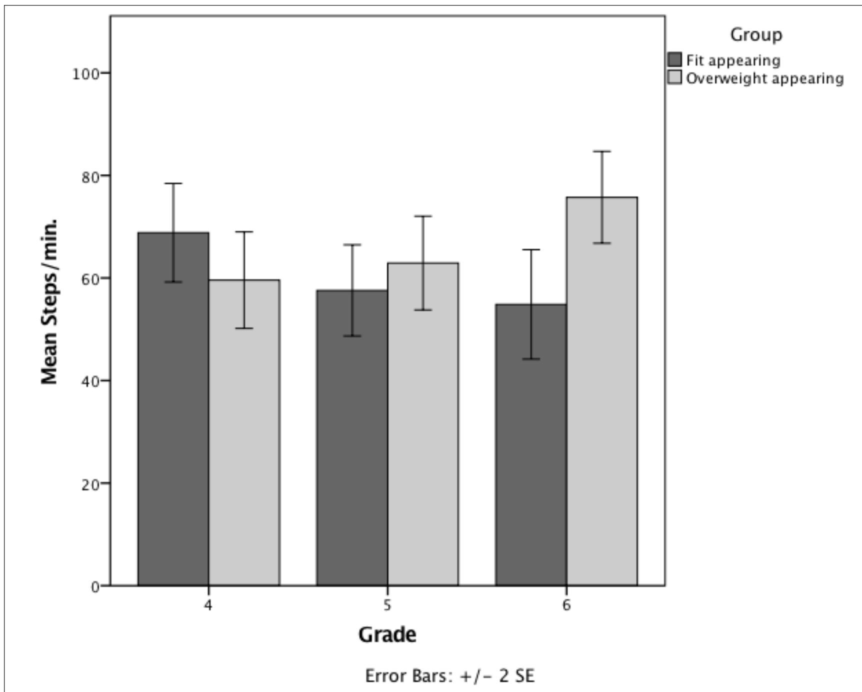

Figure 3. Mean steps per minute by grade and experimental group.

Results for the ANCOVA revealed that the covariate Student Attitude Questionnaire showed statistical significance, $F(1, 129) = 9.23$, $p = 0.003$, $\eta^2 = 0.07$. Table 2 shows the results. The covariate significantly predicted steps per minute. Therefore, the step counts per minute were influenced by the Student Attitude Questionnaire averages. The corrected model and the intercept were also statistically significant; however, no other main effects were statistically significant. The second covariate, Figure Rating Scale change score, was also tested for significance, but was not statistically significant ($p = 0.759$).

There was a statistically significant Grade × Group interaction, $F(2, 129) = 6.48$, $p = 0.002$, $\eta^2 = .09$. The fourth graders had a higher number of steps per minute in the group with the fit-appearing teacher and lower number of steps per minute in the group with the overweight-appearing teacher. However, it was the opposite with the sixth graders in that the group with the fit-appearing teacher had a lower number of steps per minute. Table 3 shows the results for the

interactions. The effect size of the interaction of grade on group was 9%, taken from the partial eta squared. This explains the proportion of variance that the variable explains that is not explained by other variables in the analysis. The pairwise comparisons for fourth grade yielded a medium effect size with Cohen's d = 0.39 and for sixth grade yielded a large effect size with Cohen's d = 0.89. Levene's test of equality of error variances was not significant (p = 0.966), meaning that the group variances were equal and the assumption of homogeneity of variance was met.

Table 2
Tests of Between-Subjects Effects (Main Effects)

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.	Partial η^2
Corrected Model	16708.116	12	1392.34	2.92	.001	.21
Intercept	2016.869	1	2016.86	4.23	.042	.03
SAQAVG	4399.559	1	4399.55	9.23	.003	.06
Sex	19.045	1	19.04	0.04	.842	.00
Grade	725.316	2	362.65	0.76	.469	.01
Group	1044.605	1	1044.60	2.19	.141	.01

Note. SAQAVG = Student Attitude Questionnaire averages.

Table 3
Tests of Between-Subjects Effects (Interactions)

Source	Type III sum of squares	*df*	Mean square	*F*	Sig.	Partial η^2
Sex*Grade	1146.849	2	573.425	1.20	.304	.018
Sex*Group	505.854	1	505.854	1.06	.305	.008
Grade*Group	6179.403	2	3089.702	6.48	.002	.091
Sex*Grade*Group	2106.165	2	1053.083	2.21	.114	.033
Error	61480.321	129	476.592			
Total	644470.642	142				
Corrected Total	78188.437	141				

This study used the teacher's steps from the pedometer to control for the teacher's activity levels. The teacher's step counts were divided by the time that the pedometer was worn. This resulted in a difference of 86.91 steps/min for the fit-appearing teacher and 82.22 steps/min for the overweight-appearing teacher. Results for the one-way ANOVA tests examining Figure Rating Scale difference scores showed a statistically significant difference between groups (weight bias and grade) as determined by the ANOVA, $F(2, 141) = 6.85$, $p = .001$. A Bonferroni post hoc test revealed that the change score was statistically significantly higher for fourth graders (2.06 ± 1.31, $p = .001$) compared to fifth graders (1.35 ± 1.98) and sixth graders (0.78 ± 1.46). There was no statistically significant difference between the fifth- and sixth-grade groups ($p = 0.280$) and between the fourth- and fifth-grade groups ($p = 0.091$). The one-way ANOVA for change score and sex did not show statistical significance ($p = 0.217$). The results of the t tests showed a statistically significant ($p < 0.001$) difference in change score, and these scores were higher for the overweight-appearing teacher ($M = 4.01$, $SD = 0.91$) compared to the fit-appearing teacher ($M = 2.58$, $SD = 1.16$).

Results for the one-way ANOVA examining Student Attitude Questionnaire scores showed statistical significance by group for Questions 1, "I think I would like having Coach T. as a physical education teacher" ($p = 0.034$); 4, "Coach T. appears physically fit" ($p < 0.001$); and 5, "I will try to use the information Coach T. talked about to improve my own physical fitness" ($p = 0.027$). Statistical significance was found by grade for Question 2, "Coach T. knows a lot about physical education" ($p = 0.011$). For sex, statistical significance was found for Questions 1 ($p < 0.001$); 2 ($p = 0.028$); 4 ($p = 0.019$); 5 ($p = 0.001$); 6, "I believe Coach T. leads a healthy lifestyle" ($p = 0.041$); and 8, "Coach T. motivates me to exercise and lead a healthy lifestyle" ($p = 0.009$). Finally, for weight bias, statistical significance was found for Question 3, "A physical education teacher should be physically fit" ($p < 0.001$).

Discussion

This study examined how perceptions of a physical educator's physical appearance affected student PA levels, as measured with pedometers. It was hypothesized that students with the fit-appearing teacher would have higher step counts than students with the

overweight-appearing teacher. The results showed that the fourth graders had a higher number of steps per minute in the group with the fit-appearing teacher and a lower number of steps per minute in the group with the overweight-appearing teacher. However, it was the opposite with the sixth graders in that the group with the fit-appearing teacher had a lower number of steps per minute than the group with the overweight-appearing teacher. The fifth graders did not significantly change. These results for the fourth graders are congruent with the results in the Melville and Maddalozzo (1988), Thomson (1996), and Dean et al. (2005) studies in that they have more favorable results with the fit-appearing teacher. However, outcomes from this study might prove that physical appearance taken by itself is not as important as teacher behavior, such as stated by Spencer (1998), who noted that physical educators can model behavior patterns for their students for personal health and fitness.

The results indicated differences between fourth and sixth grades. This could be in conjunction with the theory of cognitive development (Piaget, 1936), which explains how children develop mentally with the increase of age. According to this theory, the formal operational stage begins at the age of 11 or 12 years old and initiates the ability to think about abstract concepts and show change in cognitive capacity (Inhelder & Piaget, 1958). This could explain why the results of this study show that the fourth graders (aged 9–10) were more negatively affected than the fifth (aged 10–12) and sixth (aged 11–13) graders by the overweight-appearing teacher. The abstract concept in the case of this study could have been the overweight-appearing teacher looking unnatural and students beginning to question the authenticity of the fat suit more as student age increased. Alternatively, this could have also explained the cognitive capacity of the students and the lack of need to base individual behavior on a trait of another person as student age increased.

For the scope of the study, focus was placed on Student Attitude Questionnaire Questions 1, the likability of the teacher, and 4, the appearance of the teacher. This study produced an interesting difference in Question 1, which asked students to agree or disagree with the statement "I think I would like having Coach T. as a physical education teacher" and then circle a corresponding number. The group with the fit-appearing teacher averaged a 3.81 score (all three

grades collectively) and the group with the overweight-appearing teacher averaged a 4.22 score (all three grades collectively), with the results from the one-way ANOVA showing statistical significance ($p = .034$). This result was not congruent with the hypothesis and with previous literature (Conlin, 2010; Dean et al., 2005; Melville & Maddalozzo, 1988) stating that an overweight-appearing teacher would have a lower score on this question. These results show that a fit physical appearance does not make a teacher more likable.

On the contrary, the study also produced an interesting difference on Question 4 of the Student Attitude Questionnaire, which asked students to agree or disagree with the statement "Coach T. appears physically fit." The group with the fit-appearing teacher averaged a 4.49 score on that question (all three grades collectively), and the group with the overweight-appearing teacher averaged a 3.82 score (all three grades collectively), with the results from the one-way ANOVA showing statistical significance ($p < .001$). This result was congruent with the hypothesis and with previous literature (Conlin, 2010; Dean et al., 2005; Melville & Maddalozzo, 1988) stating that an overweight-appearing teacher would have a lower score on this question.

Although the Figure Rating Scale change score was not statistically significant in predicting steps per minute, the change score produced noteworthy differences in weight bias scores for the question, "How good of a PE teacher do you think this person would be?" The averages for all grade levels and for both groups combined collectively resulted in a 4.01 score for the fit-appearing cartoon figure and a 2.61 score for the overweight-appearing cartoon figure. These results were similar to those in a study suggesting that the overweight-appearing cartoon figure would be less favorable (Tiggemann & Wilson-Barrett, 1998). The ANOVA results showed that the fourth graders had the greatest change score, which interprets as a higher weight bias. Therefore, the higher weight biased fourth graders had a lower number of steps per minute with the overweight-appearing teacher, compared to the sixth graders, who had low weight bias and a higher number of steps minute with the overweight-appearing teacher.

Although there was a trend favoring the fit-appearing teacher, according to the ANCOVA analysis the weight bias was not a

predictor of step counts per minute for the total sample, which was the focus of this study. The results of the Figure Rating Scale in this study were also congruent with results from the Lovell et al. (2013) study, in which athletes rated sport dietitians, and non-obese sport dietitians were rated more positively than obese sport dietitians. These results show that weight bias exists in this population, but that the weight bias varies by grade level and does not always affect the PA behaviors of students, which also aligns with the theory of cognitive development (Piaget, 1936), which states cognitive development increases with age.

Weight bias had an opposite effect in sixth graders, and this could be due to the teacher appearance not being the only variable that affected PA levels in older children. This possibility aligns with social learning theory (Bandura, 1977) in that teacher behavior and all related variables may have a greater influence on PA levels than physical appearance by itself. Applying these results could mean that PE teachers who have fourth-grade students (and possibly younger) would be able to have higher PA levels among their students if they were fit appearing. The fourth-grade group also had higher weight bias, which creates an opportunity for teachers to reduce this weight bias through school programs (Irving, 2000; Puhl & Brownell, 2003).

The results could also apply to PETE programs that prepare teachers to teach fourth-grade (and possibly younger) students at any point in their career. Some West Coast universities have had requirements for their PETE program majors in regard to physical fitness (Melville & Cardinal, 1988). These universities required certain fitness testing for students either to graduate from the program or to be accepted into the program. These physical requirements, that possibly lead to having fit physical educators, could be revisited and benefit some students, according to the results of this study and others.

Besides being a benefit to students taught by fit-appearing teachers, the results of this study could also be applied to the hiring process for physical educators. Administrators who know that fit-appearing educators tend to bring more favorable results with students, whether it be for PA levels or cognitive skills, would then be able to make proper, professional judgments when hiring new PE teachers onto their team (Jenkins, Caputo, & Farley, 2005; Melville

& Cardinal, 1997). However, it could be challenging for administrators to avoid blatant discrimination based on appearance. Instead, an administrator could request fitness testing be done before the hiring process begins and could be given recommendations from PETE programs.

Limitations, Application, and Conclusion

This study had limitations that could have influenced or changed some of the results. One limitation was that the study was done at an elementary school in Utah and therefore generalizability cannot be assumed for other populations or age groups. Future research should include different age groups and student populations to incorporate the generalizability factor. Another limitation was that the students' current physical state was not measured or used as part of the study. This could have been beneficial and informative as to why student step counts and/or attitudes presented themselves, as was the case in other literature (Tiggemann & Wilson-Barrett, 1998).

Another limitation was that this study could not use repeated measures and randomization of participants. Repeated measures did not occur, because the teacher could not teach the same students twice, once as overweight appearing and again as fit appearing. The option for overcoming this was having two teachers (similarly done in separate data collections by Conlin, 2010), but teacher behavior and/or teaching style would have been difficult to control for and could have changed the results (Buck & Tiene, 1989). Therefore, teacher lesson similarity was controlled for through measuring the teacher's step counts with the pedometer. The teacher mentioned that wearing the fat suit hindered her more from moving as much, made her feel hot faster, made her adjust her shirt more to make sure the fat suit was not showing, and made her more tired, which could have changed student attitudes regarding behavior. According to Field (2013), randomization would have increased the internal validity of this study and eliminated more of the systematic variations through random grouping of participants.

This study could have had dissimilar results if the teacher had been male. Some studies suggest that females have different results for physical appearance rankings and evaluations than do males (Boor et al., 1983; Buck & Tiene, 1989). Hash et al. (2003) stated that gender in their study with physicians' physical appearance could

have been a source of bias. The present study wanted to give students the perception that the teacher was overweight; however, because she was female she could have been thought of as pregnant by some students. This would not have been relevant if the teacher had been male and would have altered student attitudes toward the teacher and her appearance.

Future research in this area needs to employ a randomized experimental design and somehow perfect the overweight perception for students by using more natural-looking fat suits. In addition, teacher activity level could also be used as a predictor. By doing so, the literature could successfully conclude the effect of PE teacher physical appearance on student PA. Researchers should include different age groups such as middle school and high school and possibly adapt for younger elementary-age students, to create a generalizability option. Future studies should also try to use a male teacher to dispose of the perception that a female teacher might be pregnant as opposed to overweight.

This research should also be tested with different lesson topics because curriculum can be a crucial determinant of attitudes for students in PE class (Luke & Sinclair, 1991) and sometimes students only feel successful when they are doing activities they already know how to do (Portman, 1995). Additionally, other factors and variables can be used in this area of research, such as student ethnicity or student fitness level. It would be interesting to see what these other circumstances could bring to the research realm. To gain more of a general consensus of the weight bias and student perceptions, future research should include open-ended questions on questionnaires and surveys of why students chose particular answers.

Although still applicable to this study because body composition is one component of physical fitness, social learning theory is behavior based and, therefore, should be examined in future studies that incorporate differences in activity level. An example of this is found in Bandura's idea of reciprocal determinism, where an individual's thoughts, behaviors, and environmental factors are conceptualized as a continuous interaction (Thompson, 2013). Future studies could apply this idea using physical appearance of a teacher as an environmental factor and a student's thought on the teacher's appearance, and possibly students could reflect on the teacher's

behavior. Future research could benefit from allowing subjects to voice their thoughts on the teacher's appearance, but this might also require being deferential to the hypercritical task of commenting on another's appearance.

In conclusion, combatting obesity in children and adolescents can begin at school and more specifically can happen during PE classes. This study, in congruence with previous research, concludes for some grade levels that the most ideal circumstances would bring a fit-appearing PE teacher in as a successful candidate and a role model for physical appearance. However, it also suggests that physical appearance for other grade levels is not the most important characteristic in regard to increased PA. More research needs to bridge this gap between conflicting results according to grade levels. More specifically, additional research needs to examine the PA levels of students as related to teacher appearance. This novel idea requires more empirical evidence that will create a stronger foundational framework in the area of PE teacher physical appearance.

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SPORT MANAGEMENT

Sport Management Majors' Perceived Motivators and Barriers to Participation in a College-Sponsored International Experience

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Abstract

This study determined the perceived motivators and barriers of sport management majors to participate in a college-sponsored study abroad experience. An online survey was administered to 180 undergraduate and graduate sport management students from across the United States. The top motivators were (1) overall life experience, (2) the opportunity to live in another country or culture, and (3) résumé builder, while the top barriers were (1) finances, (2) missing social time and events on campus, and (3) lack of knowledge about opportunities—relatively consistent with both open-response and rank-order question types. Not highlighted in previous research, open-response questions revealed that "meeting new people and having fun" (6.7%) and "uncomfortable being away from home" (19.4%) were mentioned as a top motivator and barrier, respectively. Most notably, only 2.8% of the sport management student sample had studied abroad. This article

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discusses implications of these findings, focusing on recommendations for increasing participation in college-sponsored international experiences for sport management students.

With the increase of technology infiltrated into modern life, sport has expanded globally. Sports that were once common in only the smallest of markets have been exploding internationally. Li, MacIntosh, and Bravo (2011) state that the globalization of cultures' native sports not only expresses their national characteristics, but also helps to internationalize those cultures. Sport can reflect the differences in cultures, which means that globalizing sport introduces a variety of societies to the world. Since 1896, the modern Olympic Games have immersed the world of sport on an international stage. The commercialization and broadcasting of the Olympics exploded at the 1984 Los Angeles Summer Olympic Games, where the events were broadcast on ABC for a record $225 million broadcasting deal in 37 countries (Li et al., 2011). This provided sport an even larger global spotlight by being the most economically successful Olympic Games in modern history. Since the Los Angeles Olympics, the Olympics have become largely reliant on commercialization—sponsorship deals, broadcasting rights, and merchandising. The Olympics, along with other international events such as the FIFA World Cup, is largely responsible for the globalization of sport. International operations are necessary for the long-term growth and stability of sport organizations because of today's shrinking world. Thus, sport managers must be capable of handling sport on a global scale to highly succeed in the industry.

Interest in studying abroad has grown among U.S. college students. In the 2015–2016 academic year, the number of American college students studying abroad increased 3.8% from the previous year from 313,415 students to 325,339 students (National Association of Foreign Student Advisors [NAFSA], 2017). Although study abroad experiences have continued to grow in popularity, only about 1.6% of U.S. college students study abroad (NAFSA, 2017). The U.S. government attempted to increase the number of students studying abroad annually to 1 million by 2017 through a bipartisan federal commission established by President Bush and Congress in 2005 (Stroud, 2010). While the total number of students studying abroad only reached 332,655 students during the 2016–2017

academic year, this figure represents a 2.3% increase from the previous year (NAFSA, 2017). Colleges attempt to increase study abroad interest by offering unique experiences, such as short-term study abroad trips, or by making an international education experience a requirement for graduation (Stroud, 2010). Some argue that promoting study abroad is essential for colleges and universities to create a more diversified and globalized student body, and world. NAFSA (2017) claims it is detrimental to society if we ignore the essential aspect of international education when 95% of this nation's product consumers live outside of the United States. Using international experiences in educating college students can help prepare them for a globalized and interconnected modern world.

Study Abroad

Common Benefits

Studying abroad has become a more prevalent aspect of the typical collegiate career. Many individuals believe that participation in a study abroad program will give them an incomparable and unique experience. Participating in an international educational experience has many potential benefits. Studying abroad could increase international concern/awareness, provide cross-cultural interests, improve personal development, create global mindedness, increase foreign language skills, increase global knowledge, improve cross-cultural skills, and provide a greater global perspective (Bunch, Blackburn, DanJean, Stair, & Blanchard, 2015; Jenny & Jenny, 2016; Stroud, 2010). These benefits have persuaded more college students to study abroad. Individuals who have already participated in a program often enlighten other students about their experience, which can initiate the idea for classmates to consider study abroad options.

Yet possible benefits from studying abroad differ from factors that motivate individuals to consider participating in a program. These factors often initially spark an interest in prospective study abroad participants, while the benefits come from participation in an experience. Students are more motivated to participate in an educational international experience if they perceive the program as important, wish to improve their understanding of other cultures, see the possibility of increased employability, believe that participation will boost their résumé, have an interest in diverse countries

and cultures, and see the experience as a good way to travel (Bunch et al., 2015).

Effect

Experiences that send students to different countries help to globalize and internationalize the world. With the growing rate of international business (World Trade Organization, 2015), a student's study abroad experience can create new job opportunities—increasing employability for abroad and home-nation organizations. Currently, only 5.5% of students who study abroad spend a full year away from their home university, with 37% spending a semester away and 52% participating in a short-term program (Stroud, 2010). Of note, the effects of short-term study abroad experiences may not be as widely experienced with semester-long and yearlong programs. Many short-term programs are faculty led and structured, compared with the more independent semester-long and yearlong programs. Faculty-led programs often include a specific for-credit academic course that incorporates international travel geared toward course content while usually also exploring the country's language, culture, history, society, environment, architecture, and art (Guyer, 2011). Short-term programs permit many course options, which also assist students with less flexible course loads in being able to participate. The chance to study abroad provides "both an academic and cultural experience that cannot be duplicated in the classroom" (Guyer, 2011, p. 17). Offering college students the opportunity to partake in an international experience may equip them with unique skills and experiences that could affect their future careers.

Common Barriers

Although studying abroad is often portrayed as an entirely positive experience, there are some obstacles to participation. College students typically stress about a number of factors, including money and grades. Common stressors of college students include the academic environment, being on their own in a new atmosphere, financial responsibility, sexual identity and orientation, exposure to new people, and making important decisions (Bulo & Sanchez, 2014). Some of these potential barriers include the complexity of the study abroad application process, paying for the program, finding affordable housing, unsupportive family members or friends, concern over

future academic plan, lack of information about opportunities, lack of foreign language skills, credit transfer, lack of university support, and overall cost (Bunch et al., 2015; Stroud, 2010). These perceived (and actual) barriers appear to hinder the majority of college students from participating in an educational international experience.

Stroud (2010) explored the effect of factors such as parental income and education, gender, race, intended major, geographic distance from home, and attitudes about other cultures on the perceived barriers to participation in a program. There is a severe disparity in the demographics of students who study abroad, with only 35% of males and 17% of ethnic minorities doing so (Stroud, 2010). Therefore, while many college students are deterred from participating in a study abroad program, specific groups may be more significantly affected by these obstacles. Additionally, college students at larger research universities are less likely to participate in an educational international experience, compared to students who attend a smaller liberal arts college (Stroud, 2010). This could be due to the concentrated efforts and missions of liberal arts colleges to provide international opportunities, whereas research institutions have a different focus. These factors may deter many college students from looking into participating in a short- or long-term study abroad experience.

Sport Management Majors' Motivators and Barriers

Stroud (2010) stated that business management is one of the most represented fields of study among study abroad participants. Business-related majors are often similar from country to country, which may make it easier for individuals to take courses that will transfer back to their home university. Sport management (i.e., sport administration) degree programs, like business management programs, may afford students similar schedule flexibility, thus potentially providing students in these programs greater opportunities to study abroad. Empirical evidence demonstrates that sport management majors often perceive many of the same motivators as other students. These motivators include increased cultural knowledge, personal maturation, sport business professional development, creative thinking skills, increased global awareness, creation of interpersonal relationships dissimilar with others, increased excitement for future travel abroad, self-confidence, and practical application of

material learned in courses (Appleby & Faure, 2015; Cunningham, Bopp, & Sagas, 2010; Fairley & Tyler, 2009; Jones & Cunningham, 2008).

However, sport management students also experience barriers to participation in a study abroad experience. Common barriers to studying abroad for sport management students include language differences, affordability, cultural differences such as foreign currency and new food, separation from friends and family, job obligations, delayed graduation, difficulties with credit transfer, time, and feeling isolated and alone (Appleby & Faure, 2015; Cunningham et al., 2010; Fairley & Tyler, 2009; Jones & Cunningham, 2008). Undoubtedly, all college students may face many of these barriers and similar obstacles when deciding upon participation in a college-sponsored international experience. Although sport management students may have more program flexibility for a study abroad experience, the aforementioned barriers may still inhibit these students from taking advantage of available opportunities.

Only four studies that investigated study abroad experiences with sport management college students were found. First, Appleby and Faure (2015) studied the short-term study abroad perceptions of four students from one university at the London Olympics through qualitative interviews. Results indicated that the participants perceived that the study abroad experience created a chance for professional development, provided an opportunity to apply sport management curriculum knowledge, and facilitated overall self-development. Next, Fairley and Tyler (2009) analyzed 38 student reflection papers after five annual short-term, sport-focused study abroad trips to Australia. Each participant was from the same university. Results indicated that trip activities were essential to teaching foreign culture and that group interactions (i.e., informal discussion and exposure to other group members' experiences) can be essential to enriching the learning environment.

In addition, Cunningham et al. (2010) researched a group of 20 American and international students from one university who were studying sport management abroad together. The questionnaire-based study investigated intergroup friendships, cross-cultural anxiety, and outgroup (i.e., people different from oneself) evaluations. Results highlighted many benefits of intergroup

contact among students of diverse backgrounds who are studying abroad together. Finally, through a survey questionnaire method, Jones and Cunningham (2008) investigated the potential barriers and supports to studying abroad of 19 sport management students at one university. Findings indicated that benefits and barriers were associated with the participants' beliefs in their abilities to study abroad (i.e., study abroad self-efficacy), which was positively associated with interest in studying abroad.

Few studies have conducted research regarding sport management majors' perceived motivators and barriers to participating in a college-sponsored international experience. Of the few studies that have been conducted, all recruited participants from a single university and utilized a small sample size (e.g., 4 to 38 students). Additionally, none of these studies utilized open-response questions when exploring perceived motivators and barriers to studying abroad and, except for the Jones and Cunningham (2008) study, all were performed after the study abroad experience was completed. Utilizing a large sample from varying universities across the nation, this study wanted to determine the factors that sport management majors perceive as motivators and barriers to participating in a college-sponsored international experience, including long-term (i.e., semester-long or yearlong) and short-term (i.e., spring/fall break, summer, faculty-led) trips.

The research questions that guided this study included (1) What are sport management college students' perceived motivators to going on a college-sponsored international experience? (2) What are sport management college students' perceived barriers to going on a college-sponsored international experience? This study's findings of a large nationwide sample will assist study abroad offices and, in particular, sport management program faculty in creating effective marketing strategies and study abroad programs for sport management majors, by providing the perceived factors that motivate and hinder these students from participating.

Method

Design and Participants

A mixed-methods design employing a survey with quantitative and open-response questions was used. Sampling of participants

occurred through all-student electronic mailing lists, informational e-mails, and word of mouth. Participants included students from colleges or universities across the United States who were majoring in sport management/administration. Of the 772 students who were e-mailed the survey, 180 responded (23.3% response rate). Participants were incentivized through a t-shirt and water-bottle raffle. Table 1 lists participant demographics. Table 6 lists demographic information for the five students who had studied abroad. Institutional review board approval and participant consent was obtained prior to the start of the study.

Table 1
Participant Demographics

Variable	*n*	%
Gender		
Male	115	65.7
Female	60	34.3
Age (in years)	*M*: 21.26	*SD*: 3.73
GPA		
2.5–2.99	61	34.9
3.0–3.49	55	31.4
3.5 or higher	32	18.3
2.0–2.49	23	13.1
1.99 or below	4	2.3
University		
Coastal Carolina University	79	45.1
Winthrop University	40	22.9
Marshall University	23	13.1
University of Alabama	10	5.7
University of New Haven	8	4.6
Wingate University	5	2.9
Flagler College	5	2.9
Gonzaga University	3	1.7
Southern Mississippi University	2	1.1
Distance of University From Permanent Home		
More than 100 miles	107	61.1
100 miles or less	68	38.9

Table 1 (cont.)

Variable	*n*	%
Class		
Junior	59	33.7
Senior	41	23.4
Sophomore	34	19.4
Freshman	30	17.1
Graduate	11	6.3
Transfer Student		
Non-transfer	119	68.0
Transfer	56	32.0
Race/Ethnicity		
Caucasian	134	76.6
African American	30	17.1
Hispanic/Latino	6	3.4
Other	4	2.3
Asian/Pacific Islander	1	0.6
United States Citizenship Status		
U.S. citizen	172	98.3
Other	2	1.1
Dual citizenship	1	0.6
Chance of Studying Abroad		
Very little chance	50	28.6
Some chance	47	26.9
No chance	45	25.7
Very good chance	30	17.1
I am scheduled to study abroad	3	1.7

Note. Table 6 lists the remaining demographic information of the five of participants who had studied abroad.

Survey and Procedures

The survey was created and distributed via e-mail through the online survey software Qualtrics (Qualtrics Research Suite, Provo, UT). Study abroad survey topics and questions were modified from two past studies (Bunch et al., 2015; Stroud, 2010). Demographic questions such as distance from home and intended major were derived from variables used in research done by Stroud (2010). Potential

motivators and barriers investigated in Likert-type questions, as well as ranking questions, were taken from a study performed by Bunch et al. (2015). Additionally, the survey questionnaires were reviewed and validated by two international studies center directors from different colleges who served as content matter experts. Adjustments and additions were made after these individuals gave their input on the necessity of certain demographic questions and on the wording and inclusion of other study abroad–related questions.

The survey included 39 questions. First, the participants were asked 10 demographic questions. The demographic questions were followed by one main filtering question that determined the likelihood of a student participating in a study abroad experience and was measured using the answers "No chance," "Very little chance," "Some chance," "Very good chance," "I am scheduled to go on a study abroad trip," and "I have already done a study abroad trip." Those who answered "I have already done a study abroad trip" continued to a series of four questions that identified the characteristics of their study abroad experience and two open-response questions that targeted the two guiding research questions.

All other respondents continued on to a series of 21 questions that inquired about the perceived motivators and barriers of participating in a study abroad experience, starting with two open-response questions: "What, if any, motivators are there to studying abroad?" and "What, if any, barriers are there to studying abroad?" These open-response questions were asked first so the participants could list the factors at the forefront of their mind without being influenced by suggested responses. Next, two questions asked participants to rank nine of the most common motivators and nine of the most common barriers to studying abroad, as indicated in the literature (Stroud, 2010; Bunch et al., 2015): "Click and drag items in order of the biggest motivators for you in going on a study abroad experience" and "Click and drag items in order of the biggest barriers for you in going on a study abroad experience." The remaining questions asked participants to rate those nine motivators and nine barriers on a 4-point Likert-type scale (i.e., 1 = *not at all*; 2 = *a little bit*; 3 = *very much so*; 4 = *that is the main reason why I want to study abroad*). An example Likert-type motivator item was "Overall life experience

makes me want to study abroad," while a sample barrier item was "Lack of interest is keeping me from studying abroad."

Data Analysis

With respect to the open-response answers, codes were created based upon the predetermined factors. Responses that did not fall into those codes were further analyzed through an iterative process, in which additional themes were created (Given, 2016). This constant comparison method was repeated until a full saturation of codes was reached within the data set by the researchers. An independent researcher reviewed these codes as a form of external audit of the qualitative analysis.

The quantifiable data were analyzed via descriptive statistics in SPSS 21 (IBM Corporation, Armonk, NY). The rank-order (i.e., click and drag) questions were initially ranked from 1 to 10, with 1 being most relevant and 10 being least relevant to the participant. For the data analysis, the point system was reversed so that each item with a ranking of 1 was assigned a score of 10, 2 was assigned a 9, and so on. The rankings were reversed so that higher means would represent higher rankings, which clarified the results.

Results

Guiding Question 1

In the open-response portion of the survey, participants listed their top motivators for studying abroad. Only 138 of the participants answered this question, but the top five motivators were living in a different country or culture (35.6%), life experience (19.4%), meeting new people or having fun (6.7%), diversity in education (3.3%), and ability to use scholarship money (3.3%). The top three motivators were listed by 61.7% of participants who completed this question.

Moreover, Table 2 shows the participants' perceived motivators for the rank-order (i.e., click and drag) portion of the survey. Again, this question gave participants nine options of motivators, and they ranked them from most important to least important. The top three motivators were overall life experience ($M = 9.25$, $SD = 1.29$), live in another country/culture ($M = 7.87$, $SD = 1.73$), and résumé builder

(M = 7.53, SD = 1.94). Likewise, Table 3 displays participants' perceived motivators based on their answers to the Likert-type questions. Participants answered according to how much each motivator affected their decision to study abroad. The top five motivators paralleled the responses in Table 2, indicating high internal reliability.

Table 2
Participants' Perceived Motivators (Rank Order)

Motivation	*M*	*SD*
Overall life experience	9.25	1.293
Live in another country/culture	7.87	1.727
Résumé builder	7.53	1.944
Personal development	6.61	1.575
Increased chance of getting a job	5.93	1.585
Learn a language	5.11	2.155
Graduate school	4.42	2.107
Work abroad after graduation	4.31	2.000
Importance placed by advisor/university	2.67	1.310
Other	1.28	0.814

Note. 10 = *most relevant*; 1 = *least relevant.*

Table 3
Participants' Perceived Motivators (Likert-Type)

Motivation	*M*	*SD*
Live in another country/culture	2.58	0.892
Overall life experience	2.55	0.992
Résumé builder	2.31	0.787
Personal development	2.12	0.825
Increased chance of getting a job	2.04	0.761
Work abroad after graduation	2.00	0.878
Learn a language	1.97	0.816
Graduate school	1.82	0.786
Importance placed by advisor/university	1.51	0.685

Note. 1 = *not at all*; 2 = *a little bit*; 3 = *very much so*; 4 = *that is the main reason why I want to study abroad.*

Guiding Question 2

Prior to the rank-order and Likert-type questions, participants listed their top barriers to studying abroad in open-response format. Only 145 of the students answered this question, resulting in the top five barriers: finances (38.9%), uncomfortable being away from home (19.4%), language or culture (7.2%), logistics (e.g., living arrangements, lack of instant communication with friends/family, medical/medication issues, and religion; 3.3%), and missing social time or events on campus (2.8%). The top three barriers made up 65.5% of the responses for this question.

Furthermore, Table 4 displays the ranked order (i.e., most important to least important) of the common barriers to studying abroad as perceived by the participants. The top three ranked barriers were finances (M = 8.93, SD = 1.56), missing social time and events on campus (M = 7.07, SD = 1.82), and lack of knowledge about opportunities (M = 6.79, SD = 1.68). Additionally, Table 5 shows the participants' perceived barriers according to their answers to the Likert-type questions. The top Likert-type question barriers were consistent with the top three rank-order responses presented in Table 4, again indicating high instrument internal reliability.

Table 4
Participants' Perceived Barriers (Rank Order)

Barrier	*M*	*SD*
Finances	8.93	1.561
Missing social time and events on campus	7.07	1.821
Lack of knowledge about opportunities	6.79	1.676
Lack of interest	6.53	3.221
Family influences	6.40	1.791
Too much work to apply/plan for	5.49	1.671
Course requirements for major	4.93	2.343
Significant other	4.14	2.252
GPA	3.14	1.901
Other	1.59	1.695

Note. 10 = *most relevant*; 1 = *least relevant*.

Table 5
Participants' Perceived Barriers (Likert-Type)

Barrier	*M*	*SD*
Finances	2.71	0.959
Missing social time and events on campus	2.06	0.895
Lack of knowledge about opportunities	1.99	0.769
Family influences	1.96	0.925
Too much work to apply/plan for	1.87	0.740
Course requirements for major	1.86	0.869
Lack of interest	1.66	0.855
Significant other	1.51	0.816
GPA	1.48	0.702

Note. 1 = *not at all*; 2 = *a little bit*; 3 = *very much so*; 4 = *that is the main reason why I want to study abroad.*

Participants Who Had Studied Abroad

Table 6 presents the data collected from the five participants who had studied abroad. Only two of the five students participated in a long-term (i.e., semester-long or yearlong) study abroad experience, to England and Australia. The other three students participated in short-term international experiences to Estonia/Latvia, France, and Costa Rica. The top benefit to participating in a study abroad program listed by these participants was the opportunity to live in another country or culture. Conversely, the top cited barrier to participation was the language and culture, followed closely by finances. Further analysis was not conducted on these participants, as they accounted for less than 3% of the sample.

Discussion

Guiding Question 1

This study wanted to determine sport management college students' perceived motivators to going on a college-sponsored international experience. The findings were mostly consistent with those in the literature. The potential motivators used as major themes in the rank-order (i.e., click and drag) and Likert-type questions were

Table 6
Demographics and Results of Participants Who Had Studied Abroad

Variable	Participant 1	2	3	4	5
Home University	Winthrop University	Wingate University	Winthrop University	University of Oregon	University of Alabama
Most Recent Study Abroad Trip	England	Estonia and Latvia	Melbourne, Australia	Paris, France	San Jose, Costa Rica
Length of Trip	Long-term	Short-term	Long-term	Short-term	Short-term
Sponsored by Current University?	Yes	Yes	Yes	Yes	No
Purpose of Trip	Coursework	Coursework	Coursework	Coursework	Coursework
Top Benefits	1. Live in another country or culture 2. Education in another country	1. Live in another country or culture 2. Live in another country or culture	1. Life experience 2. Meet new people and have fun	1. Live in another country or culture 2. Networking	1. Learn a new language 2. Live in another country or culture
Top Barriers	1. Language/culture 2. Uncomfortable being too far from home	1. Finances 2. Language/culture	1. Finances 2. Uncomfortable being too far from home	1. Language/culture 2. Logistics	1. Finances 2. Language/culture

Note. Long-term = semester or yearlong; short-term = spring/fall break, summer, or faculty-led.

mostly derived from the research of Bunch et al. (2015). Of these major themes, the top five motivators ranked in this study were overall life experience, opportunity to live in another country or culture, résumé builder, personal development, and increased chance of getting a job. Similarly, Jones and Cunningham's (2008) research with sport management students' perceptions of study abroad programs on their intentions to study abroad found that gained experience and travel opportunity were the main themes emerging from student responses. These are largely consistent with the findings in this study, where participants were given motivators to choose from (i.e., Tables 2 and 3).

In addition, although the open-response answers of the participants in this study were largely similar to those in past research (i.e., Appleby & Faure, 2015; Fairley & Tyler, 2009; Jones & Cunningham, 2008), of note, one of the top three mentioned motivators that had not been discussed in the literature was "having fun or meeting new people." Certainly within the sport business world, expanding professional networks is an integral skill important in being a successful sport manager. However, this motivator was only listed by 6.7% of the participants.

Guiding Question 2

The second goal of this study was to explore sport management college students' perceived barriers of going on a college-sponsored international experience. Perceived barriers found in this study were similar to those found in previous research. Cunningham et al. (2010) discussed potential barriers including cultural barriers, language differences, and the preference to be around others who are similar. Moreover, language, cultural differences, being apart from friends and family, job obligations, and affordability were the main barriers found by Jones and Cunningham (2008). The findings in this study were largely similar, as the top three ranked barriers to participation were finances, missing social time on campus, and lack of knowledge about opportunities. For sport management students, missing social time on campus could mean missing sporting events, which may be a major concern for some students. Many attend or work at these sporting events to gain additional career-related experience. This could prove to be a major barrier in more ways than missing the social aspect of these sporting events.

In regard to the answers of the open-response questions, the themes were largely consistent with the other barriers listed in rank-order questions, which aligns with past research (Fairley & Tyler, 2009; Jones & Cunningham, 2008). However, one barrier that was newly discovered in this study was participants' discomfort with being away from home, which accounted for 19.4% of open responses. Sporting cultures are diverse around the world, and studying abroad may affect sport management students in missing certain American sporting seasons. For example, studying abroad during the fall semester would most likely result in missing American football, while studying abroad in the spring may result in missing baseball, depending on their location of travel.

Implications

In this study, the most striking finding was that only 5 out of 180 sport management students who responded to the survey had studied abroad (2.8%). However, this statistic is slightly higher than the average 1.6% of all U.S. college students who study abroad every year (NAFSA, 2017). It appears not enough evidence exists or is commonly known by college students about the main benefits of studying abroad. Based on these low participation numbers, most students may perceive the barriers to studying abroad outweigh the benefits. Empirical research needs to study the effects of studying abroad and to study targeted interventions for counteracting the common perceived barriers to it. Also, future research should focus on students who have studied abroad and the benefits and barriers to participation they experienced.

Moreover, college study abroad offices and sport management faculty looking to increase participation in college-sponsored international experiences for sport management students may glean ideas from the results of this study. Sport management college-sponsored international programs should focus marketing and advertising toward the top motivators found in this study (Tables 2 and 3), combined with the top benefits listed by those who have studied abroad (Table 6). For example, the top benefit discovered in this study was the opportunity to live in another country or culture. Study abroad offices should market this opportunity to students and potential participants if they wish to increase the number of students in their

programs. Also, for instance, résumé builder was a top perceived benefit. Employers looking to hire sport management students with international experience or past sport management students who benefited within their career from a study abroad experience could speak to students who are considering studying abroad.

Additionally, programs wishing to increase sport management student participation in college-sponsored international experiences should look to assist students in overcoming the top perceived barriers found in Tables 4 and 5. For example, finances were consistently rated as the greatest perceived barrier to studying abroad. Offering financial aid opportunities (i.e., grants, scholarships, etc.) for study abroad programs may help programs to combat the perceived barrier that it costs too much to participate. To overcome this obstacle for study abroad travel occurring during winter or summer break, programs could connect the international experience with a fall or spring semester course and have students travel directly after the term so they do not have to register and pay winter or summer term course tuition. This may also assist students in applying financial aid toward the course, which may not qualify with winter or summer courses.

Moreover, missing social time and events on campus was listed as another top perceived barrier. To alleviate this barrier, faculty may consider taking larger groups of students on short-term study abroad programs, recommend that students encourage friends to register for the program as well, include pretrip team-building activities in an effort to increase social cohesion (Grieve, Whelan, & Meyers, 2000), and/or ensure internet is available during the trip so that students may stay "connected" to friends on campus via social media outlets (i.e., Instagram, Snapchat, Facebook, etc.). These suggestions may also assist with another open-response reported perceived barrier—uncomfortable being away from home.

To reduce lack of knowledge about opportunities, beyond sending e-mails and posting flyers about study abroad programs, faculty may consider having past students who have studied abroad speak about their experiences during introductory courses. They can also emphasize study abroad program options during academic advising, particularly with freshmen, so the international experience can be planned within their academic program.

Limitations and Future Research

While this study included a sample of sport management majors larger than previous research, certainly a larger sample would increase generalizability of results. Likewise, this study was limited to students majoring in sport management. Thus, the generalizability of these findings may not transfer well to students in other areas of study as they may have differing motivators and barriers unique to their major. Additionally, future research investigating this topic might consider taking a qualitative approach through one-on-one interviews or focus group session in an attempt to add rich, thick descriptions of potential motivators and barriers. Finally, a future study might assess perceived motivators and barriers of studying abroad prior to a college-sponsored international experience and then compare whether perceptions matched reality after the trip.

Conclusion

While this study had limitations, it is the first to incorporate a large nationwide sample (i.e., 180 students from 10 universities) while investigating sport management students' perceived motivators and barriers to participating in a college-sponsored international experience—increasing the generalizability of results. Moreover, this study is the first to report how many sport management students are currently studying abroad (2.8%). Furthermore, no past studies investigating sport management majors' studying abroad used open-response questions, which allowed for more exploratory responses. Finally, excluding Jones and Cunningham (2008), past research aimed at this sample focused on the effects of studying abroad after the experience (Appleby & Faure, 2015; Cunningham et al., 2010; Fairley & Tyler, 2009), rather than perceptions as in this study. Given the proliferation of global sport business, it is hoped that this is just the beginning of empirical research focused on sport management students participating in college-sponsored international experiences.

For sport management majors in this study, the biggest perceived motivators of participating in a college-sponsored international experience were overall life experience, the opportunity to live in another country or culture, and the belief that it would boost their résumé. Because these factors have been reported to motivate sport

management students to participate in a study abroad program, sport management programs and study abroad offices should aim to market these factors when advertising their international programs. Moreover, the major perceived barriers for these students were finances, missing social time and events on campus, and the lack of knowledge about opportunities. Faculty and study abroad staff hoping to increase sport management students' participation in college-sponsored international experiences should use creative ways to assist these students in overcoming the top perceived barriers found in this study.

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SPORT OFFICIATING

Referee Engagement and Officiating Accuracy in a College-Level Volleyball Sport Education Season

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Abstract

This study investigated university students' levels of engagement and accuracy of officiating volleyball during their first Sport Education season. The participants in this study included 20 students (12 male, 8 female) enrolled in a beginner volleyball activity course. The volleyball Sport Education season included 21 lessons that lasted 75 min each. All season gameplay was video recorded and data were collected so that we could determine student engagement and officiating accuracy for every referee throughout the season. A series of paired-samples t tests examined changes over time, and bivariate correlations examined the relationships among engagement and officiating decision variables at preseason and during the formal competition. The results of this study indicated a significant increase in active engagement of officials from preseason to the formal competition phase with the corresponding decrease in passive engagement. Furthermore, while there were no significant differences in the accuracy of some officiating decisions

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over time, the overall officiating accuracy significantly increased from preseason to formal competition. The levels of engagement were related to the complexity of officiating calls and to an overall accuracy. Officiating competency needs to be intentionally developed during Sport Education, and teachers should allocate ample time for students to practice and improve their officiating abilities, because officiating serves as an important integral part of this pedagogical model.

In the majority of sporting contexts, officials or referees are tasked with enforcing rules, while attempting to be dependable and accurate, as to not become a significant contributing factor to the outcome of the game. In today's sporting culture, all officials, regardless of experience, are expected to perform their obligations error free. While lofty, this appears an unobtainable goal, as examinations of Major League Baseball (MLB) umpires' accuracy (88% accurate on ball/strike calls) and England's best rugby officials (6/11 tackles adjudicated incorrectly) posit that even for professional referees, calling the "perfect game" is improbable (Downes, 2016; Mascarenhas, Collins, & Mortimer, 2005). Downes (2016) also indicated that when assessing MLB pitches thrown within 2 in. of all corners of the plate, umpires got the call incorrect 31.7% of the time. Although most referees are not professional, results suggest amateur officials are held to a similar standard in regard to officiating accuracy (Burke, Joyner, Pim, & Czech, 2000).

Over the past 30 years, the levels of stress and burnout among intramural, interscholastic, and other certified youth officials have increased. Several early studies revealed low levels of stress and negligible reports of burnout (Goldsmith & Williams, 1992; Rainey, 1995; Rainey & Hardy, 1999); however, more recently, officials have reported higher levels of anxiety due to fear of making incorrect calls, being out of position, and receiving verbal abuse from players or coaches (Dorsch & Paskevich, 2007; Voight, 2009). These findings are due in part to the unrealistic expectations placed upon all officials (Kellett & Warner, 2011).

More recently, scholars identified a substantial decrease in the amount of qualified sporting referees (Ridinger, 2015). The American Sport Education (2011) program went so far to call it a national crisis in U.S sport, with the survival of sport dependent upon approaches of

successfully training and retaining referees while motivating youth to become officials. Although referees need experience and practice officiating (Catteeuw, Helsen, Gilis, & Wagemans, 2009), there are few opportunities for teaching these skills.

A potential benefit of one of the pedagogical models, namely, Sport Education, being implemented in contemporary physical education is its stated objective of developing "literate sportspeople," which includes teaching students how to appropriately officiate, judge, and umpire sports and activities within the context of regular physical education (Siedentop, Hastie, & van der Mars, 2011). Sport Education's primary objective is to create an authentic sporting experience (Siedentop, 1994) while ensuring students become competent, literate, and enthusiastic sportspeople. Each "season" within Sport Education is longer in duration than typical physical education units, with students competing on fixed teams throughout the season. The key features of the Sport Education model include team affiliation, seasons, formal competition, record keeping, festivity, and a culminating event (Siedentop et al., 2011). These six key tenets, along with small-sided developmentally appropriate gameplay, foster higher levels of learning (Browne, Carlson, & Hastie, 2004; Hastie, Sinelnikov, & Guarino, 2009) and provide participants with an authentic sporting experience unique to other physical education classes.

One distinctive characteristic of this pedagogical model is the nonnegotiable requirement for students to fulfill various roles outside that of a team player. For example, students might be tasked with coaching a team, leading a daily warm-up, collecting statistics, writing regular newspaper reports, or scouting future opponents (Siedentop et al., 2011), in addition to their participation in gameplay. These additional roles increase student excitement (Kinchin, Wardle, Roderick, & Sprosen, 2004), aid in building team affiliation (MacPhail & Kinchin, 2004), and help students grow in their ability to conduct these responsibilities as a season progresses (Kim, Penney, Cho, & Choi, 2006).

In addition to being a player, and fulfilling one of the aforementioned team roles, each student acts as an official at various stages throughout every season. A primary purpose of this duty-team role is for students to take active part in managing their season and to

become more literate sportspeople. Additionally, as a result of being an engaged observer such as an official in game, students tend to not only develop deeper cognitive understanding of the rules of the game, but also become more tactically astute as a player (Sinelnikov & Hastie, 2010). However, despite officiating being a required duty-team role in any Sport Education season (Siedentop et al., 2011), many impediments need to be overcome for students to be effective officials. Specifically, at a minimum, students must have a deep understanding of gameplay and a significant understanding of the rules to referee a sporting contest successfully (Layne & Hastie, 2014).

Although the Sport Education model has been comprehensively examined over the past 25 years, there has been limited contradicting evidence on the role of student officials within a season. Initially, there were concerns that students would not pay attention to the game or activity if they were not playing or that they would not be able to officiate accurately. Hastie (1996) was the first to design a study evaluating decision-making accuracy and involvement of referees within a Sport Education season. The findings from Hastie's study demonstrated student officials' ability to stay fully attentive to gameplay (96% of the time) and a gradual increase in their ability to make accurate decisions. Although student officials were not initially accurate without teacher interference, refereeing success rate reached higher levels (94%) at the conclusion of the season. While these findings appear promising, it should be noted that officiating calls in that study occurred every 26 s and were simple in nature. Since that time, other studies confirmed the ability of students to stay actively involved when officiating during Sport Education. For example, in a study of Russian students' participation in a Sport Education season, referees were actively involved 90.46% of the time (Hastie & Sinelnikov, 2006).

Following this line of research, Layne and Hastie (2014) examined officiating attentiveness and accuracy of calls made by first-time student officials in the fourth grade. The results of this study indicated that officials were more engaged and accurate with their officiating decisions as the season progressed, with students making successful calls (84% of the time) in the postseason.

In addition to using systematic observation methods to evaluate officiating performance, several studies focused specifically on student perception and memories to better understand the student perspective. Students from several iterations displayed a strong affinity toward officiating, characterizing it as fun, enjoyable, and important (Hastie, 1996; Hastie & Sinelnikov, 2006); however, other students prioritized winning and deemphasized the importance of peer officiating (Mowling, Brock, & Hastie, 2006). Sinelnikov and Hastie (2010) examined students' autobiographical memories relative to their involvement in multiple Sport Education seasons and reported that opportunities to officiate were very memorable, challenging, and rewarding to students, and as such, the act of officiating resulted in a deeper understanding of rules and strategies that lasted well beyond the Sport Education season.

Performing the obligations of a referee at any level is difficult and stressful. With the lack of officials in sport today, it appears prudent for youth to be afforded additional opportunities to gain refereeing experience. While the literature suggests that most students enjoy the role of officiating within the Sport Education model, limited evidence has depicted the accuracy and quality of officiating calls, with most research conducted with younger students (upper elementary and middle school). While Sport Education has been used as a pedagogical model in college-level activity courses (e.g., Bennett & Hastie, 1997; Hastie & Sinelnikov, 2007), to date no studies have investigated officiating in Sport Education with university students. Furthermore, researchers have raised concerns over the quality of student officiating competency and accuracy during initial seasons (Wahl-Alexander, Sinelnikov, & Curtner-Smith, 2017). Therefore, this study investigated university students' levels of engagement and accuracy of officiating volleyball during their first Sport Education season. Specifically, these research questions guided data collection and analysis: (1) What was the level of student engagement while they officiated? (2) How accurate were the students when making officiating decisions differentiated by specific rules? (3) How, if at all, did engagement and success rate change throughout the season?

Method

Participants

The participants in this study were 20 students (12 male, 8 female) enrolled in one beginner volleyball activity course. Three students were first-year students (freshmen), six were in their second year of study (sophomores), five were completing their third year of study (juniors), and six were enrolled in their fourth or fifth year (seniors) at the university. The average age of participants was 19.2. Seventeen participants had little to no experience playing volleyball, while three (2 females, 1 male) had played in high school. Additionally, none of the participants in this study had experience with the Sport Education model. Informed consent was obtained for all participants in this study prior to data collection, and the first author's university review board for research on human subjects approved the research protocol.

The instructor of the course was a 25-year-old female Sport Pedagogy graduate student who had ample experience with the volleyball content area. In addition to playing for over 6 years at a club level, she was a certified volleyball official who officiated junior high and high school matches. The instructor also had experience using the Sport Education model, having taught over 15 Sport Education seasons across multiple age groups (middle school, high school, and college) and across multiple content areas (volleyball, soccer, physical conditioning, pickle ball, and others).

Setting

The study took place in a research university in the Midwest of the United States. Over 20,000 students were enrolled in this public institution at the time of the study with 58.1% represented as Caucasian, 16.2% as African American, 14.4% as Hispanic, 4.9% as Asian, and 6.4% as other. The university offered a variety of basic activity courses for which students were allowed to sign up based upon their specific interests. Each volleyball class met in a large gymnasium on campus. The gymnasium had a large area with two regular-sized volleyball courts and sufficient space for gameplay and team practices.

Volleyball Sport Education Season Plan

The volleyball Sport Education season consisted of 21 lessons, with classes meeting twice each week. Each lesson lasted 75 min. The instructor designed the season according to Siedentop's (1994) key tenets of Sport Education: seasons, formal competition, record keeping, team affiliation, festivity, and a culminating event. The first two classes consisted of a series of skill assessments for evaluating the students' ability levels. Team selection process included preseason allocation of students, with consideration of skill assessment data for creation of five equally skilled and mixed-gender teams (Siedentop et al., 2011). Within each team, students decided who would assume the role of coach, statistician, warm-up leader, and cheer captain throughout the season. In addition to these roles, at various points of the season all participants performed the duty-team roles of official and statistician. This season followed the typical structure of Sport Education: an initial skill development and team practice phase, followed by inconsequential preseason games and consequential formal competition regular season games, and concluding with a festive culminating event.

The skill development phase included 2 days of teacher-led skill development and skill assessment activities, followed by 8 days of a team training camp during which teams were selected and students chose team roles. Consistent with Sport Education's tenet of gradually shifting responsibility for learning from teacher to learner (Siedentop et al., 2011), the following five lessons were mostly led by students and entailed a team warm-up and team skill practices for improving skills, tactics, and game content knowledge.

The preseason phase lasted three lessons during which inconsequential games between teams took place. A typical lesson in this phase began with each team's warm-up leader initiating a warm-up, followed by a 10- to 15-min student-initiated (coach-led) team practice focused on various skills. This was followed by inconsequential games managed by the duty team tasked with officiating, scorekeeping, and organizing responsibilities.

The formal competition phase lasted eight lessons and included a round-robin tournament and playoffs during which each team had an opportunity to play against other teams and to perform the roles of a duty team. Statistics and records were kept during the season, and

an awards ceremony culminated the last day of the Sport Education experience.

Officiating Training During Sport Education

Officiating a volleyball match was specifically taught by the instructor. While the instructor taught some of the rules of the game during training camp, explicit instructions on officiating a match took place during the preseason phase of the volleyball Sport Education season. While there are 25 referee's official hand signals (Federation Internationale De Volleyball, 2016), for the purposes of this study we have classified officiating signals into the following categories: (1) service faults (the server touches the court); (2) inbounds and out-of-bounds calls (ball "in"; ball "out"; ball hits "ceiling"); (3) net calls (net touched by player or player crossing under the net); and (4) illegal hits (catch; four hits).

To teach students how to officiate, the instructor initially explained the basic rules of officiating, taught officiating signals, and provided demonstrations during a sample game. Second, during each lesson the instructor allocated time for each team to review rules and officiating signals. This review was facilitated by each team's student statistician, who provided leadership during officiating. Third, students viewed video segments that described officiating calls and hand signals, and video clips distinguishing the differences between calls. Finally, all students practiced officiating during nonconsequential preseason games. During these games, the instructor focused on teaching officiating positioning and accuracy of signals. During these practice games, gameplay pace was slowed and the instructor provided feedback and helped ensure that all players received ample time in the role of the official. All officials had a whistle, which they would blow to stop play and then would indicate the appropriate call with hand signals.

Data Collection

Lessons during the preseason and formal competition phases were video recorded with two GoPro Hero 4 cameras. Each GoPro camera was situated in a corner of the gym on a tripod stand as to not interfere with the lesson. Following each lesson, the footage was transferred to a desktop computer, which provided a clearer view of the recording from the lessons. We utilized event recording for

two variables (active and passive engagement) in this study to determine the official's involvement during each rally. Table 1 details the descriptions for each student involvement category, and following previous studies protocol (Hastie, 1996; Hastie & Sinelnikov, 2006), this study followed the subsequent sequence:

- At the beginning of every play, one official was selected for observation.
- That official was observed for the entirety of that play.
- The researcher would make a determination based upon the already established definitions if that official was actively or passively involved, distracted, or off-task.

This process was repeated with every official for every rally.

Table 1
Active and Passive Involvement for Officials (Hastie, 1996)

Category	Definition
Actively involved	Keeps up with the ball, follows play, consistently enforces the rules, uses whistle definitively.
Passively involved	Watching play, but not moving to keep up with the ball; makes occasional rulings or uses whistle passively.
Distracted	In the field of play, but attending to outside factors (i.e., the other match); misses a call due to inattention.
Off-Task	Not watching or following play; not making rule decisions; engaged in activity detrimental to officiating performance.

To determine each official's accuracy during every point, the observer focused on one official during each rally. Once the rally concluded, the results were documented, and the observer re-watched the rally to observe the other official. To determine the accuracy, frequency data were collected for each rally, and the observer identified if the official made a correct or incorrect decision for each of the following:

- Was the server's foot behind the service line during the serve? (Service fault)

- Did any player on either team contact any part of the net? (Net fault)
- Did each team contact the ball more than a maximum of three times before returning the ball? (Illegal hit – four-hit rule)
- Did a player have prolonged contact with the ball (lift)? (Illegal hit – catch)
- Was the ball in or out when making contact with the floor? (In/out rule)
- Did the ball make contact with the ceiling at any point during the rally? (Illegal hit – ceiling rule)

During each rally, the official being observed was coded as either correct or incorrect for every opportunity for making a call. For example, if the referee succeeded in calling a server's foot behind the line and the serve out, the observer would tally one successful call for service fault and in/out. Further, if during a rally, an official made an incorrect call followed by several correct calls, a tally would be documented for the incorrect and correct calls. If the official failed to make a call, an incorrect tally was recorded. During each game, one official was located on the side of the court close to the net, whereas another official was on the opposite side in the corner. The video camera was positioned to record actions of the referees, along with the corresponding gameplay.

Interobserver Reliability

Interobserver agreement was determined via the formula [Agreements/(Agreements + Disagreements)] × 100 (van der Mars, 1989). Fifty percent of games were randomly analyzed by a trained second observer, which is more than the 20% threshold recommended by Cooper, Heron, and Heward (2014). The interobserver reliability was 98.5%, which exceeds the recommended standard for systematic observations (van der Mars, 1989).

Data Analysis

The data analysis process began with standard procedures for data cleaning and screening recommended in the literature (Tabachnick & Fidell, 2013). Through this process, we determined that the data met the basic assumptions of inferential statistical analysis and that

we could proceed. However, no instances of off-task behavior were recorded, and referees had few opportunities to make calls using the ceiling rule. As a result, both of these variables were omitted from further analysis. Next, all data related to engagement was converted into percentile scores using Equation 1. This provided the percentage of time in each game that an official was actively engaged, passively engaged, and distracted.

Equation 1

$$\text{Percent}_x = \frac{X}{(\text{Active Engaged} + \text{Passive Engaged} + \text{Distracted})}$$, where X is type of engagement.

Similarly, the accuracy of officiating decisions (i.e., in/out calls, serve contact, net balls, four-contact rule, lifts) were transformed into percentage scores using Equation 2. This provided the percentage of calls that were either accurate or inaccurate for each rule. An additional variable that represented overall officiating accuracy was created by dividing the total number correct officiating decisions by the total number of decisions made.

Equation 2

$$\text{Percent}_x = \frac{\text{Correct Calls}_x}{(\text{Correct Calls}_x + \text{Incorrect Calls}_x)}$$, where X is the specific type of call.

Once the data had been converted to percentile score, a series of paired-samples *t* tests examined changes over time (i.e., preseason to formal competition). One test was run for each study variable, which resulted in five tests. Cohen's *d* was calculated as a measure of effect size for all *t* tests. A Cohen's *d* between .20 and .50 is associated with a small effect, between .50 and .80 with a medium effect, and greater than .80 with a large effect (Cohen, 1992). All statistical analyses were conducted using SPSS 23.0.

Next, bivariate correlations examined the relationships among engagement and officiating decision variables at preseason and during the formal competition. Effect sizes for the correlational analyses were interpreted using Cohen's (1988) guidelines. A correlation coefficient $\geq |.10|$ is associated with a small effect, $\geq |.30|$ with a medium effect, and $\geq |.50|$ with a large effect.

Results

Table 2 overviews descriptive statistics and the results of the paired-samples *t* tests for all engaged and officiating decision data. Relative to engagement, the percentage of time that referees were actively engaged increased significantly from preseason to formal competition, $t(19) = 3.09$, $p = .006$, $d = 1.01$, and passive engagement decreased significantly, $t(19) = -3.35$, $p = .003$, $d = 1.09$. While the percentage of time referees were distracted decreased slightly from preseason to formal competition, the change was not significant.

In regard to the officiating decisions, the percentage of correct calls related to the line serve rule increased significantly from preseason to formal competition, $t(19) = 2.73$, $p = .013$, $d = .89$. The accuracy of calls related to netballs, $t(19) = 3.20$, $p = .005$, $d = 1.40$, and lifts, $t(19) = 4.63$, $p < .001$, $d = 1.50$, also increased over time. There were no significant differences in the accuracy of in/out or four-hit-rule calls over time, but overall officiating accuracy significantly increased from preseason to formal competition, $t(19) = 4.42$, $p < .001$, $d = 1.47$.

Following the paired-samples *t* tests, bivariate correlations examined the association between engagment and officiating decision variables at preseason and during formal competition. In the preseason analyses, there was no significant association between any of the engagement and officiating decision variables (see Table 3). However, during the formal competition, there were several significant correlations (see Table 4). Specifically, active involvement was positively associated with the accuracy of calls related to net balls, $r(20) = .58$, $p = .008$; lifts, $r(20) = .68$, $p = .001$; and overall accuracy, $r(20) = .60$, $p = .005$. Passive engagement was negatively related to the accuracy of netballs, $r(20) = -.48$, $p = .032$; lifts, $r(20) = -.72$, $p < .001$; and overall accuracy, $r(20) = -.54$, $p = .013$. Finally, being distracted was negatively related to in/out calls, $r(20) = -.47$, $p = .038$; net balls, $r(20) = -.60$, $p = .005$; and overall accuracy, $r(20) = -.53$, $p = .016$.

Table 2
Descriptive Statistics and Independent t-Test Results

Enagement and officiating decision	Pre		Post		Paired-samples *t* test		
	M	*SD*	*M*	*SD*	*t*	*p*	Cohen's *d*
Engagement							
Actively involved**	.75	.13	.85	.09	3.10	.006	1.01
Passively involved**	.20	.10	.11	.07	-3.35	.003	1.09
Distracted^{NS}	.05	.04	.04	.03	-1.26	.224	.41
Officiating Decisions							
In/out rule^{NS}	.98	.02	.99	.01	1.26	.224	.41
Service fault*	.97	.03	.99	.01	2.73	.013	.89
Net fault**	.44	.33	.66	.28	3.20	.005	1.04
Four-hit rule^{NS}	.58	.37	.71	.32	.98	.341	.32
Catch rule**	.29	.19	.56	.31	4.63	< .001	1.50
Overall accuracy**	.90	.04	.94	.04	4.42	< .001	1.47

Note. $N = 20$ participants; mean values expressed as percentile scores; ^{NS}not significant.

$^{*}p < .05$. $^{**}p < .01$.

Table 3
Correlation Between Referee Engagement and Officiating Decision During Preseason

Variable	Actively involved	Passively involved	Distracted
In/out rule	-.19^{NS}	.10^{NS}	.37^{NS}
Service fault	-.13^{NS}	.14^{NS}	.06^{NS}
Net fault	.05^{NS}	-.03^{NS}	-.11^{NS}
Four-hit rule	-.17^{NS}	.09^{NS}	.35^{NS}
Catch rule	-.03^{NS}	-.01^{NS}	.12^{NS}
Overall accuracy	-.06^{NS}	-.02^{NS}	.28^{NS}

Note. $N = 20$ participants; ^{NS}not significant.

$^{*}p < .05$. $^{**}p < .01$.

Table 4
Correlation Between Referee Engagement and Officiating Decision During Formal Competition

Variable	Actively involved	Passively involved	Distracted
In/out rule	.26^{NS}	-.13^{NS}	-.66*
Service fault	.06^{NS}	-.18^{NS}	.24^{NS}
Net fault	.58**	-.48*	-.60**
Four-hit rule	.02^{NS}	-.04	-.04^{NS}
Catch rule	.68**	-.71**	-.38^{NS}
Overall accuracy	.60**	-.54*	-.53*

Note. $N = 20$ participants; ^{NS}not significant.

*$p < .05$. **$p < .01$.

Discussion

This study examined university students' levels of engagement and accuracy of officiating volleyball during their first Sport Education season. This is the only study to date that provides data-driven evidence regarding officials' engagement and accuracy of officiating calls during a college-level activity course. The results of the study indicated that the students reported high levels of active engagement and improvements in officiating accuracy. The results also showed a significant connection between engagement and officiating accuracy. The results of this study contribute to and extend the literature related to officiating within pedagogical models, specifically within Sport Education. Furthermore, this is the first study to scrutinize each referee's decision in each game of the complete Sport Education season.

In relation to student engagement in officiating, the results of this study indicate a significant increase in active engagement as the season progressed from preseason (75%) to formal competition (85%). These findings align with those in studies demonstrating high levels of student enthusiasm about officiating (Hastie, 1996;

Hastie & Sinelnikov, 2006; Layne & Hastie, 2014) and its importance (Sinelnikov & Hastie, 2010). While active engagement of officials in this iteration of Sport Education was slightly lower than that of officials in previous studies, the university students were observed being highly and actively engaged in their role as official. This finding suggests that university students take duty-team roles of an official seriously. Because the literature identified a link between enjoyment and engagement (Hastie & Sinelnikov, 2006), the finding of this study of high levels of active engagement underscores a potential for some students to engage in officiating outside of a class setting, a possibility that was anecdotally confirmed when some participants elected to become volleyball officials for intramural volleyball at the university. With a lack of referees at every level (Ridinger, 2015), future research that examines university-aged students' perceptions of officiating and explores their intent to further pursue officiating following a Sport Education season may prove fruitful.

The results also revealed a significant increase in overall officiating accuracy as students improved from the preseason (90% accurate) to formal competition (94% accurate). These were similar findings to those in research that indicated significant improvement between the formal competition and postseason phase (Layne & Hastie, 2014). Although the accuracy level of making officiating calls in this study was relatively high, the simplicity and quantity of the in/out (98%, 99%) and service line calls (97%, 99%) in the preseason and formal competition, respectively, contributed to high percentages of correct calls.

While overall accuracy was favorable, students exhibited an inability to correctly identify net calls (44% accurate) and illegal hits (29% accurate) during the preseason. During completion phase, the students significantly raised their accuracy of both judgment calls; however, their accuracy was still low (net calls, 66% accurate; illegal hits, 56% accurate). These findings confirm that student learning takes time and students need deliberate practice to improve. Similar to the development of skill competence and tactical knowledge (Hastie et al., 2009), the development of officiating skills in Sport Education results from the structure of the model in which students are afforded significant practice in an authentic setting that is meaningful to them. Nonetheless, 56% and 66% accuracy of officiating

calls during formal competition still seems poor, especially with the high standards customary in place for all officials (Burke et al., 2000); however, because of the difficulty of determining these infractions, the improvement rate is encouraging.

Furthermore, these results also suggest that level of accuracy depends on the level of ambiguity and complexity of an officiating call. In this study, students exhibited high levels of accuracy of officiating calls that have low levels of ambiguity. For example, officials determined with a high rate of success whether the ball landed in or out of bounds or whether the server stepped on the end line during the serve. As the level of ambiguity of an officiating call increased (e.g., Was that a prolonged contact with a ball that constitutes a lift or was it not? Was it a double hit or not?), the level of accuracy of officiating calls diminished. However, one of the most encouraging aspects of these results is that students can significantly improve even when dealing with highly complex and ambiguous officiating calls during a Sport Education season.

Each Sport Education season requires all students to perform the role of official and enforce the rules of the game. The findings of this study suggest that although students can obtain a high standard of accuracy, especially with nonambiguous officiating calls, this does not happen automatically. To be successful, students need a deep understanding of gameplay and a significant knowledge of the rules (Layne & Hastie, 2014). Considering the results of this study, when employing Sport Education teachers need to realize that officiating competency does not occur simply because students have a chance to officiate. Devoting adequate time to training officials (Siedentop et al., 2011), teaching and assessing game performance in-season (Farias, Mesquita, & Hastie, 2015), and providing ongoing training to officials is vital to officiating success. Further research needs to identify best practices for adequately providing instruction and training to student officials in a variety of sporting contexts, not just team sports.

The findings also suggest that active engagement was associated with higher accuracy for the net faults and illegal hit calls. Similarly, passive engagement was associated with lower percentages of overall correct calls. While some studies have indicated the connection between engagement and accuracy (Layne & Hastie, 2014),

this is the first study that confirmed this relationship. The findings demonstrate the necessity for officials to be actively involved while officiating. With this in mind, instructors may find it prudent to incorporate the officiating duty into the record-keeping component of the model. It is unlikely that student officials will call the perfect game (Downes, 2016); however, maintaining active engagement is realistic, tangible, and, as this study demonstrated, associated with officiating accuracy.

This study has several limitations. First, we measured each student's engagement and accuracy data at two points in the season, preseason and formal competition. While this is fairly typical for a round-robin format, other Sport Education competition formats may provide more opportunities for students to officiate. Second, with the absence of a control group, we found it difficult to determine if the increases in accuracy and engagement were due to students' participation in Sport Education or another extraneous variable. Finally, the sample size for this study was limited to 20 participants and the content was limited to a net/wall game of volleyball. Moving forward, future research could utilize several classes, increase the sample, and examine different context to add to the generalizability of the results.

In conclusion, this study provided empirical evidence that suggests high levels of student engagement and improvement of officiating accuracy in a season of Sport Education. While participants in this study had no experience with Sport Education, future research could examine the effects on officiating for participants over multiple Sport Education seasons. Additionally, researchers could investigate potential transfer relative to officiating within the same game category (e.g., racquetball and tennis) and between games or activities from different game categories (e.g., between net/wall and invasion). Finally, research efforts investigating the link between content knowledge and officiating success and engagement could prove fruitful.

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SPORT VENUES

Protecting the Public's Interest: Options for Structuring Public Authorities for Sport Venues

Mark S. Rosentraub, Michael B. Cantor, Sierra R. Bain

Abstract

This study illustrates the benefits of public–private partnerships in creating public corporations to build sport venues. In addition to potential returns, public officials' understanding of the potential structures of these authorities is equally important. Additionally, as the scope of public–private partnerships broadens, it is essential for administrators of secondary and higher level education to recognize the benefits of and understand the structure of these partnerships. This study presents the structures of four authorities and the details of the sport-related partnerships they entered. The authorities include the Gateway Economic Development Corporation of Greater Cleveland, Indianapolis Capital Improvement Board, Frisco Economic Development Corporation, and Detroit Downtown Development Authority. In each instance, individual outcomes were analyzed. This paper illustrates the range of responsibilities that could be assigned to authorities and the potential for benefits to be generated for teams, cities, universities, and school districts. The results from each partnership reflect the structure of the public authority. To protect the public's interest, the legislation creating a new public corporation must clearly outline its objectives, structure, and responsibilities. But when cities, universities, and school districts utilize authorities for sport-related development projects, the opportunities for achieving public policy goals are more expansive than many realize.

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Public–private partnerships created for the purpose of building venues for professional sport teams have been a staple of public administration for decades (Turner, 2002). At the cornerstone of these partnerships lie independent public authorities, development corporations, or special districts created for the purpose of facilitating the financing and management of professional sport facilities. In certain cases, authorities have the responsibility to leverage the assets to enhance real-estate development and produce revenue. These independent authorities are often necessary, as there are limits on the amount of debt local governments can assume; their purpose is to reduce the stress on governmental units' borrowing capacities. In the past 2 decades, the range of participants in these partnerships has broadened to include school districts and universities (Patrinos & Barrera-Osorio, 2009). As the use of public–private partnerships persists and expands, it is important for community leaders to understand the implications of authorities' structures and their potential benefits.

An authority's structure determines the actions it may undertake. To achieve the goals set by public officials, authorities must consider advantages and limitations of different organizational designs. Studies of public authorities created for the purpose of leading transportation projects and other large-scale economic development initiatives provide some guidance, but little research has described the various administrative structures for public corporations designed to manage sport venues. To address this shortcoming, this study presents an assessment of several sport-specific authorities and their outcomes. This analysis can advise local governments about how to structure future authorities based on their community's needs.

Why Are Authorities Needed?

Numerous academics have documented the positive relationship between sport venues and real-estate values (Feng & Humphreys, 2012a, 2012b, 2018; Tu, 2005). Many cities hope to harness these benefits by investing in sport venues. It could be argued these gains would ensue even if the venue was privately financed. However, without a public investment, a team owner might select a venue location to maximize private returns without regard for the effect on a city. Polycentric metropolitan regions, with concentrations of higher income households in economically segregated suburban

municipalities, create tax competition between older central cities and their suburbs (Jargowsky, 1996). With states straining to meet pension responsibilities, less money is available for revenue-sharing programs, so central cities must aggressively compete to sustain own-source revenues and leverage unique amenities (The Pew Charitable Trusts, 2012). Sport venues can attract young professionals and higher income households to an area, can capture regional economic activity, and have been statistically linked to elevated real-estate values (Cantor & Rosentraub, 2012). The prospect of public-sector benefits, including potential downtown revitalization and/or anticipated tax revenues, helps explain public officials' willingness to invest in venues.

However, every state has debt limits for its local governments. For example, in Wisconsin, a local government's debt cannot exceed 5% of the equalized value of property in its jurisdiction. By assuming the debt for a sport venue, a city government would reduce its ability to borrow money for other infrastructure needs. This necessitates the creation of a public corporation, special district, or authority. Independent authorities assume debt while ensuring the interest paid is still exempt from federal income tax.[1] Some claim local governments use a public authority to obfuscate debt levels while reducing the taxes paid by investors. However, there is value in a venue's ability to achieve public policy goals and generate tangible economic benefits for host cities (Chapin, 2002; Erie, Kogan, & MacKenzie, 2011; Rosentraub, 2014).

While the use of authorities for building and managing sport venues is a relatively recent practice, local governments can learn from an extensive history of public authorities assisting in economic development. The Port Authority of New York and New Jersey, and Massport of Boston, each facilitated economic development by constructing and maintaining bridges, tunnels, mass transit systems, and airports. A recent assessment of the Port Authority underscored the need for ensuring the public's interest is protected (Moss & O'Neill, 2014). The authority expanded its original mission in the 1960s, and

[1]For bonds to be tax exempt, a public sector entity must participate in the financing of the venue, and the team's lease cannot contribute more than 10% of the debt service needed for repaying the bonds. In June 2017, a U.S. senate bill was introduced that would eliminate the tax exemption for sport venues used by a professional team; the bill was not passed. Further, the Tax Cuts and Jobs Act of 2017 sustained the use of tax-exempt bonds for sport venues.

again in the 1970s, to take on activities falling outside this authority's original scope of work.

Strahinich noted in his 1989 article analyzing Massport's work in building and operating Boston's Logan Airport, authorities can do work the public sector is ill-suited to perform. Authorities have a permanency to facilitate long-term relationships with the private sector. In a similar vein, the relationships between cities and sport teams often extend for over 100 years, making authorities a well-suited linkage between the public sector and private entities. In summarizing authorities, Strahinich cautioned, some of these organizations' activities conflict with public policies. However, he suggested, public authorities in the hands of careful stewards of economic activity and the public's goals can accomplish a great deal.

Meyer and Rowan (1977) also suggested authorities should be designed to accomplish the goals sought by a government. The objectives of the sanctioning governments, as well as the structure and responsibilities of the new organization, must be framed in the enabling legislation (Brooks & Pallis, 2008). When allocating the tools an authority can utilize, the government must consider two essential dimensions. The first factor is whether the authority will have access to a reliable revenue stream. An authority with a dedicated revenue stream will have a level of independence; alternatively, by controlling the "purse strings," a local government could ensure an authority's dependence on the body creating it. The second factor is the authority's scope of responsibilities. The scope could range from building a single venue, to the development of a sports district, to the ability to participate in adjacent real-estate development projects. A framework outlining an authority's responsibilities and available resources could protect and advance the public's interest.

For this study to illustrate the implications of different frameworks, four authorities with varying designs were studied: the Gateway Economic Development Corporation of Greater Cleveland (GEDC), the Indianapolis Capital Improvement Board (CIB), the Frisco Economic Development Corporation (FEDC), and the Detroit Downtown Development Authority (DDA). This analysis provides insight for governments considering the use of authorities for sport-related projects.

Lessons From Different Organizations: Sports and Development

Gateway Economic Development Corporation of Greater Cleveland

In May 1990, Cleveland and Cuyahoga County created the GEDC to oversee the building, operation, and maintenance of a ballpark for the Cleveland Indians and an arena for the Cleveland Cavaliers. Despite the broad geographic scale of its name, the GEDC was not given the authority to assist in redeveloping downtown Cleveland. This public corporation's sphere of influence was limited to building the two venues, lease negotiations, and continued maintenance of the venues and public plazas (Rosentraub, 2014). A countywide tax on the sale of alcohol and tobacco products for funding the construction of the venues was approved. Then after the venues were built, the GEDC was to generate the revenues it needed to operate from the leases with the teams.

The GEDC is an example of an authority with a limited scope and minimal autonomy, due to its structure and finances. The structure and appointment of the GEDC's board of directors ensures the City of Cleveland and Cuyahoga County control the authority.[2] Additionally, the GEDC's limited funds and lack of an independent revenue stream severely restricts the authority's independence. When the tax on alcohol and tobacco products did not produce sufficient revenues for the GEDC to pay for the cost to construct both venues, Cuyahoga County supplied additional funds. Further, when the original leases with the teams did not produce sufficient revenues for the GDEC to fulfill its financial responsibilities, the GDEC's board was required to renegotiate with the teams.[3]

As noted, the GDEC was not given any role in economic development. The responsibility to leverage the venues for redevelopment was

[2]A county council, county executive, Cleveland's city council, and Cleveland's mayor each choose one commissioner, and the mayor and county executive jointly appoint the board's chair.

[3]Each team assumed responsibility for all maintenance expenses of $500,000 or less, and the public sector's responsibilities were reduced to the arena's roof and heating and air conditioning systems, the arena's and ballpark's foundations, and other large-scale infrastructure elements. The teams also agreed to provide the funds for the taxes owed to the Cleveland Public Schools and for GDEC's staff.

left to the City of Cleveland and the Historic Gateway Neighborhood Corporation. Neither team's owner was asked to contribute to development activities.[4] These factors limited the venues' potential to act as catalysts for revitalization in the area. However, according to the U.S. Census Bureau, as of 2016 Cleveland's downtown area was home to 13,886 people, opposed to only 4,651 people in 1990. Several residential development projects are underway, and the downtown population base will soon surpass 15,000 (Sandy, 2016). In addition, the city has seen a growth in the number of higher income jobs, and Cleveland's income tax base has continued to improve as a result.

Between 2005 and 2015, Cleveland's annual income tax revenue increased from approximately $288 million to $347 million, an increase of more than 20%. While annual property tax revenues declined over the same period, property taxes account for a significantly smaller portion of Cleveland's general tax revenues. In 2005, the property tax accounted for 9.2% of the city's revenue base and by 2015 had decreased to 7.7%. The income taxes' increasing share of the revenue base confirms the city's focus on job attraction and retention. The decline in property tax revenues during this period does not detract from the achievements of the GDEC because, as noted, the authority was not given any role in economic development. While the GDEC had limited autonomy due to its structure and lack of an independent revenue stream, it fulfilled its intended purpose: to build and operate two new sport venues in downtown Cleveland to improve the city's amenity portfolio.

Indianapolis Capital Improvement Board

The CIB was created in 1965 by the Indiana General Assembly to lead downtown economic development efforts and combat trends of suburban sprawl (Cantor, 2014). Indianapolis' plan for revitalization focused on teams, events, and cultural amenities. The CIB helped to finance, build, operate, and maintain facilities to promote conventions, entertainment, and recreational activities. The city's political leadership gave the CIB a wide scope of authority and autonomy to use sports and culture to enhance the downtown area and the local economy.

[4]Though the team owners did not initially play any role in additional development, in 2005 the Gund Brothers sold the Cavaliers to Dan Gilbert, who has been active in redeveloping downtown Cleveland.

The board's members are appointed by the mayor of Indianapolis (six members), the Marion County Board of Commissioners (two members), and the Indianapolis City–County Council (one member). A majority vote is required for a project to be authorized, giving the mayor, who appoints a majority of the board members, a high level of control. Development outcomes in Indianapolis, in terms of the number of projects initiated, can be attributed to the centralization of power. While the rapid development that has occurred over the last 50 years has been crucial to revitalizing the downtown, in his dissertation Cantor (2014) indicates the lack of public input in the process.

TThe CIB can issue revenue bonds, which gives the authority a level of financial independence. However, Indiana law limits the amount of indebtedness it can incur. Historically, when its debt limit has been reached, the CIB has involved additional authorities to assume issued debt for economic activities. However, the building of a new venue for the Indianapolis Colts, Lucas Oil Stadium, required additional revenue to support the amount of debt. To sustain new bonds, the legislature approved increases in local tax rates and a redirection of state tax revenues produced within the Professional Sports Development Area (PSDA). The PSDA is a designated part of the downtown area, extending only for a few blocks between the arena, convention center, and stadium. The legislation allocates state sales and income taxes, as well as food and beverage taxes generated within the PSDA to the CIB. This financing tool was politically attractive to the Indiana legislature because residents could avoid paying for the venues by spending their money elsewhere. But to further reduce the burden on the PSDA, each of the six counties adjacent to Marion County agreed to implement a tax on restaurant food and beverages to pay for the Indianapolis Colts' new stadium.

From 2011 to 2015, the CIB annually received more than $125 million, from the various revenue streams dedicated to development opportunities (see Table 1). It uses the taxes collected within the PSDA to repay part of the bonds sold for the arena and the stadium. It can designate the balance to economic development capital projects approved by Indianapolis' council. Although the CIB does not have the authority to ensure the development of mixed-use real estate, it has effectively used a variety of sport and entertainment

venues to enhance the downtown area and the local economy.[5] Many consider the scope, scale, and sustained commitment to Indianapolis' revitalization plan a model for success.

Table 1
CIB Tax Collections[a], 2011–2015 (in $2015)

Revenue source/tax rate	2011	2012	2013	2014	2015
Hotel (10%)	41,977,879	46,243,136	44,698,844	48,621,698	51,692,747
Food & Beverage (2%)	40,718,293	43,722,874	42,392,261	44,155,319	47,710,426
Admissions (6–10%)[b]	6,208,664	8,027,376	11,047,952	12,962,131	13,118,840
Auto Rental (4–6%)[b]	4,292,761	4,808,624	6,160,843	6,950,976	6,671,583
PSDA Allocation	26,259,285	24,598,704	25,508,258	24,433,664	25,400,848
Regional Food & Beverage (.5%)	5,637,470	5,314,763	5,255,956	5,375,289	5,167,191
Total	125,094,353	132,715,478	135,064,114	142,499,078	149,761,635

Note. Data from CIB Comprehensive Annual Financial Reports (http://www.capitalimprovementboard.org/main/financial/).

[a]CIB Collections selected for Table 1 do not include revenues from Cigarette Tax, Specialty License Plate Fees, or Interlocal Agreement Funding (2010). [b]The 4% Admissions and 2% Auto Rental tax increases are effective March 1, 2013.

Frisco Economic Development Corporation

As mentioned, the variety of participants in public–private partnerships for building sport venues has widened over the last 20 years to include organizations such as school districts and universities. For example, the Frisco Independent School District is a key member of the public–private partnership forged in 2013 to build The Star. The Star, located in Frisco, Texas, consists of an indoor football stadium, a training facility for the Dallas Cowboys, and a corporate center for both the Dallas Cowboys and Legends (a sport marketing firm owned, in part, by Jerry Jones). The school district benefits from their eight high schools' use of the indoor stadium; each school plays its home football and soccer games at The Star, eliminating the need to build and manage eight separate stadiums. The partnership's other stakeholders include the City of Frisco, the FEDC, the Frisco Community Development Corporation, and the Dallas Cowboys.

[5]Venues that have contributed to Indianapolis' downtown redevelopment strategy include a minor league ballpark, Banker's Life Fieldhouse (home of the Indiana Pacers), the Indiana Convention Center, and Lucas Oil Stadium.

The public sector paid $115 million for the project, which is believed to have cost more than $252 million.[6]

The public sector's interests in The Star are managed by one of the investing public corporations, the FEDC. The FEDC was created in 1991 with a mission to "improve the economic opportunities and quality of life for all Frisco residents" (FEDC, n.d., para. 5). The Frisco City Council appoints all seven members of the board of directors, which, similar to the Indianapolis CIB, centralizes the power structure of the FEDC. The sweeping outcomes in Frisco are not unlike those in Indianapolis; according to a 2017 study, since its establishment, the FEDC has helped facilitate "more than 350 projects that have the potential to occupy over 450 million square feet of commercial space, generate new capital investment in excess of $8 billion, and create or retain more than 78,000 potential direct jobs in Frisco" (FEDC, n.d., para. 5). The FEDC also benefits from a significant revenue stream, which gives the corporation autonomy. The FEDC is entitled to 0.5% of the city sales tax, which amounted to nearly $189 million in 2016 (FEDC, n.d.).

The city and the school district are repaying the bonds sold for their investment in The Star with incremental property taxes. The city can also use sales taxes to make their bond payments. Table 2 details the property and sales tax revenues over the past several years by unit of government. Note that the city has enjoyed more revenue growth as the entire project is built-out and the economy continues to improve. Its margins, however, are far less than those of the school district, which has continued to collect substantial revenue growth each year. On balance, the participation in the project led by a development authority has had reasonable returns for both units of government. This case helps validate the inclusion of a variety of organizations in public–private partnerships for sport-related development projects.

[6]The City of Frisco and the Frisco Independent School District each pledged $30 million, and the Frisco Economic Development Corporation and the Frisco Community Development Corporation invested $55 million between them. The Cowboys financed the remainder of the project; their total investment is expected to reach $1.5 billion at full the build-out of the 91 acres.

Table 2
Property and Sales Tax Revenues, 2011–2016

Tax revenues	2016	2015	2014	2013	2012	2011
City of Frisco						
Property	59,440,263	50,391,928	43,465,631	38,344,822	36,360,872	34,568,461
TIF	5,464,343	5,100,966	4,658,780	4,431,948	4,142,786	4,250,097
Net Growth	*3,583,992*	*1,825,331*	*462,029*	*-2,447,998*	*-2,350,375*	*-4,203,676*
Sales	37,750,335	36,003,036	34,196,948	29,158,661	24,489,084	21,852,287
Net Growth	*1,747,299*	*1,806,088*	*5,038,287*	*4,669,577*	*2,636,797*	*1,783,463*
Total Net	**5,331,291**	**3,631,419**	**5,500,316**	**2,221,579**	**286,422**	**-2,420,213**
Frisco Independent School District						
Property	384,639,885	359,056,572	310,827,394	272,384,708	245,955,463	232,737,797
Net Growth	25,583,313	48,229,178	38,442,686	26,429,245	13,217,666	

Note. TIF = tax increment financing. From City of Frisco 2016 Comprehensive Annual Financial Report (https://www.friscotexas.gov/DocumentCenter/View/11293/Comprehensive-Annual-Financial-Report-9-30-16-PDF?bidId=).

Detroit's Downtown Development Authority

In March 2013, Michigan's governor announced the appointment of an emergency financial manager to oversee Detroit's finances. Three months later, the governor also authorized the Michigan Strategic Fund to support a new arena for the Detroit Red Wings. The Michigan Strategic Fund would contribute more than a quarter billion dollars of state aid to anchor the Catalyst Development Project to stimulate real-estate development throughout downtown and midtown Detroit (Cantor, 2014). The Catalyst Development Project is coordinated by the DDA, an entity created by the City of Detroit to sustain property values in the city, whose board of directors is appointed by the mayor. Per a concession management agreement with Olympia Development (the Red Wing's real-estate development company), the DDA assumed full managerial, operational, and maintenance responsibilities of the new arena at its opening.

Development authorities in Michigan can leverage the increment in property taxes generated from new real-estate development within its designated boundaries. This is known as tax increment financing (TIF). The key to a TIF district's success is its ability to leverage new development to capture an increment from other taxing jurisdictions (Dye & Merriman, 2000). Authorities can use the additional property taxes to support additional real-estate

development projects, which gives them entrepreneurial motivation. The City of Detroit supports the success of the DDA by permitting investors to purchase foreclosed land and abandoned buildings at a cost of $1 and then assigning the property taxes generated to the DDA through the TIF program.[7] Capital for future development must be generated by tax revenues collected from the projects in the district.

The DDA generates revenue only if it successfully attracts real-estate development to the downtown and midtown areas. If anticipated TIF revenues are not produced, the DDA does not have access to other revenue streams to cover shortfalls in bond payments.[8] This structure encourages the authority to be entrepreneurial in pursuit of the goals established for it—in this case, to enhance property values in the downtown. Detroit has empowered an authority to aggressively promote development projects in the interests of the city, without committing external revenues to the initiative.

Investments in downtown and midtown Detroit are laden with risk, as a result of the competition with other urban areas in the polycentric region (Goetz, 2003). Part of the initial agreement required Olympia Development to contribute $200 million of private sector development, in addition to the venue. However, Olympia Development has since unveiled large-scale redevelopment plans, which would far exceed $200 million in additional real estate if completed. At the arena's opening, Olympia Development announced plans for six additional residential developments, as well as $50 million for new buildings at nearby Wayne State University and the Detroit Medical Center. Additionally, with the Detroit Pistons' relocation to the new arena, further real-estate development is likely.

Observations and Recommendations

There are four major considerations in determining the best-suited organizational structure of an authority. First, the local government must determine the economic development goals for the public authority. Second, local officials must determine their comfort level with an authority's independence from the government

[7]The land at "no cost" provision was upheld when Detroit transferred 39 small parcels of land to the DDA and Olympia Development for the project.

[8]If revenues are not sufficient, the DDA would depend on additional support from the Michigan Strategic Fund.

creating it. Third, government officials must determine whether the authority will receive tax revenues. Fourth, it must be decided which units of local government (including school districts and universities) should be included in the partnership.[9]

Of the examined authorities created for the development of sport venues, each has successfully ensured a sport venue (or several) was built. The organizational structures of each, however, were different. The Indianapolis CIB is an example of a special district with dedicated revenue streams and substantial independence, which give the authority flexibility to advance its goals. Centralized power and the CIB's independent revenue stream were valuable tools when community leaders wanted to aggressively change downtown Indianapolis. While a concentration of power enabled the rapid approval of many projects for enhancing downtown Indianapolis, the trade-off was the little public input in projects supported by the public sector (Rosentraub, 2014).

Cleveland and Cuyahoga County's GDEC does not have access to a dedicated revenue stream, nor does it assume a role in real-estate development. In setting its organizational structure, the city and county ensured the GDEC's responsibilities were limited while insulating Cleveland and Cuyahoga County from the financial responsibilities for the arena or ballpark. While limiting local governments' financial liability may be an attractive way of structuring an authority in theory, without voter approval of the extension of the sin tax, the GEDC could not have fulfilled the terms of the leases with the Cavaliers and the Indians.

The Star in Frisco is an example of a school district's partnership with a professional team and a development authority achieving fiscal gains. The benefits to the school district are twofold. First, the need to build eight high school stadiums has been eliminated. Second, the immense growth in Frisco has continued to produce additional revenues to support every school in the district. The Cowboys' commitment to the build-out of the 20-acre project will lead to increased property and sales taxes for the city and the school district.

The key to the success of the TIF district in Detroit is its ability to leverage the Catalyst Development Project. The DDA can

[9]Other notable partnerships in an authority to build a sport venue for a university, professional teams, and commercial entertainment include the University of Nevada, Las Vegas; the University of Louisville; and North Carolina State University.

only generate additional revenue if it successfully attracts additional real-estate development downtown. This structure requires an authority to build partnerships to finance redevelopment, and it incentivizes an entrepreneurship in pursuit of its economic development goals. Detroit's authority is an example of an organization with autonomy; it can leverage any and all development in its boundaries, but with fiscal success dependent on its own ability to generate revenues.

While this paper did not test any elements of organizational theory, the review of the ways that local governments used authorities to build sport venue anchors for development provides important insights into the choices of communities. Should an authority be able to act independently? Should it have its own dedicated revenue streams? Should an authority be an actor in ensuring a sport venue anchors real-estate development? These questions should frame the responsibilities and structure of an authority.

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YOU AND THE LAW

California Student Drowns

John J. Miller

Curry v. San Ramon Valley Unified School District, Aaron Becker, et al., 2018

On November 27, 2018, a lawsuit was filed in the Superior Court of California against the San Ramon Valley Unified School District (hereafter referred to as the School District) school and physical education teacher as a result of a 15-year-old boy drowning in a fourth-period physical education class. The parents of a 15-year-old student (Curry) brought the lawsuit, alleging that the teacher was looking at his cell phone and not paying attention to the class of 57 students treading water. As a result, the teacher (Becker) was negligently supervising the class. He was willfully and knowingly disregarding the rights and safety of the decedent plaintiff, and the School District was negligent in the hiring, supervising, retaining, and training the instructor.

Complaint

The complaint indicated that the plaintiffs asked for general (non-economic) damages, punitive damages against Becker, special (economic) damages, as well as hospital, medical, professional, and incidental expenses incurred by the plaintiffs.

Background of the Case

According to the complaint, Curry and 56 other students were told to tread water for 3 minutes at the end of class. According to the lawsuit, Becker instructed the students to tread water for 3 minutes

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and told his students that if they touched the lane ropes he would extend the time for them to tread water (Gafni, 2018). The time stamps from the surveillance video indicate the students were treading water for closer to 4 minutes than 3 minutes and 30 seconds. Curry slipped under the water and drowned after Becker added 30 more seconds of treading water. The school's video surveillance, according to the lawsuit, revealed that Becker was standing on a diving board and looking at his cell phone, about 15 feet from Curry, while the students were supposed to be treading water.

The trial transcript indicated that at the end of class, Becker dismissed the students without taking roll or checking the pool, leaving Curry's body in the water with his clothing and cell phone still sitting nearby on the pool deck. Following fourth period, the students went to lunch before going to their fifth-period class. Curry's body was not discovered until students returned from lunch for the fifth-period physical education class. Samantha Libby, the teacher for the fifth-period class, discovered Curry "at the bottom of the pool" about an hour later, recovered his body, and tried to resuscitate him (Gafni, 2018).

Analysis of the Court

According to the court records, the plaintiffs brought three causes of action against the defendants. The first cause of action was a wrongful death alleging negligence against all defendants. The plaintiffs perceived that the School District and its employees owed a duty of care stemming from a special relationship between the School District, Becker, and Curry (as an invitee) to supervise, protect, assist, and control. Further, the plaintiffs asserted that the School District and Becker breached their responsibility to provided reasonable protective measures to ensure Curry's safety, protect him from foreseeable conduct, or permit him to participate in dangerous activities during school. As a result, it is alleged that the School District and Becker were the direct, legal, and proximate cause of the fatal injuries sustained by Curry.

The second cause of action contended that the School District was negligent and reckless in hiring, training, supervising, and retaining an employee they knew or should have known was unfit to teach swimming. It should be noted that Becker had minimal water safety experience and his lifeguard certification expired 2 months

before Curry's drowning. Moreover, there were no other lifeguards at the pool to help Becker supervise the 57 students. Additionally, the district had no rules or regulations in place to guide Becker on instruction of the swim class. The plaintiffs claimed that the School District breached their duty to their son, Ben Curry, by carelessly and negligently training and supervising Becker. Moreover, the school district breached its duty to Curry by failing to supply any guidelines, policies, procedures, rules, or regulations regarding the class sizes or lesson plans for swimming activities. As a result, it was alleged that the School District was vicariously liable for the negligent acts and omissions of Becker and such omissions resulted in the direct, legal, and proximate cause of the fatal injuries sustained by Ben Curry.

The third cause of action asserted willful misconduct on the part of Becker. According to the court record, Becker was aware of the dangers to the 57 students, including Curry, of treading water in 12 feet of water. Regardless of the likely danger, Becker willfully and consciously disregarded the safety of Curry and other students by looking at his cell phone and taking no action as Curry became exhausted and slipped under the water. Finally, when Becker dismissed the class he left the pool area without checking the class roster.

Adding to the incident, students at San Ramon Valley High School, as well as local media, suspected that Curry had committed suicide. In fact, subsequent to Curry's death, classmates conjectured that Curry killed himself as he supposedly battled mental illness and bullying (McBride, 2018). Furthermore, the school did very little to respond to the inaccurate speculations despite being in possession of the surveillance tape of the accident as well as Curry being present during swim class when the accident happened (Gafni, 2018). As a result, the school district superintendent stated, "Neither the Contra Costa County coroner's report, nor the Danville Police investigation, indicated that Benjamin caused or contributed to his death" (McBride, 2018, para. 16).

Risk Management Discussion

School districts and districtwide physical education coordinators/supervisors need to be very conscious of negligence activity, negligent hiring, negligent supervision, negligent training, reckless

misconduct, and respondeat superior when dealing with professional personnel. The following provides a quick reminder of important concepts.

Negligence is an unintentional tort in which the alleged wrongdoer does not intend the consequences to injure another person (Miller & Schoepfer, 2018). Negligence reflects whether acts of omission or commission existed that resulted in the harm of another person. The commission of an act is one in which a person instructs another to commit an action that causes harm to that person or others (Miller & Schoepfer, 2018). For example, in this case, Becker may be negligent by an act of commission when he required the class to tread water for an additional 30 seconds. It is during these 30 seconds that Curry slipped, without notice, underwater and never resurfaced. On the other hand, if a person could have prevented an action from occurring but chose not to, it would be perceived as an act of omission. In this case, it could be perceived that Becker was negligent because he omitted properly supervising the class or checking the class roster to ensure that all students had exited the pool.

Since physical education teachers are hired because of their experience and knowledge of the sport, courts have imposed a heightened duty of care on them, especially when those individuals are responsible for teaching a dangerous activity such as swimming (*Kahn v. East Side Union High School District*, 2003; *Knight v. Jewett*, 1992). According to the Centers for Disease Control and Prevention (CDC, 2016), drowning is the second leading cause of death of minors in the United States. More specifically, between 2005 and 2014, an average of 3,536 fatal unintentional, non-boating drownings occurred every year in the United States (CDC, 2016). This figure equates to almost 10 deaths per day over the 10-year period. To ensure that the student is adequately prepared to perform an action, an instructor has a duty to properly teach the elements of progression and to consider the complexity of the action, athlete readiness, and safety. An instructor may be found to have breached a duty of care to a student if the instructor engages in conduct that is reckless in the sense that it is "totally outside the range of the ordinary activity" involved in teaching or coaching the sport (*Knight v. Jewett*, 1992, p. 318).

Negligent hiring happens when the employer (i.e., School District) knew or should have known that an employee was

unqualified, before hiring the employee (*Garcia v. Duffy*, 1986). Conversely, negligent retention occurs when, during the course of employment, the employer (i.e., School District) becomes aware or should have become aware that an employee was unqualified for the assignment (i.e., Becker's lack of lifeguarding or water safety certification) and does not discharge or reassign the employee (*Garcia v. Duffy*, 1986).

Negligent supervision occurs when there is a duty to supervise and a reasonable person would recognize that an incident could happen (i.e., drowning) and take appropriate steps to prevent it (i.e., keep an eye on all students in the pool at all times). The standard of care increases when a minor (i.e., 15 years old) is involved and a potentially dangerous condition exists that the supervisor (i.e., Becker) should be aware of such as drowning (*Knight v. Jewett*, 1992). Additionally, the School District may have been negligent in this matter as they knew or should have known about Becker's deficiencies in water safety and lifeguard training and assigned one or more individuals to help supervise the class, especially a class the size identified in the lawsuit.

Negligent training allegations are usually brought in conjunction with negligent hiring, retention, and supervision claims, but can be brought independently. Negligent training emphasizes the legal duty an employer owes to provide reasonable care in training, that the lack of training proximately caused the injury, and that the plaintiff suffered financial or physical injury damages because of the lack of training (Miller & Schoepfer, 2018). In this case, the School District owed Curry, as well as the other students, the duty to ensure that Becker possessed up-to-date lifeguarding and water safety certification.

Reckless Misconduct—Expressions such as gross negligence, willful or wanton misconduct, and reckless conduct disregard the foreseeable risks that may be employed in determining the difference between negligence and reckless misconduct (Dobbs, 2000). Reckless misconduct requires that the defendant's actions were either reckless or intentionally injurious. It requires a conscious choice or a course of action, either with knowledge of the seriousness of the danger to others. In determining whether the defendant acted recklessly, the

trier of fact will have to consider both the nature of the risk and the totality of circumstances surrounding the action.

Respondeat Superior—Often, the employer of the person who allegedly committed an offense will be named in the lawsuit under the theories of respondeat superior and vicarious liability (McCaskey & Biedzynski, 1996). Central to vicarious liability is the form of strict liability imposed upon a third party for the acts of individuals whom the third party has the right, ability, or duty to control (*Christensen v. Swenson*, 1994). Respondeat superior is a type of vicarious liability, which allows a third party to be held liable for a defendant's negligence in some cases, even if the third party was not present when the injury occurred or directly caused the injury.

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