# The Physical Educator

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

(USPS 431-220)

## of Phi Epsilon Kappa

THE OFFICIAL PUBLICATION OF

PHI EPSILON KAPPA FRATERNITY

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**THE PHYSICAL EDUCATOR** (Print ISSN: 0031-8981, Ejournal ISSN: 2160-1682) is published six times a year by Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822.

POSTMASTER: Send address changes to *The Physical Educator*, Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822.

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**Champaign, IL 61822**

The Physical Educator
(TPE) Volume #80
Print ISSN: 0031-8981 | Online ISSN: 2160-1682
Print and electronic archives | 6 issues annually

| | Online | Both |
|---|---|---|
| Ind. | $292.00 | $326.00 |
| Ind. (Int'l) | | $371.00 |
| Inst. | $630.00 | $732.00 |
| Inst. (Int'l) | | $756.00 |
| PHI Epsilon Kappa Member | $120.00 | |


http://bit.ly/2Jn7fgk

Average number of copies printed per issue (net press run) during the preceding 12 months is 231; number of copies nearest to filing date is 43. Average number of copies of each issue distributed in mass mailing to subscribers during the preceding 12 months is 170; number of copies nearest to filing date is 29. Average number of copies of each issue distributed free during the preceding 12 months is 8; number of copies nearest to filing date is 1.

Send address correspondence concerning subscriptions and change of address to Membership/ Subscription Department, *The Physical Educator*, Sagamore-Venture, 3611 N. Staley Rd., Ste. B, Champaign, IL 61822. Make check or money order payable to Sagamore-Venture, order online at www.sagamorepublishing.com, or call 800-327-5557.

THE PHYSICAL EDUCATOR
2023 | Volume 80 | Number 6

## Articles



## You and the Law

The Physical Educator Vol. 80 • pp. 571–592 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11459

COACHING EDUCATION

# Preservice Coach Education Students' Rankings of Coach Characteristics: A Longitudinal Study

*Craig Stewart, Christopher Tarabochia, Jasmine Casanovas*

## Abstract

*Preservice coach education students (PCES) can provide valid insight into the most important coaching characteristics of the successful coach. Over the course of 21 academic semesters from 2002 to 2020, 1,464 PCES responded to a coaching characteristics survey while enrolled in a coach education course (CEC) at a university in the northern Rocky Mountain region of the United States. The PCES completed a survey that required the forced ranking of 10 coaching characteristics. The students' responses were compiled and analyzed for the categorization of the most important coaching characteristics. This study was to provide the opportunity for PCES to rank preferred coach characteristics, to determine whether significant differences existed between the coach characteristic rankings, and to establish if gender differences were present in the ranking of coach characteristics. Conclusions and recommendations are offered to contribute to the advancement of coach education and insight into the most valued coaching characteristics as determined by the PCES.*

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Coaches' behaviors are the most important component affecting athletes' careers (Becker, 2009; Erickson et al., 2008; Vaughan, 2018). Unfortunately, research is limited on what coaching behaviors influence athletes the most. Coach education needs to be more realistic in relationship to the chaotic, multifaceted world of coaching (Bowes & Jones, 2006). Only then can coach educators develop a greater degree of relevancy for coaches and players at every level. Once achieved, a higher degree of personal reflection and interaction can occur. A similar process applies to preservice coaches as they share and debate reflective preferred coaching behaviors among their peers.

## Coach Education

According to Cushion et al. (2006), coaches rely more on their own experiences and other coaches than on formal coach education (FCE). Today, through FCE there can be improved coaching practices and possibly strengthened short- and long-term objectives of sport participation (Cushion et al., 2003, 2006; Gano-Overway & Dieffenbach, 2016; Gilbert & Trudel, 2001; Werthner & Trudel, 2006). Unfortunately, there continues to be disagreement even among professional coach educators (Kennedy-Clark et al., 2018) about how to implement the foundations of coach education, what foundations to implement of coach education, and when to implement the foundations of coach education.

While increasing in popularity in the last 20 years, the processes and roles of coach education at the entry level continue to be questioned (Kennedy-Clark et al., 2018). That observation reinforces the need for exploration of how coaches are educated in formal institutes of higher education (Gano-Overway & Dieffenbach, 2016). Additionally, as the evolution of coaching advances, there is a need to understand how FCE experiences can be improved to prepare coaches to meet the demands of their profession. Coaching education is ardently complex, fervidly idiosyncratic, and limited in continuity (Fawver et al., 2020). There are various conflicts in the literature (cf. Fawver et al., 2020 and Gano-Overway and Diffenbach) from the very definition of professional coaching to the curricular content in coach education.

There is a gross underestimate of the scale of unqualified coaches and it continues to grow. For example, U.S. Department of Labor (Gano-Overway and Dieffenbach, 2016) statistics show the

employment of approximately 276,100 coaches in the United States in 2016. In contrast, Fawver et al.'s (2020) report of approximately 11 million youth participating in secondary school sports alone in 2016 makes this number seem underestimated. With Gano-Overway and Dieffenbach's (2016) totals, this makes for a nearly 40-to-1 ratio of players to coaches. Additionally, the Aspen Institute (n.d.) lists a breakdown by sport of player participation at different ages of youth. For example, it lists three youth sports (baseball, basketball, and bicycling) with over 4 million participants each; one sport, soccer, with over 2 million players; and three sports (gymnastics, tennis, and golf) with over 1 million. In 2019, US Youth Soccer's (n.d.) statistics show nearly 3 million registered players annually. By these figures alone, it is evident that the need for many more qualified, well-educated coaches exceeds the numbers reported by the U.S. Department of Labor. Unfortunately, many factors impede a unified front in the education of coaches (Gould, 2016).

According to the Sports and Fitness Industry Association and Aspen data (The Aspen Institute, n.d.), 7 of 10 youth sports coaches are not trained in even the six core competencies required to be a qualified coach. Those competencies are general safety and injury prevention, effective motivational techniques, cardiopulmonary resuscitation (CPR) and basic first aid, physical conditioning, concussion management, and sport-specific skills and tactics. Aspen officials (Bogage, n.d.) describe the issue as a public health concern with finding qualified coaches one of the largest challenges facing youth sports.

The lack of fiscal and administrative support for sport in the public domain also negatively affects coach education in institutes of higher education in the United States. The National Committee for Accreditation of Coaching Education (NCACE, n.d.), in existence since 1995, has a foundation built by members in organizations such as the Program for Athletic Coach Education and American Sport Education Program. The NCACE staff provides coaching standards, examples of curricular specifics, and a professional process by which to evaluate institutes of higher education's attempts to offer coach education as a notable component of their curricula. Yet, a quarter of a century later, there are only 12 institutes of higher education that have accredited NCACE programs.

## Coaching Characteristics

Coaches are responsible for developing athletes' mental, physical, technical, and tactical abilities while being expected to win (Becker, 2009). The art of coaching is less about order, prediction, or control, but it recognizes the complexity of sport and the need for creativity. Coaching interprets people as imaginative, evolving, living organisms. Therefore, the focus in developing coaches belongs on player–coach relationships and group dynamics. That process can assist in the construction of a deep, sincere understanding of each individual (Vaughan, 2018; Williams et al., 2003).

Stewart and Sweet's (1992) survey of over 400 coaches in the state of Montana determines educational and professional backgrounds for coaching, with a surprising 72% (288) response rate via U.S. Postal Service. This study's results show that most coaches have at least a bachelor's degree (94%), almost half have a degree in physical education (54%), and several teach in the school where they coach (87). However, these results look different in recent years. Today, there are challenges in finding and mentoring the numerous non-teaching coaches in many public schools as well as drastic changes in public school coaching (Woodall, 2017). Specifically, fewer teachers are willing to coach in their own schools (Woodall, 2017). This phenomenon has necessitated hiring individuals outside of the educational arena, creating even more issues related to variables such as the knowledge of the characteristics of young athletes and the willingness of coaches to learn, accept, and follow program rules and directives.

To continue, Stewart's (2014) survey of high school sport administrators (athletic directors and principals) determines the reasons for dismissal of coaches in the past five years and the primary weaknesses of young coaches. According to nearly 50% of respondents (84/179), poor teaching is the primary cause of dismissal. Similarly, Stewart and Koch's (2020) survey of over 400 coaches, with an approximately 25% (109) response rate, from a western U.S. university conference collects data in relationship to their general degree of education and their experiences in FCE programs. This survey shows that about one half of high school sport administrators have advanced degrees (undergraduate or master's) and less than one half have degrees in

anything related to coaching, exercise science, or teaching. As well, very few (4) have a minor or major in coach education.

## Current and Former Athletes as Preservice Coach Education Students

In 2006, Bowes and Jones (2006) described the profession of coaching as "working on the edge of chaos" (p. 235). In the near 15 years since, the world of coaching has not diminished in complexity. Yet, it has been negatively affected by the reduction of trained teachers in the profession, the proliferation of elite teams, and private organizations with their own rules (Woodall, 2017). Many of those organizations have featured expanded seasons, overemphasis on specialization, elaborate facilities, eclectic coach education approaches, and the ever-rising costs of participation (A. L. Smith & Gould, 2019). Therefore, it is not surprising the structure of FCE remains chaotic with no unified agreement on its content, structure, or method of delivery.

Bowes and Jones (2017) recommend the use of players' input in the development of future coaches' personal approaches to coaching. This approach can greatly assist young coaches in understanding the chaos of coaching and how the eccentricity of coaching shapes their behaviors and attitudes. Through such involvement, novice coaches can initiate their own philosophical foundations of the profession. That process allows novice coaches to better understand not only their profession but also how players perceive their behaviors, the organization of the athletic structure in which they belong, and the many constituents to whom they are responsible. It is within this process that athletes' preferred behaviors of their coaches play an essential role.

According to Anshel (2012), both current and former athletes are some of the most overlooked individuals for determining the variables associated with successful coaching. By projection, preservice coach education students (PCES) also represent an overlooked source of input on the development of future coaches. Players' input is valid regardless of their age and/or experience (Anshel, 2012). The longer athletes participate in sport, the greater exposure they have to coaches' behaviors. Unfortunately, players rarely have an opportunity to provide input on coaches' behaviors during their athletic careers. Therefore, players must be given nonthreatening opportunities to

provide their observations to their coaches at the end of every season (Anshel, 2012).

Many professionals (Cushion et al., 2003; Cushion et al., 2010; Erickson et al., 2008) advocate the use of athletes' experiences in coach education. Past athletic experiences are primary factors in the evolution of coaches' development, attitudes, and beliefs (Cushion et al., 2003; Erickson et al., 2008), and athletes' personal interactions with their coaches have greater influence on learning than do their previous formal educational experiences (Erickson et al., 2008). Further, the use of previous athletic experiences may be a "lens through which new [coaching] knowledge is viewed" (Cushion et al., 2010, p. 69). While athletic experience may not be a requirement to be a coach, it remains a common factor at all levels of coaching (Cushion et al., 2010). Thus, the athlete–coach experiences are meaningful events in exposing the idiosyncrasies of the profession.

## Recall

Research shows a significant amount of discussion concerning the use of human recall and perception. Human recall depends a great deal on individuals' perception or the process of recognizing, organizing, and interpreting sensory information (Gregory & Gombrich, 1973), and human perception is indeed both objective and reliable. One's perception of another's behavior is often more important than the behavior itself (Shaver, 1975). In regard to sport, when players are exposed to coaching behaviors, the effects of those behaviors on athletes are dependent on players' perceptions of them (R. E. Smith et al., 1978). To clarify, when the coaches exhibit certain behaviors, the athletes often interpret them with long-lasting results. Thus, the more meaningful the behavior, the easier athletes recall them. The athletes' recall of those behaviors creates more evaluative, cognitive, and affective reactions to the coach. Further, the perceived effectiveness of coaches is often based upon the athletes' recall of their coaches' behaviors (Smoll & Smith, 1989).

The art of coaching is best determined through examination of the "team's story" or the athletes' recall of coaching behaviors (Jones et al., 2003) . Athletes' perceptions of coaching behaviors may even be related to team motivation and cohesion (Olympiou et al., 2008). As such, ignoring athletes' evaluation of coaching behaviors is problematic in the appraisal of coaching effectiveness (Jones, 2007).

Hence, the accusation that research has not adequately explored and interpreted coaches' subjective "life worlds" before developing recommendations for 'good practice' remains a valid one (Jones et al., 2003; Strean, 1998).

### Purpose of Study

While previous research has provided insight into coaching behavior, most of it has focused on sources of information other than the athlete. Thus, the primary aim of this study was to determine which of 10 preselected coaching characteristics were most important to PCES enrolled in a coach education course (CEC) at an institute of higher education. The secondary aims of this study were to establish if significant differences existed between the coach characteristic rankings and if gender differences existed in the ranking of coach characteristics.

## Method

### Participants

Over 21 academic semesters from 2002 to 2020, 1,464 PCES at a university in the northern Rocky Mountain region of the United States were selected to participate in the study. The PCES attended a lower division (freshman/sophomore) CEC at the university. The PCES were selected as a homogenous convenience sample primarily because of their enrollment in the CEC and status as a former or current athlete. Utilizing homogenous convenience sample allowed for focusing on individuals who share similar traits or specific characteristics. Further, it was assumed that PCES had past exposure to at least one coach and interest in at least one area of sport given their enrollment in a CEC. Thus, on the basis of the PCES' previous experience and knowledge (Bernard, 2002; Jager et al., 2017), a homogenous convenience sample was an appropriate sampling method because this population was best able to provide information on coach characteristics.

### Data Collection

Data for this study were collected from an introductory-level CEC. As part of the requirements for the class, focus activities were distributed to the PCES' at the start of class. The purpose of the focus

activities was to introduce a coaching-related topic and for PCES to complete an in-class activity. The results from the focus activity were used as a guide for the discussion for the next course meeting. Throughout the semester, 10 different focus activities were distributed and completed by PCES (Figure 1). One of the focus activities was associated with coach characteristics. This focus activity was used in data collection for this study and included the 10 most recognized coaching characteristics (Gilbert, 2017; Martens, 2012; Seefeldt, 1991). The focus activity was structured as a forced choice scale (Figure 1) and required the respondent to order certain variables; this eliminated neutral or repetitive responses (Jennings, 2007). In

**Figure 1**

*Focus Activities From Introduction to Coaching Class*

| | |
|---|---|
| 1. | Demographics and description (words and/or phrases) of favorite and least favorite coach (no coaches' names allowed…… anonymous) |
| 2. | **Ranking of coach characteristics**[a] |
| 3. | Hazing in sport – identification of required activities that could be identified as hazing |
| 4. | Time before a game – mathematical determination of practice time before first game |
| 5. | Sportsmanship scenarios (from Character Counts website http://www.partnerwithschools.org/character-education.html?gclid=EAIaIQobChMIuJH97sfX6wIVWx-tBh1wxQkOEAAYASAAEgLdo_D_BwE) |
| 6. | Favoritism (students required to define with specific examples) |
| 7. | Coaching scenario response 1 (cheap shot)… what would you do? |
| 8. | Coaching scenario response 2 (academic cheating)… what would you do? |
| 9. | Coaching scenario response 3 (breaking team rules)… what would you do? |
| 10. | Coaching scenario response 4 (bad parent at practice/after game)… what would you do? |

[a] Ranking of coach characteristics: This was the assignment used in this paper. Note, to counter order bias, we changed the sequence of the coaching characteristics throughout the semesters.

addition, the characteristics were reordered annually on the handouts for avoidance of order bias (Dueber et al., 2019; Harzing et al., 2009). The PCES were asked to force rank the 10 selected coaching characteristics from 1 to 10, 1 being the most preferred, 10 being the least preferred (Figure 2). The PCES relied on recalling past interactions with coaches to complete the survey. Thus, the ranking of coach characteristics was considered an exercise that used a reflective practice of past athletic experiences. Additional data collection included number of years of competitive play, gender, and both the number and highest level played.

**Figure 2**
*Coach Characteristics*

**WHAT DO YOU THINK ARE THE MOST IMPORTANT CHARACTERISTICS OF A COACH?**

(RANK THEM 1 FOR **HIGHEST**... DOWN TO 10 FOR THE **LOWEST**.)

(**USE A RANK [1–10] ONLY ONCE**)

Students using a ranking more than once will not receive class credit for the assignment. Remember, coaches at all levels are required to rank their athletes repeatedly. This exercise will prepare you for that expectation.

| **COACH CHARACTERISTICS:** [a] | **RANK:** |
|---|---|
| A commitment to winning | |
| Development of players to play at a higher level of play | |
| The development of sportsmanship in players | |
| Fair & honest treatment of athletes | |
| Commitment to enjoyment of sport by players | |
| Knowledge of the rules of the sport they coach | |
| The ability to teach their sport | |
| Knowledge of the skills of the sport they teach | |
| Experience as a player of the sport they coach | |
| Prevention, care and rehabilitation of injuries to players | |

[a] Over the years/semesters, the order of the characteristics was randomly changed to avoid order bias.

## Data Analysis

Descriptive statistics were utilized in the description and categorization of PCES information and additional data collected. The rankings of preferred coaching characteristics were averaged and compared; this determined which were ranked significantly different. Next, a nonparametric Friedman test was used for determination of differences of how coaching characteristics were ranked (Gravetter & Wallnau, 2016). Given that the results from the Friedman test do not identify which groups are significantly different from one another, two-samples Wilcoxon rank sum tests were used with multiple comparison post hoc tests to determine the highest, middle, and lowest ranked coach characteristics. Additionally, differences between genders in the ranking of coach characteristics were ascertained with the Wilcoxon rank sum test (Gravetter & Wallnau, 2016) comparing mean ranks between genders.

# Results

The majority of the PCES were previous or current athletes at the time of data collection. PCES reported approximately 10 years (male = 10.53, female = 9.62) of competitive experiences (Table 1).

The gender ratio of PCES was 38% female and 62% male (Table 2). There was no significant difference in the average number of sports played during their secondary school years (Table 2). Further, most PCES competed at the high school varsity level (male 65%, female 60%), whereas about one quarter continued to compete at the collegiate level (male 25%, female, 24%).

The rankings of preferred coaching characteristics were averaged and compared; this determined which were ranked significantly different (Table 3). A nonparametric Friedman test determined if there were differences in how coaching characteristics were ranked. Overall results from the Friedman test determined that the differences among coaching characteristics were significant ($\chi^2_6 = 901.64$, $p < .001$).

**Table 1**
*Years of Competitive Play by Year and Gender*

| Year | Males | Females |
|---|---|---|
| 2002 | 11.04 | 10.18 |
| 2003 | 13.43 | 9.94 |
| 2005 | 12.58 | 10.10 |
| 2006 | 9.86 | 9.29 |
| 2007 | 9.60 | 8.64 |
| 2008 | 11.62 | 12.00 |
| 2010 | 9.91 | 8.86 |
| 2012 | 9.84 | 8.46 |
| 2013 | 10.23 | 9.82 |
| 2014 | 10.33 | 9.13 |
| 2015 | 11.28 | 9.16 |
| 2016 | 9.76 | 10.00 |
| 2017 | 11.08 | 10.17 |
| 2018 | 10.82 | 8.90 |
| 2019 | 9.12 | 9.66 |
| 2020 | 9.66 | 9.53 |
| Overall *M* | 10.63 | 9.62 |

**Table 2**
*Number of Sports Played and Highest Levels*

| | | | Highest level played | | |
|---|---|---|---|---|---|
| Gender | *n* | Avg. # sports played | College varsity | High school varsity | Other |
| Female | 556 | 2.44 | 25% | 65% | 10% [a] |
| Male | 908 | 2.46 | 24% | 60% | 16% [b] |

[a] Females: national team; professional; junior Olympics; junior varsity; club; junior varsity; U-16; U-14. [b] Males: national team; professional; semi-professional; high school junior varsity; U-16; U-14; middle school.

**Table 3**
*Rankings of Coach Characteristics by Year/Semester*

| | Coach characteristic rankings | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Year/ semester** | **Ability to teach** | **Fair & honest** | **Sportsmanship** | **Knowledge skills of the game** | **Enjoyment of players** | **Get players to higher level** | **Knowledge of rules of the game** | **Injuries: care & prevention** | **Commitment to winning** | **Experience as a player of sport coached** |
| 2002 | 2 | 1 | 3 | 5 | 4 | 7 | 6 | 9 | 9 | 10 |
| 2003/04 | 1 | 4 | 2 | 3 | 7 | 8 | 5 | 6 | 10 | 9 |
| 2005 | 1 | 2 | 4 | 3 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2006 | 1 | 2 | 3 | 5 | 4 | 7 | 6 | 8 | 10 | 9 |
| 2007 | 1 | 2 | 3 | 4 | 7 | 8 | 5 | 6 | 9 | 10 |
| 2008 | 1 | 2 | 4 | 3 | 6 | 7 | 5 | 8 | 9 | 10 |
| 2009 | 1 | 2 | 4 | 5 | 3 | 6 | 5 | 8 | 9 | 10 |
| 2010 sp | 1 | 2 | 4 | 3 | 5 | 8 | 7 | 6 | 9 | 10 |
| 2010 fall | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2011 | 1 | 3 | 2 | 4 | 5 | 7 | 6 | 8 | 9 | 10 |
| 2012 | 3 | 1 | 2 | 4 | 5 | 8 | 7 | 6 | 9 | 10 |

**Table 3 (cont.)**

| Year/ semester | Coach characteristic rankings | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Ability to teach | Fair & honest | Sportsmanship | Knowledge skills of the game | Enjoyment of players | Get players to higher level | Knowledge of rules of the game | Injuries: care & prevention | Commitment to winning | Experience as a player of sport coached |
| 2013 | 1 | 4 | 3 | 2 | 8 | 5 | 6 | 7 | 9 | 10 |
| 2014 sp | 1 | 4 | 3 | 2 | 7 | 6 | 5 | 8 | 10 | 9 |
| 2014 fall | 1 | 4 | 2 | 3 | 5 | 8 | 6 | 7 | 10 | 9 |
| 2015 sp | 4 | 1 | 2 | 6 | 3 | 8 | 7 | 5 | 10 | 9 |
| 2015 fall | 1 | 2 | 3 | 4 | 6 | 8 | 5 | 7 | 9 | 10 |
| 2016 sp | 1 | 4 | 2 | 6 | 3 | 3 | 8 | 7 | 9 | 10 |
| 2017 sp | 1 | 2 | 4 | 3 | 5 | 8 | 5 | 6 | 9 | 10 |
| 2018 sp | 4 | 1 | 3 | 5 | 2 | 8 | 6 | 4 | 10 | 9 |
| 2019 sum | 1 | 3 | 2 | 6 | 4 | 9 | 5 | 8 | 10 | 9 |
| 2020 sp | 4 | 2 | 3 | 7 | 1 | 8 | 5 | 6 | 10 | 9 |
| *M* | 1.57 | 2.38 | 2.9 | 4.14 | 4.76 | 7.09 | 5.9 | 6.95 | 9.38 | 9.61 |
| Sign diff: | Top 1/3 | Top 1/3 | Top 1/3 | Mid. 1/3 | Mid. 1/3 | Bottom 1/3 | Mid. 1/3 | Mid. 1/3 | Bottom 1/3 | Bottom 1/3 |

Because the results from the Friedman test do not identify which groups are significantly different from one another, two-samples Wilcoxon rank sum tests were used with multiple comparison post hoc tests. On the basis of the outcomes, three characteristics were ranked significantly higher, four characteristics were ranked significantly in the middle, and three characteristics were ranked significantly lower. All significant results were at $p < .001$ (Table 4).

There were no practical differences found between genders. Those comparisons were made through comparisons of mean ranks with the Wilcoxon rank sum test (Table 5). Although there were some significant differences, the actual differences between means were very small. The effect sizes for mean differences were calculated none greater than .20 or a very small effect (Cohen, 1988) were found.

## Discussion

The primary aim of this study was to determine which of 10 preselected coaching characteristics were most important to PCES enrolled in a CEC at an institute of higher education. The results of this study show the most important three coach characteristics are ability to teach, being fair and honest with players, and stressing sportsmanship. Similarly, the results from the Boardley et al. (2008) study show that coaches who have a strong ability to provide instruction, instill fair play, and promote sportsmanship positive affect numerous player variables.

Understanding which characteristics are most important to PCES has implications in coach education. Specific curriculum development and close examination of motivation and behavioral emphasis should stress the top preferred coaching characteristic, being a good teacher, while downplaying the least preferred, winning.

However, this may be an educational challenge for many reasons (Gould, 2016). This study shows that vigorous debate may ensue, especially in relationship to traditional characteristics as winning or getting players to the next level of competition. Loud minorities may forcefully argue that stressing winning and coaches' past playing experiences are more important. Likewise, teaching is often looked upon as a genetic skill that one is either born with or not. In conclusion, like coaches, coach educators should be good teachers first and content specialist second. In addition, coach education should be

**Table 4**
*Final Mean Rankings (Most Important to Least)*

| Characteristic | *M* rank |
|---|---|
| Significantly higher three characteristics | |
| 1. Ability to teach | 4.27 |
| 2. Fair & honest with players | 4.65 |
| 3. Stress sportsmanship | 4.71 |
| Significantly middle characteristics | |
| 4. Knowledge of skills of sport coached | 5.08 |
| 5. Having players enjoy their sport | 5.30 |
| 6. Knowledge of the rules of sport coached | 5.62 |
| 7. Preparing players to advance to higher level | 5.68 |
| Significantly lowest characteristics | |
| 8. Prevention, care of and rehabilitation of injuries | 5.71 |
| 9. Stressing winning | 6.83 |
| 10. Experience as player of sport coached | 7.14 |

*Note.* All significant results were at the $p < .001$ level of probability.

**Table 5**
*Preferred Rankings by Gender (F = 556; M = 908)*

| | Females (*n* = 556) | | Males (*n* = 908) | |
|---|---|---|---|---|
| Coach characteristic | Rank | *M* rank | Rank | *M* rank |
| The ability to teach | 1 | 3.8 | 1 | 4.4 |
| Stressing sportsmanship | 2 | 4.2 | 3 | 4.7 |
| Knowledge of the skills of the sport coached | 3 | 4.7 | 5 | 5.2 |
| Fair & honest treatment of athletes | 4 | 4.8 | 2 | 4.5 |
| Knowledge of the rules of the sport | 5 | 5.2 | 8 | 5.7 |
| Enjoyment by athletes | 6 | 5.5 | 4 | 4.9 |
| Prevention & care of injuries | 6 | 5.5 | 6 | 5.5 |
| Preparation of players for high levels | 8 | 6.15 | 6 | 5.5 |
| Experience as player of sport coached | 9 | 7.3 | 10 | 7.3 |
| Stress winning | 10 | 7.4 | 9 | 6.8 |

individualized in relationship to the context of the sport program, its prioritized goals, and how success is defined.

From the results, it is obvious that experienced athletes of both genders highly value coaches who can teach. Teaching is a learned skill, not a genetic trait, and it must be a higher priority and emphasized above all other coaching characteristics. In addition to good teachers, PCES value coaches who are fair and honest in all aspects of their relationships. Yet few organizations have clearly defined coaching expectations in the vague areas of moral development. Moreover, PCES want their coaches to teach, model, and stress sportsmanship. Yet sport at many levels continues to be overtly or covertly a "win-at-all-cost" endeavor (Hyman, 2010) in which many offenses are expediently overlooked.

## Limitations

As with any study, this study has limitations. One limitation was this study's use of a homogenous convenience sample for participant sampling. Convenience sampling has recognized limitations such as the ability to generalize the results to the broader population and the possibility of underrepresentation or overrepresentation of a specific population. Yet, according to Jager et al., (2017) the use homogenous convenience sample as a sampling method is important when it comes to understanding population characteristics as well as subpopulation differences. PCES represent the most likely source of future coaches; therefore, it was necessary in this study to understand their perceptions more than other subpopulations'.

The use of recall is another limitation of this study. PCES were asked to recall their past experiences with coaches and to determine which of the 10 listed coach characteristics were most important to them. While the use of recall has limitations, when coaches exhibited certain behaviors, the athletes often interpret them with long-lasting results (Smith et al., 1978). Thus, the more meaningful the behavior, the easier athletes recall them. Such is the case in this study, not only are the PCES mostly former athletes, many plan to become coaches in their near future and may be more apt at recalling coaching characteristic than others who are uninterested in coaching.

## Future Research

The findings from this study indicate that PCES find the ability to teach the most important characteristic of a coach. Thus, future coaches need to be taught "how" to teach. had suggested that coaching, like sport itself, should be categorized on the basis of the program objectives (Lyle, 2002). The profession can be separated into two distinct areas, participation and performance coaching, each unique, and it is imperative that the right coach be matched to correct level of coaching (Lyle, 2002). Yet coach education habitually exemplifies a one-size-fits-all approach that too often reflects the saying "Coach education means too little to any, until their child gets a bad one." Additional research should examine potential and current coaches' skills and objectives and how that relates to administration, parent, and athlete objectives and goals.

The complexity of coaching demands a more integrated examination of that profession (Gilbert & Côté, 2009). This may entail a multifaceted examination of a three-tiered structure. Those levels relate to coaches' knowledge, athletes' outcomes, and coaching context. Within those levels, good teaching is the overlying commonality. The expertise in teaching spans the frameworks of professional, interpersonal, and intrapersonal coaching knowledge. Teaching of rules and skills, intercommunication abilities with players, other coaches and administrative/support staff require a higher level of pedological expertise (Gilbert & Côté, 2009).

## Conclusion

According to the late, great John Wooden, a coach is first and foremost a teacher (Wooden & Walton, 1998). And at one time, many coaches in the public schools were professionally trained teachers. The aim of this study was to determine which coaching characteristics PCES found to be most important. According to the findings from this study, the top tier characteristics of a coach are related to being a teacher first. Furthermore, there are implications from the findings of this study to support the importance of and need for coach education. A pervasive myth that teaching is genetic, that teaching cannot be learned, has hindered coach education. Yet findings from this study indicate that teaching is the most valued

characteristic of a coach. Therefore, the importance of teaching and providing the opportunity for coaches to learn how to teach is vital to the practice of coaching.

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The Physical Educator Vol. 80 • pp. 593–606 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11616

OUTDOOR EDUCATION

# Can a Simple Distraction Lower Fear Levels During a Sudden Scary Outdoor Situation?

*Roger T. Couture*

## Abstract

*Adventure-based teaching can foster social and personal growth yet can scare and cause long-lasting anxiety in some group members. This study examined the effects of a simple distraction to lower stress levels during an approaching scary event. Forty-eight males (M = 20.2 years) were randomly assigned to one of four groups. The stressor involved participants walking on a 3-m tower while blindfolded and jumping off into a pool. Self-report questionnaires, digital counters, heart rate, and peripheral temperature measures were used. A two-way analysis of variance indicated no significant difference in trait and state anxiety/sensation seeking. However, a post hoc Scheffé's test found significant changes in heart rate between the experimental groups and the control groups. Though not statistically different, the study's results suggest that distractions affect heart rate, peripheral temperature, and state anxiety/sensation seeking, with raw scores rising (5% and 18%, respectively, for the latter). Future studies should consider other distraction-type strategies in which stress levels may hamper safety during group adventure activities.*

Outdoor adventure activities are an important part of many school physical education programs and summer camps. Known for their many physical, social, and emotional attributes (McCole et al.,

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2019; Shellman & Hill, 2017), students greatly benefit from outdoor experiences (e.g., canoe tripping, rock climbing, hiking, skiing). Such benefits include better academic outcomes, an easier transition to postsecondary institutions, improved mental and physical health (lower stress and anxiety levels), healthier social connections as a result of improved intra- and interpersonal skills, better environmental awareness, and understanding and respect for nature and place (Andre et al., 2017; Cooper, 2005; Gibbons et al., 2018; Stott et al., 2015).

Many organizations have prospered over the years (e.g., Outward Bound, National Outdoor Leadership School, Hébertisme, Project Adventure, Adventure Works). Adventure-based activities have become an integral part of academic planning in many secondary schools and in postsecondary institutions (e.g., Laurentian University's Outdoor Adventure Leadership program in Ontario, Canada; Outdoor Education program at Prescott College in Arizona, United States; Adventure Education at Thompson Rivers University in British Columbia, Canada).

Outdoor-based activities can have positive outcomes; however, these adventure-based experiences can also provoke unpleasant bouts of fear or anxiety (e.g., effects of a "sewing machine" leg when rock climbing, freezing when on the verge of tipping in a canoe or a kayak, fear in traversing icy slopes while skiing), possibly leading to a number of negative outcomes (Ward, 2004).

Fluctuating levels of stress are generally expected during adventure activities (Hallam et al., 2021). Most of the time, outdoor enthusiasts learn to adapt and control their feelings. However, concerns arise when some people, especially beginners, panic or "freeze" mentally (Carnicelli-Filho et al., 2010; Koole & Van den Berg, 2005; Meyer, 1979). Given the possibility of an unfortunate reaction, the outcome may lead to panic or terror resulting in an accident (Kerr & Houge Mackenzie, 2020; Robinson & Stevens, 1989).

These reactions manifest in different ways. Physiologically, some reactions include a faster heart rate and rapid breathing, greater muscle tension, and overexcitability. Psychologically, the participant may develop a blank mind or have feelings of despair with no escape (loss of inner control). Emotionally, the person may show signs of panic, faint, or behave irrationally (Wiemer et al., 2013). Fortunately,

stress management techniques can help people return to a normal state of thinking (Yusufov et al., 2019).

There are many techniques and strategies that reduce or control stress levels. Kivisto and Couture (1997) provide a comprehensive overview of available techniques, particularly related to three general coping categories (i.e., behavioral, cognitive, and psychological). Many of the techniques require weeks of pre-event training before noticeable benefits can be seen. Unfortunately, some unexpected wilderness events require a quick reaction time, sometimes in compromising situations. A fast-acting strategy is necessary for a person to address unexpected bouts of stress. One such study looked at having beginners reduce their stress levels when necessary, during a 5-day introductory course in white water kayaking (Couture, 1990). The experiment took place on the upper Red Deer River (Alberta, Canada) in late fall. The river intensity ranged from Class 1 to Class 3 in difficulty with glacial water flowing down snow-covered shores. Daily temperature ranged from -5 to +5 °C. Nine university participants were evaluated before, during, and after the course. A simple intervention (distraction) called the "Calming Down Response" or "Calming Reflex" (Everly in Allen, 1983) was taught and practiced for 2 weeks, 14 days before the white-water kayak course. The change from "response" to "reflex" infers that with 2 weeks of training, the strategy may become a "reflex" rather than a cognitive effort. This quick-thinking technique was meant to be used if or when the individual felt a bit overwhelmed (too stressed). Results showed that participants maintained their level of sensation seeking and lowered their heart rate and state anxiety levels when necessary. This current study looked at unexpected circumstances needing a quick solution without having had prior training.

Attentional thinking strategies (concentration and/or distractions) can assist in finding a quick-acting solution. Conceptually, there are associative and dissociative thinking styles for use in many situations (Morgan & Pollock, 1977). Associative thinking infers that an individual focuses on their bodily feedback and the actual event. In a sporting environment, it is subdivided into an internal and external focus (i.e., breathing, muscle tension, pain, and running pace, external indications relevant to the task). Performance outcomes give rise to greater results with more feelings of physical and mental

fatigue (Shücker et al., 2014; Tenenbaum & Connolly, 2008). Unlike associative thinking, dissociative strategies can also be considered.

Dissociative thinking strategies are intentional distractions that block out bodily feedback and external cues by focusing attention away from the situation or activity. For instance, it may involve singing a song while jogging or counting the number of blue cars while bike riding. These strategies are also divided into an internal or external focus (Couture et al., 1999). The dissociative internal focus includes exercises such as solving math equations, meditation while moving, or planning a house addition. An external focus relates to any environmental stimulus (i.e., count the number of evergreen trees while running, distinguish components of traffic noise). Both dissociative strategies have encouraging performance outcomes with generally reduced fatigue and discomfort during sporting and exercise events (Couture et al., 1998; Gabana et al., 2015; Padgett & Hill, 1989).

In nonsporting environments, distracting strategies have favorable results. For example, patients play a computer game on a ceiling during a dental procedure (Redd et al., 1987). Some intentional distraction games improve older adults' memory for face–name associations (Biss et al., 2018). Blood donors can listen to music and play cards during a transfusion (Aydin & Sahiner, 2017). In essence, distractive strategies are easy to do, require no prior training, and have positive outcomes (Brick et al., 2020). Thus, this study examines if an external distraction can have an impact on stress levels during an impending scary event.

## Method

Outdoor stressful events are not always easily controlled and fears can be compounded by external variables (e.g., rain, cold, snow, wind, sounds). In an effort to reduce these distractions, the study was done indoors. Forty-eight healthy male university volunteers completed an informed consent before the study and confirmed they were recreational swimmers with no unusual fear of height in general. Their ages ranged from 19 to 23 years old ($M$ = 20.2 years). Participants were randomly assigned to one of four groups: (a) Stressor With No Intervention (SNI), (b) Stressor With Intervention (SWI), (c) No Stressor With Intervention (NSI), and (d) a Control group (CON). The study controlled for as many natural variables as possible.

The stressor was performed in an indoor Olympic-size swimming pool (50-m length and 4.6-m depth) with a diving tower (3 m). The tower level had a 6-m long nonslip approach and was 2 metres wide. The air temperature was 75 °F (24 °C) and the water was 82 °F (28 °C). A qualified lifeguard was on site. Only one experimental group member was in the pool testing area at a time. Two work stations (three portable walls, 2 m high) were placed strategically: (a) close to the pool main entrance and (b) behind the diving tower at the 3-m level. Both stations provided no view of the pool or tower.

## Measuring Tools

Two physiological modalities (heart rate and digital temperature) were examined. Participants wore a heart rate monitor (Polar Vantage XL). The watch was calibrated to take measurements every 5 s. This telemetric system consists of a waterproof watch and chest strap. It also has good validity and reliability for measuring heart rate (Lee & Gorelick, 2011). Heart rate measurement showed a person's level of arousal. In essence, a higher heart rate depicted a more excited individual (Clemente-Suárez et al., 2017).

Digital temperature was taken with a specialized thermometer (a 5-ml stock polyester strip) wrapped around the left hand middle finger. The thermometers were light waterproof bands consisting of tiny rectangles filled with tiny amounts of thermochromic liquid crystals of differing colors (Biotic Band). The thermometer's range went from 76 °F (24.4 °C) to 96 °F (35.5 °C). A colored rectangle lit up when a temperature was reached. The accuracy was within 2 °F (about 1.1 °C). Digital temperature was used for measuring a person's arousal level as it relates to vasodilation during relaxation and vasoconstriction during a stressful event (Surwn et al., 1976).

The intervention in the study was for the participants to have one handheld digital counter (3.8 cm × 4.4 cm × 5.1 cm) in each hand. Each counter had a four-digit register (0–9999) and easily reset to 0. These were used in the measurement of performance for the two intervention groups. Participants were told that their digital counter performance was to be compared to others. In reality, the two counters were meant to mentally distract the blindfolded participant from the 3-m jump into the pool.

Three self-report questionnaires were used. The State-Trait Anxiety Inventory (STAI) measures two types of anxiety. State

anxiety identifies unpleasant feelings such as fear, nervousness, and discomfort when a person is exposed to dangerous situations. Trait anxiety relates to feelings of stress, worry, or discomfort and represents how people generally perceive typical situations. The questionnaire comprises 40 questions ("I feel secure" and "I feel worried") and it has a 4-point rating scale (Spielberger et al., 1983). It is a widely accepted measurement of anxiety because of its internal consistency coefficients and test–retest reliability coefficients (Spielberger, 1989).

Given the perceived risk of the study, the Sensation Seeking Scale (SSS-version V) was used for verification of whether this research attracted a particular type of participant. Developed by Zuckerman et al. (1978), this scale was used for identification of participants' general traits in sensation seeking according to four different subscales: (a) Thrill and Adventure Seeking (TAS), (b) Disinhibition (Dis), (c) Experience Seeking (ES), and (d) Boredom Susceptibility (BS). Each subscale contained 10 items (40 items) on a 3-point Likert-type scale. The SSS-V has satisfactory scores of reliability (*M* Cronbach's $\alpha = .85$; Zuckerman et al., 1978) and provides a perspective for the individual's level of desire to engage in the risky activities (Barlow et al., 2013). It was not anticipated that the trait portion of the STAI and the SSS-V results would show differences, because traits are generally stable attributes.

The Sensation Seeking Anxiety State Test contains 36 items on a 5-point Likert-type scale (SSAST; Zuckerman, 1977). These items consist of 15 questions about state sensation seeking, 15 questions about state anxiety, and six filler questions. The SSAST has reliability coefficients ranging from .88 to .95 (Neary, 1975).

## Procedure

One participant entered the pool area and sat at Station A with a research assistant. Three self-report questionnaires were answered. Once completed, resting heart rate and digital temperature were taken. Each experimental group member was led upstairs to Station B, where more questionnaires were completed (lasting about 5 min). A second set of physiological measurements was taken (heart rate and digital temperature).

Each SNI participant (blindfolded jumpers without intervention) was given specific instructions. The participant wore a blindfold and

was escorted to the starting point on the 3-m tower. The participant walked 5 m to a nonslip bath mat (60 cm × 1 m) at the end of the tower, where a spotter stopped him. The spotter checked the person's heart rate and peripheral digital temperature and instructed the person to jump outwardly on the count of 3. Following the jump, the participant swam to the side and returned to Station A to answer questionnaires. The person was thanked and, several minutes later, the next participant entered. The routine was slightly different for the participants with intervention.

SWI participants (blindfolded jumpers with the intervention) walked blindfolded to the starting point on the 3-m tower and held a hand tally counter in each hand. The participant was encouraged to have the highest scores in the group for each hand. Once the signal was given, the participant walked 5 m at a regular pace to the bathmat while clicking as fast as possible on both hand counters. The hand counters were given to the spotter while heart rate and digital temperature were noted. On the count of 3, the person jumped. Unlike the two jumping groups, the third group did not jump and did perform the intervention (digital counters).

NSI participants (nonjumpers with the intervention) walked on the 3-m tower to the starting point with no blindfold. With a handheld counter in each hand and the signal given, the participant walked to the bathmat while clicking as fast as possible on the hand counters. Both hand counters were given to the spotter while heart rate and digital temperature were noted. Once completed, the participant returned down the stairs to Station A. With the exception of the control group, self-report questionnaires were collected at Station A, at Station B, and at the end (return to Station A). Heart rate and digital temperature were collected at Station A, at Station B, and prior to the jump.

## Results

Physiological and psychological tools were used for study of the effects of a quick distracting technique during a perceived stressful event. Initially, it was confirmed the jump was stressful via comparison of the heart rate levels between the No Jump groups and the Jump groups at pre-jump. A two-way analysis of variance showed a Wilks's lambda of 0.35 with $F(3, 20) = 12.27$ and a high probability ($p = 0.00009$). Heart rate levels were then compared between the

experimental groups at three times (at rest, 5 min, and 5 s prior to the jump; Table 1). A significant time effect was found, $F(2, 66) = 69.92$, $p = 0.001$. For the between-group heart rate differences, a Tukey HSD post hoc test showed a significant time effect from baseline to pre-jump between the jumpers and the non-jumpers, $F(4, 66) = 10.736$, $p = 0.000$. The jump groups at baseline, 5 min (Station B), and 5 s before the jump showed no significant interaction effects..

**Table 1**
*Experimental Groups' Mean Heart Rate by Time*

| | | Heart rate | |
|---|---|---|---|
| **Group** | **Rest** | **5 min** | **5 s** |
| SNI | 96 | 115 | 129 |
| SWI | 89 | 111 | 135 |
| NSI | 83 | 89 | 93 |

*Note.* SNI = Stressor With No Intervention; SWI = Stressor With Intervention (SWI); NSI = No Stressor With Intervention.

Raw scores for the peripheral digital temperatures showed differences between experimental groups. From base temperature (at rest) to 5 s before the jump, NSI (83 °F to 89 °F; 28.3 °C to 31.7 °C) had the warmest range compared to SNI (80 °F to 86 °F; 26.7 °C to 30 °C) and SWI (77 °F to 82 °F; 5 °C to 27.7 °C). The two-way analysis of variance showed a group effect, $F(2, 33) = 3.79$, $p = 0.03$, but there was no interaction effect between groups.

Digital counter scores obtained by the SWI (42, right; 35, left) were higher than that of the NSI (29, right; 26, left) for both hands. Though SWI scores were much higher than NSI scores, the difference was not statistically significant between and within groups (both hands). For the self-report questionnaires for trait and state anxiety/sensation seeking, results showed no significant differences between groups for group and interaction effects.

## Discussion

This study examined the effects of a quick distraction on a person's physical and mental reactions when they face a stressful situation. Heart rate scores reveal an obvious level of arousal as a result of the jump. A comparison of the heart rates 5 s before both

groups jumped (SWI and SNI) show no statistical changes. Larger group samples may show stronger effects. Likewise, other evaluation modalities may be more effective, for instance, pre-event measures of urinary catecholamines and cortisol concentrations in saliva (Osika et al., 2007) and hormonal measurements such as blood samples for total catecholamines, noradrenaline, adrenaline, dopamine, lactate, cortisol, and serotonin (Baláš et al., 2017).

The results reveal, as expected during a stressor, generally lower digital temperatures in the jumpers than the non-jumpers. Peripheral digital temperature have a significant group effect, but there is no interaction effect as a result of the distraction. A possible confounding variable is the pool environment with each participant in the warm pool area for 20 to 25 min. Though raw scores in digital temperature show promise, there is no statistical difference. With more accurate instruments (noninvasive), a significance level may be reached. Some research systems use sophisticated telemetric thermometers (Yamakoshi et al., 2013).

The results reveal no changes in trait anxiety and trait sensation seeking, as expected, because of the short-lasting event. Traits normally refer to relatively stable aspects of personality, genetics, and environmental factors (Ashton et al., 2017; Koestner et al., 1994). The results also show generally stable state sensation seeking, as expected. Unexpectedly, the results do not show a marked change in state anxiety despite increases in heart rate and lower digital temperature. However, these scores are not significant, unlike those in Aydin and Sahiner (2017) and Couture (1990). In future studies of this type, a more visual self-report tool, such as the Children's Fear Scale (CFS) might be a better tool for evaluating participants' levels of anxiety on the verge of jumping (McMurtry et al., 2011). The scale functions on showing five cartoon faces ranging from a neutral expression (0 = *no anxiety*) to a frightened face (4 = *severe anxiety*).

As an intervention, properly used digital counters detract attention away from the stressful task ahead. However, such an intervention may increase heart rate 5 s before the jump. For this reason, the results show no effect of the intervention between SWI and SNI experimental groups. In retrospect, digital counters may become a confounding variable. Though taking attention away from the jump, digital counters require additional physical exertion and may cause

performance stress. Future considerations should include nonphysical interventions such as reading out loud, reverse counting from 100 by sevens, and/or listing as many animals or peoples' names as possible.

In summary, this quick distraction technique caused no significant changes in state anxiety/sensation seeking, even with a rise in initial scores (5% and 18%, respectively) and a change in heart rate. Though the attempted distraction wasn't suitable, outdoor teachers and leaders should consider preparing students with several quick anxiety-reducing strategies in the event that a scary situation might occur (Roberts, 2018). School curriculums should incorporate a good mental first aid kit comprised of tips and tricks for overcoming unexpected scary situations.

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The Physical Educator Vol. 80 • pp. 607–630 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11447

PEDAGOGY

# Changes in Physical Education Teachers' Beliefs Regarding Motivational Strategies: A Quasi-Experimental Study

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## Abstract

*Physical education teachers use motivational strategies that can (positively or negatively) affect their students' level of motivation and engagement. Indeed, according to their experiences and beliefs, some teachers may focus on strategies that thwart, rather than support, students' psychological needs (autonomy, competence, and relatedness). Effective professional development represents an excellent opportunity to help teachers use research-supported motivational strategies. Therefore, this study aimed to discover if attendance at a 2-day training course could positively affect PE teachers' beliefs regarding empowering motivational strategies. Specifically, 11 PE teachers (experimental group = 6 [attending the training]; control group = 5 [no training]) from primary school (n = 6) and secondary school (n = 5) expressed their beliefs (effectiveness, feasibility, and normality) regarding 31 empowering motivational strategies proposed during training at the beginning (October) and the end (April) of the school year. Results*

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*of the Wilcoxon signed-rank test for related samples indi cated no significant differences for the belief regarding effectiveness in either group. However, some positive significant changes ($p \leq .05$) occurred in the experimental group for two motivational strategies supporting students' need for autonomy and one supporting their need for competence. Given the small sample, positive trends ($p \leq .10$) are also considered results of interest. In conclusion, the training appears likely to impact teachers' beliefs. However, future professional development should provide additional feedback and follow-up time with teachers during experimentation with students to allow teachers to refine their understanding and use of the motivational strategies proposed.*

Regular practice of physical activity is essential for children's development. In addition to improving their physical condition and self-confidence, it can help reduce symptoms of depression and anxiety (Biddle et al., 2019). These beneficial effects are all the more important during the COVID-19 pandemic, when sedentary behaviors have increased and physical activity has decreased, resulting in potentially significant damage to the psychological and physical health of children and adolescents (Dunton et al., 2020). Although schools are already considered important for promoting physical activity (Alvarez-Bueno et al., 2017), Shahidi et al. (2020) emphasizes their importance when it comes to finding more ways to increase opportunities for physical activity following the pandemic. However, students, more specifically teenagers, are not highly motivated to participate in physical education (PE; Mercier et al., 2017). Even if several factors may impact students' reduced motivation toward PE and physical activity in general as they get older (jobs, loss of enjoyment, or discovery of new interests; Comité scientifique de Kino-Québec, 2012), the motivational climate their PE teachers establish affects their motivation as well (Sarrazin et al., 2006). Indeed, despite the importance of PE classes relative to students' adoption of an active lifestyle (Alvarez-Bueno et al., 2017; Girard et al., 2019; Martins et al., 2015; Rachele et al., 2016), PE teachers also use motivational strategies that can positively or negatively affect their students' level of engagement (Rocamora et al., 2019; Van den Berghe et al., 2016).

In 2013, Duda combined two well-known motivational theories to refine the conceptualization of an empowering, or disempowering, motivational climate: self-determination theory (SDT; Deci & Ryan, 2000) and achievement goal theory (AGT; Ames & Archer, 1988). According to the SDT framework (Deci & Ryan, 2000), individuals tend to engage in tasks or activities that support their basic psychological needs (autonomy, competence, and relatedness). To support the need for autonomy, they need to assign meaning to a task and commit to it of their own will. To support the need for competence, they need to learn in a structured environment that provides effective learning opportunities and increases their confidence in their chances of success. To support the need for relatedness, they must feel psychologically and physically safe among others so as to develop positive, profound, and meaningful relationships.

According to AGT, individuals tend to adopt achievement goals that match their perception of the motivational climate (Harwood et al., 2015). Perception of a mastery climate encourages the adoption of mastery goals, and perception of a performance climate encourages the adoption of performance-approach and performance-avoidance goals (Blais et al., 2020). When pursuing mastery goals, individuals engage in a task while seeking to progress and improve on the basis of their own ability. When pursuing performance goals, they evaluate their competence by comparing themselves to others. If they feel they compare well with their classmates, they may engage in a task while looking to outperform others (performance-approach goals). If they view themselves as less competent than their peers, however, they may adopt avoidance strategies to protect their self-esteem, an approach that discourages motivation and engagement (Elliot & Church, 1997).

By merging the AGT and STD conceptualizations of motivational climate, Duda (2013) suggests that teachers help support students' needs for autonomy, competence, (structure-SDT and mastery-AGT) and relatedness by creating an empowering motivational climate. Table 1 provides a list of effective strategies for supporting students' motivation in PE (adapted from Girard et al., 2021).

**Table 1**
*Strategies to Create an Empowering Motivational Climate*

| Need | Strategies |
|---|---|
| Autonomy support | 1. Acknowledge students' interests, feelings, and perspective.<br>2. Provide rationale for requests and constraints.<br>3. Explain tasks' and exercises' importance, utility, and significance.<br>4. Provide meaningful choices.<br>5. Give students the opportunity to practice independently and solve problems on their own, without interfering.<br>6. Encourage initiative-taking.<br>7. Provide opportunities to involve students in the course review. |
| Competence support (structure) | 1. Give an overview of the content and structure of the lesson.<br>2. Give clear (verbal) instructions.<br>3. Offer expectations for learning.<br>4. Verify students' follow-up on (verbal) instructions.<br>5. Offer help and give tips and advice during activities. |
| Competence support (mastery) | 1. Demonstrate task and/or use students as positive "role models."<br>2. Provide tasks adapted to the multiple abilities of the students.<br>3. Provide variation between or within exercises.<br>4. Emphasize task-focused positive competence feedback.<br>5. Emphasize/recognize effort and/or improvement.<br>6. Use cooperative learning.<br>7. Apply differentiation.<br>8. Emphasize effort and engagement in the learning process rather than student performance. |

**Table 1 (cont.)**

| Need | Strategies |
|---|---|
| Relatedness support | 1. Ensure all students are included and respected in the group.<br>2. Express enthusiasm and passion.<br>3. Put effort and energy into facilitating and conducting the lesson.<br>4. Adopt a warm communication style.<br>5. Engage in noninstructional conversation with students.<br>6. Pay attention to what students are saying.<br>7. Show care and concern for students.<br>8. Address pupils by their first name when the opportunity occurs.<br>9. Be empathic.<br>10. Be physically and psychologically close to students.<br>11. Show unconditional regard towards all students. |

Despite empirical evidence supporting the implementation of empowering motivational strategies (Blais et al., 2020; De Meester et al., 2020; Haerens, Krijgsman, et al., 2018; Haerens, Vansteenkiste, et al., 2018; Van den Berghe et al., 2016; Girard & Lemoyne, 2018), not all PE teachers are inclined to use them. The fact is, in keeping with their experiences and beliefs (Pajares, 1992; Reeve et al., 2014), some teachers may focus on strategies that thwart needs instead of support them. For example, although extrinsic rewards or controlling strategies may thwart the need for autonomy (Murayama et al., 2017), many teachers favor these practices because they believe students are motivated by them, which is not quite the case (Reeve, 2009). Furthermore, in PE, the use of competition to support students' motivation is a popular practice (Bernstein et al., 2013). By emphasising superior ability, however, teachers risk thwarting some students' need for competence (Reeve, 2009), thereby discouraging their motivation. Finally, a cold or distant manner or limited opportunities for interactions can thwart the need for relatedness (Skinner & Belmont, 1993). Indeed, teachers may underestimate the importance of their relationship with their students.

Given that individuals tend to adopt strategies they believe to be effective, easy to implement, and favored by colleagues (Reeve & Cheon, 2016), addressing teachers' beliefs about how to motivate students represents an essential step in convincing them to adopt effective motivational strategies. Indeed, according to Ajzen (1991), individuals tend to adopt behaviors they feel will have a positive outcome, are easy to implement, and fit within their environment's social norms. Toward this end, ongoing professional development looks to be an excellent opportunity to reach teachers (Aelterman et al., 2013; Girard et al., 2021) and encourage them to implement changes in practice. In fact, international studies reveal that teachers' professional development is a superior way to help teachers improve the quality of their teaching practices (Richard, 2020). Encouraging participation in professional development recognizes the key role of the teacher effect in the quality of students' learning (Richard, 2020) and in their success (Hattie, 2009, 2012). Put differently, investing time and energy on teachers' professional development allows for longer term improvement of the education system and contributes, at the same time, to students' academic success (Desimone 2009; Dornstauder & Chorney, 2019).

In this study, professional development formed part of the teachers' ongoing education and enabled them to develop two specific professional competencies: "to engage in ongoing professional development and in the life of the profession" and "to support the enjoyment of learning" (Ministère de l'Éducation, 2020). Darling-Hammond et al. (2017) maintain that, to be effective, professional development must be content focused, incorporate active learning, encourage collaboration, use models and modeling of effective practice, provide coaching and expert support, offer opportunities for feedback and reflection, and be of sustained duration.

In line with the above, this study aimed to discover if attendance at a 2-day training course could positively affect PE teachers' beliefs relative to empowering motivational strategies. We hypothesized that subsequent to the course, PE teachers would hold more positive beliefs (effectiveness, feasibility, and normality) about empowering motivational strategies than PE teachers who did not participate, as was the case in studies on the same subject (Aelterman et al., 2014; Reeve et al., 2014).

## Method

After ethical approval from the university, all PE teachers (41 primary and 7 secondary school) from a service center in Montreal (Canada) received an invitation to participate in a 2-day training course (over 3 days) offered by the educational consultant and the study's principal investigator, Stéphanie Girard. Among them, seven primary school teachers and five secondary school teachers expressed their interest in taking part in the project. Some, however, were interested only if they could be in the control group, without attendance at training. In addition, one primary teacher (in the control group) went on sick leave prior to the first measurement time and was excluded from the study. Hence, the sampling was mixed and nonprobabilistic (Fortin & Gagnon, 2016), which explains the study's quasi-experimental design. In the end, the experimental group consisted of six teachers ($M_{age}$ = 36.77 [*SD* = 11.22]; age range: 27–52; experience in teaching: 2–19 years; seniority in their school: 0–16 years) and the control group consisted of five teachers ($M_{age}$ = 41.37 [*SD* = 6.61]; age range: 33–50; experience in teaching: 9–24 years; seniority in their school: 3–24 years).

Training took place over 3 days: one day in November 2018, a half day in December 2018, and another half-day in March 2019. The purpose was to familiarize participants with the strategies supporting students' motivation in PE. More specifically, the objective was to lead them to understand what supports students' motivation in PE class, question their own theory-based practices, and experiment some motivational strategies with their students (for more details about the development of the training, see Girard et al., 2021). As Table 2 shows, we used various training modalities that respected the seven characteristics Darling-Hammond et al. (2017) outlined for effective professional development.

PE teachers from both groups (experimental and control) completed the same questionnaire at two measurement points: once prior to the first day of training in October 2018 and once after conclusion of training in April 2019.

**Table 2**
*Adherence to Recommendations for Effective Professional Development*

| Characteristics of effective professional development | Examples of application during training |
|---|---|
| 1. Content focus | Provision of theoretical foundations and empirical evidence; theory presentation with practical examples |
| 2. Active learning | Video analysis; identification of a group to experiment with; identifying signs of student engagement; time to plan experimentation; experimentation anchored in teachers' daily practice |
| 3. Collaboration | Provide interaction and collaboration opportunities between participants, mixing primary and secondary school teachers; exchanges and discussions, teamwork |
| 4. Provision of models | Delivered in a need-supportive way (practice what you preach!; see Aelterman et al., 2016) |
| 5. Coaching and expert support | Educational consultant and professors; using multiple resources such as a grid to analyze their use of empowering motivational strategies and an instructional communication tool |
| 6. Feedback and reflection | Individual and collective; observation during a class and individual feedback |
| 7. Sustained duration | Two days spread over 3 days during an entire school year (October 2018, December 2018, and March 2019), with one observation with feedback from the educational consultant or professors |

## Teachers' Beliefs

The items used in measurement of PE teachers' beliefs regarding the 31 motivational strategies in Table 1 were inspired by those used in studies on the subject (Aelterman et al., 2014; Aelterman et al.,

2016; Reeve et al., 2014). Because of the nature of the scale (one judgment per observation), measures of internal consistency cannot be provided, as was the case in these studies. Specifically, for measurement of the effectiveness of the 31 motivational strategies, teachers were asked, "On a scale from 1 (*totally disagree*) to 5 (*totally agree*), how effective do you find this strategy?" for measurement of their beliefs regarding the feasibility of each strategy, they were asked, "On a scale from 1 (*totally impossible*) to 5 (*totally possible*), how feasible do you find this strategy?" For measurement of the normal belief regarding motivational strategies, they were asked, "On a scale from 1 (*not at all representative*) to 5 (*very representative*), to what extent does this strategy represent the norm in your school/department?"

We used the Wilcoxon signed-rank test for related samples (Howell, 2008; Siegel & Castellan, 1988) to search for differences between each of the measurement times (T1 and T2) for each group (experimental and control).

## Results

In the interest of brevity, only significant results ($p < .05$) or results trending toward significance ($p < .10$) are presented in Tables 3 to 5. The strategy numbers presented in Tables 3, 4, and 5 refer to those in Table 1. Specifically, Table 3 displays changes in teachers' beliefs regarding motivational strategies to support the need for autonomy between the beginning and the end of the school year. Table A1 in the Appendix gives descriptive statistics for these strategies.

As Table 3 shows, teachers' beliefs about the feasibility and normality of "acknowledging students' interests, feelings, and perspective" showed significant positive change only in the experimental group. We observed the same positive trend ($p < .10$) for their beliefs about the feasibility and normality of "explaining the importance, utility, and significance of tasks and exercises" and the normality of "offering opportunities to involve students in the course review." As for teachers in the control group, we observed a negative trend for their beliefs regarding the feasibility and normality of "offering students the opportunity to practice independently and solve problems on their own, without interference." In other words, teachers' beliefs were less favorable regarding this strategy near the end of the school year, which was not the case for those who took part in the training.

**Table 3**

*Changes in Teachers' Beliefs Regarding Motivational Strategies Supporting the Need for Autonomy*

| Motivational strategies supporting the need for autonomy | EG<br>*Z* | CG<br>*Z* |
|---|---|---|
| 1. Acknowledge students' interests, feelings, and perspective. | | |
| Feasibility | T2 > T1; -2.121, $p = .034$ | -1.000, $p = .317$ |
| Normality | T2 > T1; -2.121, $p = .034$ | -1.342, $p = .180$ |
| 3. Explain tasks and exercises' importance, utility, and significance. | | |
| Feasibility | T2 > T1; -1.732, $p = .083$ | -1.414, $p = .157$ |
| Normality | T2 > T1; -1.633, $p = .102$ | -1.414, $p = .157$ |
| 5. Give students the opportunity to practice independently and solve problems on their own, without interfering. | | |
| Feasibility | -1.414, $p = .157$ | T2 < T1; -1.633, $p = .102$ |
| Normality | -1.000, $p = .317$ | T2 < T1; -1.732, $p = .083$ |
| 7. Provide opportunities to involve students in the course review. | | |
| Feasibility | T2 > T1 ; -1.890, $p = .059$ | -.552, $p = .581$ |

*Note.* EG = experimental group; CG = control group; T1 = first measurement time in October 2018; T2 = second measurement time in April 2019.

**Table 4**

*Changes in Teachers' Beliefs Regarding Motivational Strategies Supporting the Need for Competence (Structure and Mastery)*

| Motivational strategies supporting the need for competence | EG<br>*Z* | CG<br>*Z* |
|---|---|---|
| Structure (SDT) | | |
| 2. Give clear (verbal) instructions. | | |
| Feasibility | T2 > T1; -1.732, $p = .083$ | -1.000, $p = .317$ |
| 4. Verify students' follow up on (verbal) instructions. | | |
| Normality | T2 > T1; -2.060, $p = .039$ | -1.000, $p = .317$ |
| 5. Offer help and give tips and advice during activities. | | |
| Feasibility | T2 > T1; -1.633, $p = .102$ | T2 < T1; -1.633, $p = .102$ |
| Mastery (AGT) | | |
| 1. Demonstrate task and/or use students as positive "role models." | | |
| Normality | -1.000, $p = .317$ | T2 < T1; -1.732, $p = .083$ |
| 5. Emphasize/recognize effort and/or improvement. | | |
| Normality | T2 > T1; -1.656, $p = .098$ | -.577, $p = .564$ |
| 6. Use cooperative learning. | | |
| Feasibility | T2 > T1; -1.633, $p = .102$ | -1.000, $p = .317$ |
| Normality | T2 > T1; -1.633, $p = .102$ | -1.000, $p = .317$ |

*Note.* EG = experimental group; CG = control group; T1 = first measurement time in October 2018; T2 = second measurement time in April 2019.

Table 4 presents changes in teachers' beliefs regarding motivational strategies to support the need for competence between the beginning and end of the school year on the basis of structure (SDT) and mastery (AGT). Table A2 in the Appendix lists descriptive statistics for these strategies.

As Table 4 shows, teachers' beliefs about the normality of "verifying students' follow-up on (verbal) instructions" displayed a significant positive change in the experimental group only. We observed the same positive trend ($p < .10$) in the experimental group for teachers' beliefs regarding the feasibility of "giving clear (verbal) instructions," the normality of "emphasizing/recognizing effort and/or improvement," and the feasibility and normality of "using cooperative learning." As for teachers' beliefs about "offering help and giving tips and advice during activities," we observed a positive trend in the experimental group, whereas this trend was negative between the two measurement points for the control group. In other words, the beliefs of teachers in the experimental group tended to be more favorable toward the feasibility of this strategy after the training course, whereas those of teachers in the control group tended to be less favorable at the second measurement time. We also observed a negative trend in the control group regarding PE teachers' beliefs about the normality of "demonstrating the task on their own and/or using students as positive "role models," which was not the case for teachers in the experimental group.

Table 5 presents changes in teachers' beliefs about motivational strategies to support the need for relatedness between the beginning and the end of the school year. Table A3 in the Appendix presents descriptive statistics for these strategies.

As Table 5 indicates, there were no significant changes in teachers' beliefs regarding motivational strategies supporting students' relatedness. However, the belief about the normality of "adopting a warm communication style" displayed a positive trend in the experimental group, whereas the normality of "engaging in non-instructional conversation with students" displayed a positive trend in the control group.

**Table 5**

*Changes in Teachers' Beliefs Regarding Motivational Strategies Supporting the Need for Relatedness*

| Motivational strategies supporting the need for relatedness | EG<br>*Z* | CG<br>*Z* |
|---|---|---|
| 4. Adopt a warm communication style. | | |
| Normality | T2 > T1; -1.841, $p = .066$ | -1.414, $p = .157$ |
| 5. Engages in non-instructional conversation with students. | | |
| Normality | -.557, $p = .577$ | T2 > T1; -1.732, $p = .083$ |

*Note.* EG = experimental group; CG = control group; T1 = first measurement time in October 2018; T2 = second measurement time in April 2019.

## Discussion

Teachers' beliefs regarding the adoption of strategies likely to support students' needs fulfillment and self-determination in PE play a crucial role (Bureau et al., 2021; Reeve et al., 2014) in supporting student needs. This investigation's results of PE teacher attendance at a 2-day training course spread over 3 days during a school year and its effect on their beliefs in terms of empowering motivational strategies support our hypothesis only in part: The results show no changes in teachers' belief about the effectiveness of motivational strategies in the experimental and control groups. However, the results reveal some positive changes in their beliefs about the feasibility and normality of some motivational strategies in the experimental group. Interestingly, it is mainly beliefs related to supporting competence (5 of 13) and autonomy (3 of 7) needs that evolve favorably, since the results of a recent meta-analysis show that satisfaction of the need for competence followed by satisfaction of the need for autonomy are the most positive predictors of students' self-determined motivation (Bureau et al., 2021).

The absence of changes in belief about the effectiveness of the motivational strategies during training is quite surprising given our expectation that participation in the training course would "convince" teachers of their effectiveness, as in the case in of studies on autonomy support and structure (Aelterman et al., 2014; Aelterman et al., 2016). However, a profound change in beliefs requires frequent and long-term support (Desimone, 2009). Although the scientific literature has not yet identified an ideal duration, antecedent research has shown support for a professional development spread over a semester at least and including 20 hr or more of contact time (Desimone, 2009). The fact our study contains only one experiment with feedback from the educational consultant may explain the absence of change for this type of belief. In addition, teachers may not have had the opportunity to observe the direct impact of motivational strategies on students' motivation and engagement during PE classes. It may be that teachers require a more frequent and closer monitoring of their practice to consider a strategy effective. Indeed, if teachers are to feel their efforts genuinely affect students' motivation, they must know not only what strategy to use but also how to use it (in what context) and how to react when the desired results are

not achieved. As well, it is possible that a strategy that supports one need may thwart another at the same time, giving the impression it is ineffective. As an example, offering students too many choices (support for autonomy) may leave them without a concrete understanding of teachers' expectations, which may in turn impede their need for competence (structure). In that situation, teachers might conclude that the strategy is ineffective, whereas it may be effective if used differently (e.g., offer limited choices about the order, pace, and difficulty of tasks).

In addition, certain types of changes are easier to elicit (Desimone & Garet, 2015), meaning that during professional development it may be easier to change teachers' procedures than their underlying representations. In this sense, training appears effective for changing teachers' beliefs about the feasibility of strategies in terms of their practical application. In other words, even though the training course did not convince teachers of the effectiveness of empowering motivational strategies, it made them realize they could implement these strategies during their PE lesson, a gain in itself. Indeed, watching and analyzing videos of PE teachers applying these strategies in real life with real students in different types of classes (e.g., ordinary or special education, individual and collective sports) definitely helps convince teachers these strategies can be easily implemented in day-to-day practice. This is because teachers find it easier to alter specific behaviors or routines that do not call for new knowledge (Desimone & Garet, 2015) given they must ascertain a strategy's effect. For example, even if a teacher recognizes the feasibility of acknowledging students' interests, feelings, and perspective, failure to do so or to justify why it cannot be done (i.e., provide a rationale) may make a strategy seem ineffective. This reasoning may explain why teachers find that, although this strategy is easier to implement, it is no more effective than before training. However trial and error and close monitoring may be necessary for teachers to recognize the effectiveness of the strategy on students' motivation.

At first, it may appear surprising that teachers' belief in the normality of some motivational strategies is positive given this belief represents their perception of the surrounding norm. Nevertheless, participation in training may make teachers aware of the existence of these practices and their use by colleagues. Indeed, it may be the first time they realize the effect of such strategies on students' motivation.

Finally, training may focus more on the possible implementation of strategies (feasibility and normality) than on their anticipated effect on PE students (effectiveness). Although the training focuses secondarily on the signs of engagement and disengagement with a discussion on the second day of training and the strategies being chosen on the basis of needs of targeted students, the majority of the course content addresses the application of these strategies, with particular attention given to analysis of videos of their implementation by teachers in real physical education settings.

In interpretation of these results, there are certain limitations for consideration. First, despite the presence of a control group, the voluntary, rather than randomized, basis of teachers joining each group may have biased the results. There are differences, however, between the two groups, suggesting the training may be responsible for the trends observed. As well, the sample is quite small, and it is possible that results from a larger sample may reach statistical significance. Finally, use of a single-item questionnaire does not allow for internal consistency measures. Nevertheless, we feel justified in treating each strategy as an item instead of providing a score for all one-dimensional strategies relative to motivational climate to gain better insight into teachers' beliefs regarding each one.

It would be interesting for a study to evaluate the impact of this training on more PE teachers to see if these results can be replicated in a larger sample. Additionally, interviewing teachers before and after the course regarding their beliefs may supply information to refine our understanding of the results. It would be particularly relevant to understand normality and its definition regarding creating an empowering motivational climate in the various contexts in which PE teachers evolve.

## Conclusion

Despite only a few significant differences, results demonstrate a favorable trend regarding the beliefs of teachers in the experimental group or point to a buffer effect, at least, on the negative trend sometimes observed in the control group. Accordingly, professional development appears to be the appropriate avenue for helping teachers internalize this promising teaching approach (Reeve et al., 2014).

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**Table A1**

*Descriptive Statistics for Strategies Supporting the Need for Autonomy*

| Motivational strategies supporting the need for autonomy | EG | | | | CG | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | |
| | *M* (*SD*) | Min-max | *M* (*SD*) | Min-max | *M* (*SD*) | Min-max | *M* (*SD*) | Min-max |
| 1. Acknowledge students' interests, feelings and perspective. | | | | | | | | |
| Feasibility | 3.17 (.75) | 2-4 | 4.17 (.75) | 3-5 | 4.00 (.71) | 3-5 | 4.20 (.45) | 4-5 |
| Normality | 2.50 (.55) | 2-3 | 3.50 (1.05) | 2-5 | 3.80 (.84) | 3-5 | 4.40 (.55) | 4-5 |
| 3. Explain tasks' and exercises' importance, utility, and significance. | | | | | | | | |
| Feasibility | 4.17 (.98) | 3-5 | 4.67 (.52) | 4-5 | 4.40 (.55) | 4-5 | 4.00 (.71) | 3-5 |
| Normality | 3.17 (1.17) | 1-4 | 4.00 (.89) | 3-5 | 4.00 (1.00) | 3-5 | 4.40 (.55) | 4-5 |
| 5. Give students the opportunity to practice independently and solve problems on their own, without interfering. | | | | | | | | |
| Feasibility | 4.33 (.52) | 4-5 | 4.00 (.63) | 3-5 | 4.40 (.55) | 4-5 | 3.60 (.55) | 3-4 |
| Normality | 3.50 (.84) | 2-4 | 3.83 (.75) | 3-5 | 4.40 (.55) | 4-5 | 3.80 (.45) | 3-4 |
| 7. Provide opportunities to involve students in the course review. | | | | | | | | |
| Feasibility | 3.33 (.52) | 3-4 | 4.17 (.98) | 3-5 | 3.75 (1.50) | 2-5 | 3.20 (1.10) | 2-5 |

**Table A2**

*Descriptive Statistics for Strategies Supporting the Need for Competence*

| | EG | | | | CG | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | |
| **Motivational strategies supporting the need for competence** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** |
| **Structure (SDT)** | | | | | | | | |
| 2. Give clear (verbal) instructions. | | | | | | | | |
| Feasibility | 4.50 (.55) | 4-5 | 5.00 (.00) | 5-5 | 5.00 (.00) | 5-5 | 4.90 (.45) | 4-5 |
| 4. Verify students' follow-up on (verbal) instructions. | | | | | | | | |
| Normality | 3.00 (.89) | 2-4 | 4.33 (.82) | 3-5 | 4.40 (.89) | 3-5 | 4.60 (.55) | 4-5 |
| 5. Offer help and give tips and advice during activities. | | | | | | | | |
| Feasibility | (.75) | 3-5 | 4.83 (.41) | 4-5 | 5.00 (.00) | 5-5 | 4.20 (.84) | 3-5 |
| Mastery (AGT) | | | | | | | | |
| 1. Demonstrate task and/or use students as positive "role models." | | | | | | | | |
| Normality | 4.33 (.82) | 3-5 | 4.17 (1.17) | 2-5 | 4.80 (.45) | 4-5 | 4.20 (.84) | 3-5 |
| 5. Emphasize/recognize effort and/or improvement. | | | | | | | | |
| Normality | 3.50 (.84) | 3-5 | 4.50 (.84) | 3-5 | 4.60 (.55) | 4-5 | 4.40 (.55) | 4-5 |
| 6. Use cooperative learning. | | | | | | | | |
| Feasibility | 3.50 (.84) | 3-5 | 4.17 (.75) | 3-5 | 4.00 (.71) | 3-5 | 3.80 (.84) | 3-5 |
| Normality | 3.33 (1.03) | 2-5 | 4.00 (.89) | 3-5 | 3.80 (.84) | 3-5 | 3.60 (.89) | 3-5 |

**Table A3**

*Descriptive Statistics for Strategies Supporting the Need for Relatedness*

| | EG | | | | CG | | | |
|---|---|---|---|---|---|---|---|---|
| | T1 | | T2 | | T1 | | T2 | |
| **Motivational strategies supporting the need for relatedness** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** | ***M* (*SD*)** | **Min-max** |
| 4. Adopt a warm communication style. | | | | | | | | |
| Normality | 3.33 (1.03) | 2-4 | 4.50 (.55) | 4-5 | 4.40 (.89) | 3-5 | 4.80 (.45) | 4-5 |
| 5. Engage in non-instructional conversations with students. | | | | | | | | |
| Normality | 3.67 (1.03) | 2-5 | 4.00 (.63) | 3-5 | 4.00 (1.00) | 3-5 | 4.60 (.55) | 4-5 |

The Physical Educator Vol. 80 • pp. 631–656 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11443

PEDAGOGY

# Healthy Eating at School: Pedagogical Proposal for the Sixth Year of Primary School

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## Abstract

*This manuscript describes a pedagogical proposal for the adherence to healthy eating in sixth-grade schoolchildren. The reason for the design lies in the high prevalence of overweight and obesity together with a growing current sedentary lifestyle, aspects that constitute a serious public health problem worldwide with an upward trend and pandemic character. Therefore, we carried out six sessions in which schoolchildren participated in different activities for the knowledge of a varied and balanced Mediterranean diet, as well as for its reflection and practice outside the educational center that allows a greater didactic transposition between the school and the educational center. We are born with a body and it has to last us in good condition for the rest of our lives. For this reason, physical activity practiced regularly and in the appropriate way, together with dietary control, is the best tool available today for the promotion of health and quality of life of schoolchildren. In this sense, acquiring such habits from a young age is not of little importance: It is of absolute importance (Aristotle 384–322 BC).*

## Theoretical Foundation

Currently, the high prevalence of overweight and obesity together with a growing sedentary lifestyle constitutes a serious public health problem worldwide with an increasing trend and pandemic

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character (Aranceta-Bartrina et al., 2020; Carrillo-López & Pérez-Soto, 2021).

Therefore, physical education (PE) is a transcendental area for the acquisition of healthy lifestyle habits in the first years of schooling, when the learning and assimilation capacity is greater in schoolchildren in these age stages (Rosa-Guillamón et al., 2018). For the acquisition of healthy lifestyle habits, it is necessary for a person to achieve an adequate motor development, which is the adaptation of the human being that determines the mastery of themself and their immediate environment.

To respond to these situations, the teacher needs to take an adequate approach to PE (Baena-Extremera & Ruiz-Montero, 2010) with an objective oriented to the development of the motor competence of the students. Motor competence includes the integration of knowledge, procedures, attitudes, and emotions linked to motor behavior. Such an approach allows the teacher to effectively resolve the multiple interactions the individual performs with their environment and with others in various contexts of everyday life (Decree 89/2014, 2014).

This learning situation is protected by the legal framework of the supreme norm, the Spanish Constitution, where article 43.3 recognizes the right to health protection, entrusting the public authorities to guarantee it through preventive measures, benefits, and necessary services. These aspects are reflected in the Organic Law 3/2020, where it urges schools to adopt policies that support a healthy diet. Specifically, it points out that the promotion of health in the educational sphere contributes to the development of a healthier life for the youngest population groups, regardless of factors such as social class, gender, or the level of education their parents or other parental figures attained.

In this line of argument, with the premise that everything ceases to be important when health is lost, health is the most valuable personal patrimony, whose content varies according to the historical, cultural, and social conditions of the community that formulates and accepts it (Sánchez-Bañuelos, 2000). At the international level, the World Health Organization (2021) says that health is the existing balance between the four dimensions of physical, social, mental, and emotional, interpreted as a complete "transitory" state of well-being.

In this context, the school is an ideal environment for potential initiatives aimed at health promotion (Rosa-Guillamón et al., 2019). Therefore, in the Canary Islands, projects such as "PIPO" or DELTA are promoted in their educational centers, focusing on the components of healthy eating, promotion of PA, knowledge of the body and the heart, and prevention of addictions.

For its part, the Ministry of the Canary Islands through the educational network Canaria innovAS, the PIDAS project (2021–2022 course), specifically with the thematic axis 1 (Promotion of Health and Emotional Education), 2 (Environmental Education and Sustainability), and 5 (Social, Cultural, and Historical Heritage of the Canary Islands), tends to promote a healthier, inclusive educational practice and to demonstrate the commitment of students to sustainable development, on the basis of the ethics of sustainability and care of people and their environment to sustain life. Decree 89/2014 states that Health Promotion and Education is a global process, which includes not only actions aimed directly at strengthening the skills and abilities of each person, but also those aimed at modifying social, environmental, and economic conditions. The School and Health Programme is one of the educational programs coordinated by the Educational Innovation Service and is aimed at all nonuniversity public schools in the Canary Islands. Its aim is to collaborate with the educational communities of the Canary Islands, with other bodies, entities, and socio-community agents, in the promotion of healthy habits and lifestyles, such as the one on food in this manuscript.

A key aspect of this healthy program is diet, which is healthy when it promotes good health and reduces the risk of chronic diseases (Carrillo-López et al., 2018; García-Cantó et al., 2019). There may be a close relationship between diet and the risk of developing these chronic diseases characterized by high morbidity and mortality. The Mediterranean dietary pattern is a centuries-old tradition that contributes to an excellent nutritional status, provides a pleasurable sensation, and is part of the world culture. Some of the most solid and recent studies of the last decade suggest a close relationship between unhealthy lifestyle and disease risk (Norte-Navarro & Ortiz-Moncada, 2011).

According to Calañas-Continente and Bellido (2006), a healthy diet should

- ensure that the overall benefit of your recommendations outweighs any potential hazards in your target population groups.
- provide a sufficient amount of calories to carry out the necessary metabolic processes and physical work.
- supply sufficient nutrients with plastic and regulatory functions.
- favour the maintenance or achievement of the ideal weight.
- favour the balance between the amounts of each of the nutrients. It is advisable to have a carbohydrate intake of 45–65% of the total caloric intake, fat intake of no more than 20–35% of daily calories and 10–35% in the form of proteins of high biological value.
- reduce the risk of diet-related chronic diseases.

## Curricular Foundation

This educational intervention is proposed within the legal framework establishedby the LOMLOE (2020), under the premise of educational excellence, Royal Decree 126/2014, which establishes basic learning:

- to develop individual and team work habits, effort, and responsibility in study, as well as attitudes of self-confidence, critical sense, personal initiative, curiosity, interest and creativity in learning, and entrepreneurial spirit (Stage B Objective)
- to acquire in at least one foreign language the basic communicative competence that will enable them to express and understand simple messages and to cope in everyday situations (Stage F Objective)
- to develop basic mathematical skills and begin to solve problems that require elementary arithmetic operations, geometric knowledge and estimation, as well as being able to apply them to everyday situations (Stage G Objective)
- to be initiated in the use, for learning, of information and communication technologies, developing a critical spirit toward the messages they receive and elaborate (Stage I Objective)

- to value hygiene and health, accept one's own body and that of others, respect differences, and use physical education and sport as a means to promote personal and social development (Stage K Objective)

Specifically, in the Community of the Canary Islands, we start from the legal context established by the Canarian Law 6/2014, and specifically from the evaluation criteria established in Decree 89/2014. These connect the rest of the curricular elements, in coherence with the Order ECD 65/2015 and the Order of 21 April 2015. For this proposed intervention, we take these evaluation criteria into account:

1) apply the different basic and generic motor skills to the resolution of motor problems with spatial-temporal conditions and diversity of stimuli to consolidate coordination and balance
4) integrate in physical-motor activities the knowledge of physical education and the knowledge introduced by other areas
5) perform physical activity, identify and apply preventive habits for health and well-being, expressing an attitude against bad habits and critically assessing the messages that deviate from a healthy body image
7) apply the information and communication technologies from the motor situations practiced, both for the extraction and elaboration of information and for the resolution of motor problems and the improvement of their motor practice

Likewise, we consider the contents related to Learning Block I "Body Reality and Motor Behaviour," which allowed us to develop sessions and final products for the acquisition of the "competences of learning to learn," "linguistic communication," "mathematics and science and technology," and "digital and social and civic competences.

## Attention to Diversity

PE is one of the areas of the curriculum that contributes decisively to the full development of the person, maturation, and effective social inclusion. Under the protection of Decree 25/2018,

this intervention adopted the necessary measures for personalized attention, the prevention of difficulties, and educational reinforcements that contribute to the inclusion of all students.

This intervention considered the psycho-evolutionary characteristics of 6A students. In this case, a group of 25 schoolchildren, aged 11 to 13 years old, who could present the evolutionary characteristics associated with the Stage of Concrete Operations described by Piaget and Inhelder (2015), reflecting an accelerated physical development in the motor level, a progressive acquisition of autonomy with respect to adults in the socio-affective level, and an improvement of concepts without the need to relate them directly to the experience in the cognitive level.

From a medical point of view, schoolchildren with attention deficit disorder present a persistent pattern of inattention or hyperactivity-impulsivity that is more frequent and severe than that observed in other schoolchildren their age, with negative repercussions that may negatively affect their social, school, and family life. These symptoms must be present in both the school environment and the family environment, some must have appeared before the child turned age 7, and must not be motivated by other clearly defined disorders.

Some of the measures for consideration with this student are (1) placing the student at the beginning of the class, where they can receive direct attention from the teacher; (2) avoiding sources of distraction; (3) providing them with a partner guide to help them review the fundamental points of the explanation; (4) providing frequent and regular breaks; and (5) using the agenda.

After presenting some of the measures or adaptations for this student, we proceed to the development of the methodological proposal whose objective is to carry out a learning situation aimed at the acquisition of healthy eating for the sixth grade of primary school.

# Method

## Educational Intervention

In this intervention of the "homework" type, six 45-min sessions aimed at learning healthy eating habits and developing critical thinking about food that is harmful to health and sustainable development

were developed from September 14, 2020, to September 30, 2020. This is the first learning situation aimed at health development at this primary school in Spain and was taught after the summer holiday period. This learning situation occurred in September for students to establish good eating habits that would last throughout the school year and their lives. This learning process encompasses the methodological proposal in Table 1.

**Table 1**
*Sessions in the Methodological Proposal*

| Session | Contents |
|---|---|
| 1 | Basic notions: diet, food, and nutrition. Healthy v. unhealthy |
| 2 | Food basics II: When, how, and what? |
| 3 | Food groups |
| 4 | Functions of food |
| 5 | Sugar: the enemy of good nutrition |
| 6 | Feeding: anatomy and physiology |

## Methodological Foundation

The didactics of the session were based on the general educational (art. 2) and methodological (art. 8) principles in Decree 25/2018 and in accordance with the reality of the center. The activities were based on the motor actions in Appendix.

The teaching model was based on motor literacy, starting from two aspects: the students' centers of interest, which had an appropriate level for their age (learning through play), and the reflection-action to consolidate learning.

The techniques used included direct instruction through the assignment of tasks and inquiry through guided discovery, with use of interrogative feedback during the games. Feedback was used as a strategy in global practice.

The group organization was carried out following criteria of active participation, level of motor competence and equality, favoring the treatment of the transversal elements established in article 10 of Royal Decree 126/2014. The position of the teacher evolved from an external focal situation for the explanation of the games, control of the group, and contingencies, to an internal position of mediation, motivation, and attending to diversity. The methodological strategies

of the Ministry of Education, Culture, and Sports (2014) were accounted for in the promotion of learning through increased motor engagement time. Strategies in use included brief and precise explanations, variants during the game, and varying as little as possible the organization of the group during these game activities. Safety measures were adopted in accordance with Royal Decree 132/2010. Likewise, potentially stimulating materials for physical practice was used.

## Results

Vaca Escribano's (2010) session model was followed. Thus, this intervention used a practical proposal based on two pedagogical times.

### Session 1. Basic Notions: Diet, Food and Nutrition—Healthy vs. Unhealthy

#### First Pedagogical Time: The Session

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; KIDMED questionnaire (initial assessment; Serra-Majem et al., 2004); presentation of the contents (5 min); practice of games for the critical development of nutrition as an essential value for optimal health, respect for classmates, teachers and material, and active participation and effort.

"**Healthy Folio" (5 min).** Game allows neuromotor activation, in addition to the work of the concepts of "*diet,*" *"food,"* and *"nutrition."*

- Explanation of the game: Three schoolchildren represent *unhealthy diet, unbalanced diet,* and *empty nutrition.* The children run freely around the gym. If a student gets caught by the *unhealthy diet*, they go on quadruped; if a student gets caught by the *unbalanced diet*, they close one eye; and if a student gets caught by the *empty nutrition*, they stand on one leg. The student can save themself if the go to the folio and write down a healthy habit.
- Grouping: three groups.
- Material: paper, bibs, and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).***

**"False Myths" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"food myths."*

- Explanation of the game: The starting point is a distribution of five groups marked by colors (red, green, yellow, blue, and without bibs), all located in the center of the field, with the teacher in the middle. Questions related to food are asked, where the possible answers are A, B, C, and D. Each letter corresponds to a corner of the court. When the teacher asks the question, the five members of the group gather and decide how to distribute themselves according to the answer they consider most appropriate. In 30 s, the students must be in the corners. The teacher gives the correct answer, awarding points to the teams depending on the number of team members in the corner of the correct answer.
- Grouping: five groups.
- Material: feeding cards, bibs and sports court.
- Variant: include healthy habits.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

"**The Shopping List" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"healthy foods"* and *"unhealthy foods."*

- Explanation of the game: In groups of five, the student write a shopping list on a piece of paper and stand in rows behind benches. Behind these are food on cards, as if they were distributed in the supermarket, in the middle of the motor route. The players go out without food in hand, picking it up in the supermarket. When they reach the end, they put the food in the shopping bag.
- Grouping: five groups.
- Material: cards and sports court.
- Variant: include healthy habits.
- Attention to diversity: teacher carries carry out structured, explicit explanations following a prefixed sequence of steps.

"**Healthy Food" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"healthy diet versus unhealthy diet."*

- Explanation of the game: In groups of four, the students classify foods and habits into healthy (put on the right) and unhealthy (put on the left). They think about the foods and their characteristics at each exit.
- Grouping: five groups.
- Material: cards and sports court.
- Variant: include healthy habits.
- Attention to diversity: teacher carries carry out structured, explicit explanations following a prefixed sequence of steps.

***Farewell (10 min).*** Reflection on learning by means of a metacognition ladder based on questions such as What have you learned? What other occasions can you use this information for? How did you learn this information? and How has this information helped you?

"**I Represent Food" (5 min).** Students stand in a circle. One takes a card and represents the food with descriptive words and/or hand gestures. The rest guess the food and whether it is healthy or not and argue why.

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before finishing, the teacher recommends that for the school blog, students with their friends or family make a recording identifying healthy and unhealthy food at home. The aim of this project is for students to develop digital competence.

## Session 2. Food Basics II—When, How, and What?

### First Pedagogical Time: The Session

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; presentation of the contents (5 min): practice of games for the critical development of nutrition as an essential value for optimal health, respect for classmates, teachers and material, and active participation and effort.

"**Unhealthy Foods" (5 min).** Game allows neuromotor activation, in addition to working on the concepts of *"healthy food"* and *"unhealthy food."*

- Explanation of the game: Three schoolchildren represent *the rubbish,* four represent *the unhealthy habits*, and the rest *run normally*. The unhealthy habits catch the normal runners, and those who represent the rubbish catch the unhealthy habits by throwing the balls to colleagues who represent unhealthy habits, to expel them (if they have the ball, they cannot move). If the unhealthy habits catch the normal runners, they signal an unhealthy habit to the other personal goal and on the way back they exchange roles with those who represent the rubbish.
- Grouping: three groups.
- Material: balls, bibs, and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).***

"**Diet" (10 min).** Game allows neuromotor activation, in addition to the work of the concept of *"diet."*

- Explanation of the game: Students stand in rows of five. The first in each row holds a piece of chalk in their hand. At the teacher's signal, they go to the other end of the gym and write a letter on the ground. They do this until a word related to food is formed. All words must be written in English.
- Grouping: five groups.
- Material: chalk and sports court.
- Variant: add the option of unhealthy eating behaviors.
- Attention to diversity: teacher carries carry out structured, explicit explanations following a prefixed sequence of steps.

**"I Classify Food" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"balanced diet."*

- Explanation of the game: At the end of the gym, there are three boxes. The students sort the food cards according to whether they are for the morning, afternoon, or evening, according to the energy each food provides. Students look

at the nutritional value on the food label to see how much energy the food provides. It is necessary for the teacher to insist on the idea of nutritional needs. In the middle of the track, there are benches the students will pass through. This increases the difficulty of the movement.
- Grouping: five groups.
- Material: cards and sports court.
- Variant: add the option to throw the unhealthy food in the trash.
- Attention to diversity: teacher carries carry out structured, explicit explanations following a prefixed sequence of steps.

"**I Make My Healthiest Dish" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"balanced diet."*

- Explanation of the game: The teams start from the four corners of the field; each team has a corner, with a plate fixed in its corner. The different components of the team move to the center of the court, all at once, and take food cards to form the healthiest plate possible (containing all the nutritional groups). In 2 min, the activity ends. In case several teams have healthy plates, the winner is the team that has the most healthy food.
- Grouping: four groups.
- Material: cards and sports court.
- Variant: make variations according to breakfast, lunch, and dinner.
- Attention to diversity: teacher carries carry out structured, explicit explanations following a prefixed sequence of steps.

***Farewell (10 min).*** Reflection on learning by means of a metacognition ladder based on questions such as What have you learned? What other occasions can you use this information for? How have you learned this information? How has this information helped you?

"**I Represent Food" (5 min).** Students stand in a circle. One person takes a card and represents the food with descriptive words and/or hand gestures. The rest must guess the food and when it is advisable to eat it (e.g., breakfast, lunch, or dinner).

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before students finish, the teacher recommends that for the school blog, students with their friends or family make a classification of the food they find at home depending on when it is advisable to consume it. The aim of this project is for students to develop digital competence.

## Session 3. Food Groups

### First Pedagogical Time: The Session.

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; presentation of the contents (5 min); practice of games for the critical development of nutrition as an essential value for optimal health, respect for classmates, teachers and material, and active participation and effort.

"**Package-Package" (5 min).** Game allows neuromotor activation, in addition to the work of the concepts of *"food"* and *"nutrient."*

- Explanation of the game: The students run around the track doing the exercise that the teacher indicates (skipping, counter skipping, etc.). At the signal, they pick up a card from the floor and group themselves according to the food group on the card (guided discovery). The students explain that each specific food has certain types of nutrients.
- Grouping: individual.
- Material: cards and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).***

"**I'm Going to My Food Group" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"food groups."*

- Explanation of the game: The students run around the track. There are different colored rings: green rings represent vegetables, red rings represent meat, blue rings represent fish,

and yellow rings represent fruit. At the signal, students get into one of these rings. Whoever is outside or confused must go to the sheet of paper and write down a food from that food group.
- Grouping: individual.
- Material: hoops and sports court.
- Variant: change the movement type.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

"**Every Little Owl to Its Own Olive Tree" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"unbalanced diet."*
- Explanation of the game: The students run in five rows. Each group sorts their food cards into groups: meat-fish, cereals, fruits-vegetables, dairy or legumes. Each box is at the end of the gym.
- Grouping: five groups.
- Material: cards and sports court.
- Variant: include garbage.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

"**Three in a Row of Food" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"nutrient groups."*
- Explanation of the game: Each group has three cards, of which they classify into nutrient groups. On a signal, one member of each team places a card on the board, which is made up of nine rings fixed at a distance of 5 meters from the starting line. When the partner returns, the next goes out as a relay. Once the cards have been used up, and in the event that no team has managed to make three in a row, another player without a card in their possession comes out and may move one of their team's cards. The objective is to place three foods in a row belonging to that nutrient group.
- Grouping: two groups.
- Material: cards, hoops, and sports court.
- Variant: initial output form

- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Farewell (10 min).*** What other occasions can you use this information for? How have you learned this information? How has this information helped you?

**"Detecting Food" (5 min).** With students sitting in a large group, the teacher holds a basket containing various fruits and vegetables, so that, without being able to see them, the students will discover which foods they are touching. All the students, except one (who is wearing a mask), can see the piece inside the box. They give clues based on the nutrients or calories of the food the masked student has chosen.

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before students finish, the teacher recommends that for the school blog, students with their friends or family make a classification of the food they find at home according to their characteristics. The aim of this project is for students to develop digital competence.

## Session 4. Functions of Food

### First Pedagogical Time: The Session

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; presentation of the contents (5 min); practice of games for the critical development of nutrition as an essential value for optimal health, respect for classmates, teachers and material, and active participation and effort.

"**Bad Habits Hit" (5 min).** Game allows neuromotor activation, in addition to working on the concept of *"functions of food."*

- Explanation of the game: Four students play the game. They carry a different colored ball and represent the following foods: juices (green ball; unhealthy carbohydrates with lots of sugar), soft drinks (red ball; unhealthy carbohydrates with lots of sugar), pastries (white ball; unhealthy fats with lots of sugar), and pork (blue ball; unhealthy proteins with lots

of fat). The students with the balls throw the balls at their classmates without balls. If students without balls get hit, they must solve questions related to the false food myths. In addition to working on eye–hand coordination (content of the physical education area), they must dispel bad myths.
- Grouping: individual
- Material: balls and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).***

"**Functions of Food" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"energetic, plastic, and regulatory."*

- Explanation of the game: Relay races. The students classify the foods according to their functions. To do this, they have cards with food.
- Grouping: in five groups.
- Material: cards and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

"**Types of Nutrients" (10 min)**. Game allows neuromotor activation, in addition to working on the concept of *"nutrients."*

- Explanation of the game: Students race with balls of different sizes. Carbohydrates and proteins give 4 kcal/g (tennis ball and foam rubber balls) and fats 9 kcal/g (heavier ball). Fiber gives 2 kcal/g (balloon or other). The teacher throws the cards the student bounces the ball and then catches the card. Three students with bibs are *proteins*, *fats*, and *carbohydrates*. If students catch the proteins, they run normally, the fats run very slowly, and the carbohydrates run fastly.
- Grouping: five groups.
- Material: balls and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

"**Food With Nutrients" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"food with nutrients."*

- Explanation of the game: Students group food cards according to type of nutrients (carbohydrates, proteins, fiber, minerals, and lipids).
- Grouping: five groups.
- Material: cards and sports court.
- Variant: initial output form
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

***Farewell (10 min).*** Reflection on learning by means of a metacognition ladder based on questions such as What have you learned? What other occasions can you use this information for? How have you learned this information? How has this information helped you?

**"The Circle of Food" (5 min).** Students stand in a circle. Each student has two cards with the expressions healthy and unhealthy. In the center of the circle, there is a pile of cards with different foods, nutrients, and drinks. One student goes to the center of the circle, picks a card, and reads it out loud. At that point, classmates point out whether the food is healthy or unhealthy.

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before finishing, the teacher recommends that for the school blog, students with their friends or family at home make an analysis of the impact of this food on the body. The aim of this project is for students to develop digital competence.

## Session 5. Sugar: Enemy of a Good Diet

### First Pedagogical Time: The Session

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; presentation of the contents (5 min); practice of games for the critical development of nutrition as an essential value for optimal

health, respect for classmates, teachers and material, and active participation and effort.

"**Teeth, Cavities, and Toothbrush" (5 min).** Game allows neuromotor activation, in addition to working on the concept of *"negative consequences of sugar."*

- Explanation of the game: Three pupils represent *teeth*, *tooth decay*, and *toothbrush*. Cavities come from sugar. The students run around the gym. If the student representing sugar catches another student, that student stands on one leg until the toothbrush saves them. If a student gets caught twice, they write on a sheet of paper one food that has a lot of sugar and one that does not.
- Grouping: individual.
- Variation: write down foods that contain little added sugar.
- Material: notebook and sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).***

"**Food Sugar" (15 min).** Game allows neuromotor activation, in addition to working on the concept of *"food sugar."*

- Explanation of the game: Students reflect on the foods they eat in their daily lives and the amount of sugar these foods contain. The recommendations are a maximum of six sugar cubes a day. See how much sugar is in products like a soda. Have a race. In the races you have to see who fills the glasses with sugar first.
- Grouping: five groups.
- Materials: spoons, sugar, cards.
- Variant: type of traversing.
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

"**Food Scanning" (15 min).** Game allows neuromotor activation, in addition to working on the concept of *"misleading advertising."*

- Explanation of the game: Races in rows. Students analyze and reflect on the misleading advertising offered by apps such as

Nutri-Score or other companies by scanning the food code on the gym's walls.
- Grouping: five groups.
- MATERIAL: TABLETS AND FOOD.
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

***Farewell (10 min).*** Reflection on learning by means of a metacognition ladder based on questions such as What have you learned? What other occasions can you use this information for? How have you learnedthis information? How has this information helped you?

"**Fads" (5 min).** In a circle, students make a representation of cards to see which nutritional fad is currently being followed (Dukan Diet, Atkins, Rina, etc.). Students consult blogs of reputable people (e.g., http://juanrevenga.com/; www.midietacojea.com) to reflect on their doubts about food.

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before students finish, the teacher recommends that for the school blog, students with their friends or family calculate at home the total amount of sugar they can ingest in a day. The aim of this project is for students to develop digital competence.

## Session 6. Feeding: Anatomy and Physiology

### First Pedagogical Time: The Session

***Meeting and Animation (10 min).*** Welcoming of the group; roll call; presentation of the contents (5 min); practice of games for the critical development of nutrition as an essential value for optimal health, respect for classmates, teachers and material, and active participation and effort.

"**The Heart Beats" (5 min).** Game allows neuromotor activation, in addition to working on the concept of *"dramatization as a means of expression."*

- Explanation of the game: The heart and blood vessels suffer with sugar and cholesterol. Students explain the heart's

procedure for pumping blood (with and without sugar). Students are in three groups and act out the scenes.
- Grouping: three groups.
- Material: sports court.
- Attention to diversity: teacher carries out structured, explicit explanations following a prefixed sequence of steps.

***Integral Education Through the Body and Movement (35 min).*** "**Oxygen and Red and White Blood Cells" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"physiological notions."*

- Explanation of the game: The teacher mentions that oxygen and red and white blood cells allow movement and a proper nutrition strengthens them. Then the teacher divides the students into groups. Students stand at one end of the court and run to the other end, all at once, grab a hoop (each group has six hoops), and take it to their area to build a 3D ball that symbolizes the movement.
- Grouping: five groups.
- Material: hoops.
- Variant: symbolize this drawing, but imagine that you have a bad diet.
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

**Oxygen and carbon dioxide" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"breathing and relaxation."*

- Explanation of the game: The teacher divides the class into two groups that each occupy half of the field. There are balls and hoops placed all over the space. The balls represent carbon dioxide and the hoops represent oxygen molecules. The goal is for students to get as many oxygen molecules (hoops) and to kick the carbon dioxide molecules (balls) in the opposite field. To do this, everyone can move all over the field. The hoops must be transported with the foot to their team's half of the field, with the rule that they cannot touch the hoop with their hands. Students can kick with the foot and

only the balls that are in their half of the field. Students can retrieve hoops in the opposite court. No one can stop them. After a few minutes, the teacher stops play and counts the oxygen molecules (hoops) for each group. The group with the most hoops wins. The teacher can also urge students to try to have less carbon dioxide molecules, because these are harmful to health. The teacher can complicate the game by including a player who can eliminate and return the teammates of the opposing team to their field.

- Grouping: two groups.
- Material: hoops, balls, and sports court.
- Variant: symbolize this drawing, but imagine you have a bad diet.
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

"**Control Your Effort" (10 min).** Game allows neuromotor activation, in addition to working on the concept of *"heartbeat and muscle action."*

- Explanation of the game: The teacher divides the class into five groups. The first group forms a circle by spinning (lungs) and bouncing the blue ball. The second group stands around the first one, bouncing a red ball (oxygen). Ten meters away from them, the third group forms a circle and rotates (heart). Ten meters away from them, the fourth group forms a circle and represents the muscle. A reserve group is left waiting for their intervention when the game starts. At the teacher's signal, the members of the first circle exchange balls with the members of the second group. These bouncing the ball (red) go to the heart, which again opens its arms and lets them pass. The members of the heart take the ball and go to the muscle that receives them by taking the ball and zigzagging through some spades. When analyzing, they go to the reserve group, to whom they give the red balls that they exchange again with the lungs, repeating the cycle of gas exchange, heartbeat, muscular action, and return to the lungs to oxygenate the blood again.
- Grouping: five groups.

- Equipment: hoops, balls, benches, bibs, and sports court.
- Variant: symbolize this drawing, but imagine that you have a bad diet.
- Attending to diversity: teacher carries out structured, explicit explanations following a preset sequence of steps.

***Farewell (10 min).*** Reflection on learning by means of a metacognition ladder based on questions such as What have you learned? What other occasions can you use this information for? How have you learned this information? How has this information helped you?

**"Fill Out Questionnaire" (5 min).** In a circle, each schoolchild again completes the KIDMED questionnaire (Table 2).

- The teacher ends the session by assigning the next week's roles and talking about personal hygiene.

### Second Pedagogical Time

Before the students finish, the teacher recommends that for the school blog, students with their friends or family calculate the sugar they ingest at home. The aim of this project is for students to develop digital competence.

***Evaluation and Grading.*** Taking into account the guidelines of López-Pastor and Pérez-Pueyo (2017), the evaluation is formative (process-oriented and adapted to the students), shared by teacher and students (by means of a common discussion), objective (teacher's notebook), and feasible (organizing the criteria in a coherent way). All this aligns with Order ECD/65/2015, which indicates the need to evaluate the process for the improvement of educational intervention.

The grading referents will be the rubrics (*Resolution of May 13, 2015*) of the evaluation criteria 1 (standard 41 (AA)), 4 (standard 14 (CMCT), 16 (CL) and 30 (CL), 5 (standards 17(CSC), 18, (CMCT), 19 (CSC) and 20 (CMCT) and 7 (standard 38 (CD)). As for the tools, a descriptive scale from 1 to 4 will be used for each criterion. The techniques will be the heteroevaluation for the students' learning and the self-evaluation of the group on its development process.

**Table 2**
*KIDMED Questionnaire in Childhood*

| Adherence to the Mediterranean diet in infancy | Points |
|---|---|
| Have a piece of fruit or fresh juice every day. | +1 |
| Have a second piece of fruit every day. | +1 |
| Eat fresh vegetables (salads) or cooked vegetables on a regular basis, once a day. | +1 |
| Eat fresh or cooked vegetables regularly more than once a day. | +1 |
| Consume fish regularly (at least 2–3 times week). | +1 |
| Go once or more a week to a *fast-food* hamburger joint. | -1 |
| He likes legumes and eats them more than once a week. | +1 |
| Eat pasta or rice almost every day (5 days or more a week). | +1 |
| Have a cereal or derivative (bread, etc.) for breakfast. | +1 |
| Eat nuts and dried fruit regularly (at least 2–3 times a week). | +1 |
| Olive oil is used at home. | +1 |
| No breakfast | -1 |
| Have a dairy for breakfast (yogurt, milk, etc.). | +1 |
| Eat industrial pastries, cookies, or cakes for breakfast. | -1 |
| Have 2 yogurts and/or 40 g cheese every day. | +1 |
| Have candy and/or sweets several times a day. | -1 |

*Note.* Adapted from "Food, Youth, and the Mediterranean Diet in Spain: Development of KIDMED, Mediterranean Diet Quality Index in children and adolescents," by L. Serra-Majem, L. Ribas, J. Ngo, R. M. Ortega, A. García, C. Pérez-Rodrigo, and J. Aranceta, 2004, *Public Health Nutrition*, *7*(7), p. 932 (https://doi.org/10.1079/PHN2004556).

## Conclusion

This manuscript proposes several activities for the knowledge and application of a healthy diet oriented from the area of physical education in the autonomous community of the Canary Islands. In summary, we seek an optimal degree of adherence to the Mediterranean diet to reduce the high prevalence of overweight and obesity, aspects that constitute a serious public health problem worldwide with an increasing trend and pandemic character.

At the same time, we include reflections in the activities to achieve a didactic transposition between the school and the educational center. A person is born with a body and it has to last them in good condition for life. For this reason, physical activity practiced regularly and in the appropriate way, together with dietary control, is the best tool available today to promote the health and quality of life of schoolchildren. In this sense, we paraphrase Aristotle (384–322 B.C.): Acquiring such habits from a young age is not of little importance: it is of absolute importance.

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The Physical Educator Vol. 80 • pp. 657–676 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11664

PHYSICAL ACTIVITY

# Impact of an After-School Club on Elementary Students' and Staff Members' Physical Activity Levels, Mood Levels, and Stress Levels

*Katherine McGovern and Pamela Hodges Kulinna*

## Abstract

*Guided by the conceptual framework of the Comprehensive School Physical Activity Program (CSPAP), the purpose of this study was to determine if a walking club after school for teachers and students increased physical activity levels, reduced stress, and improved mood. The participants were 51 (67% male, 33% female) fourth- to eighth-grade students and eight staff members at a charter school in the Southwest United States, along with nine comparison teachers. They participated in an 8-week after-school walking/running club twice a week for 45 min. Participants wore a pedometer and completed validated instruments to assess stress levels and mood. Descriptive statistics were performed. Group differences were explored with t tests. Overall, the average number of steps during the 13 school days for students was 7,657 (SD = 2,661). The after-school program added an additional 2,585 (SD = 699) steps to their day. Staff members were less active at school with 5,896.33 (SD = 2,617) steps, but equally or more active in the after-school program with 3,063 (SD = 331) steps. The t-test results were significant, showing students and teachers reported less stress*

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*at the end of the program. Only staff members completed the mood instrument, and there were significantly more positive mood indicators and fewer negative mood indicators at the posttest. Comparison teachers had similar steps at school. Because the intervention group of teachers reported more stress at pretest, their decreased stress values were similar to the comparison teachers at posttest. Participating in an after-school walking/running club can increase daily physical activity, decrease stress levels, and improve overall mood, specifically, if teachers want to feel more interested and inspired and less distressed, irritable, and nervous.*

Obesity among children in the United States is becoming more and more prevalent. According to SHAPE America and the American Heart Association (2016), 1 in 3 kids ages 2 to 19 are overweight or obese and almost none of them meet the recommended physical activity recommendations. This can lead to serious health complications in adulthood. This study aimed to show the positive effects of a walking club on physical activity, stress reduction, and emotional health. Another aim of this study was to create a positive atmosphere among the adults and students. Students look up to their teachers and adults on campus, so if students see their teachers model physically active behaviors, this can motivate them to be involved in the club or be active as well.

The framework of this study was the conceptual model of the Comprehensive School Physical Activity Program (CSPAP). This study provided students the opportunity to be physically active after school and work toward recommended 60 min of physical activity a day. It is valuable because it shows that not all physical activity has to be vigorous. Many children and adults do not think of walking as physical activity, and it can be an easy way to be active. Because it is an easy way to be active, more individuals are likely to do it. Given students are not getting enough physical activity, this study can help promote physical activity after the school day.

Many youth are too inactive, not reaching the 60 min of daily physical activity and, overall, are not given the opportunity for recommended levels of physical education (SHAPE America and the American Heart Association, 2016). One approach that helps students get active is getting them moving more at school. Schools are an ideal environment for physical activity programs because of the

available space, existing staff structure, and having the physical education teacher as a resource (Langley & Kulinna, 2018). Schools are an optimal place to have physical activity programs because almost all children, regardless of their income, in the United States, go to school, so schools can help lower the gap among actual and recommended levels of physical activity for all children (Schultz et al., 2019).

## Comprehensive School Physical Activity Program (CSPAP)

The framework of the CSPAP consists of high-quality physical education, physical activity during the school day, physical activity before and after school, staff involvement, and family and community participation. Offering physical activity programs such as an after-school walking club is beneficial because it gives students the opportunity to be active. An after-school walking club can support students in meeting the recommended daily PA guidelines (U.S. Department of Health and Human Services, 2018). SHAPE America and the American Heart Association (2016) say that "regular physical activity promotes children and adolescents' growth and development while conferring benefits to their physical, mental, and cognitive health" (p. 8). SHAPE America and the American Heart Association (2016) also claim that physically active children have better cardiorespiratory and muscular fitness as well as active lifestyles, and physical fitness helps avoid heart disease, cancer, type 2 diabetes, and osteoporosis among adults. A school walking club can help students and staff members be physically active and increase their overall physical fitness and prevent chronic diseases. When active during work hours, staff members are actively promoting a healthy lifestyle, being positive role models, and creating a positive perspective on being physically active to the students (Langley & Kulinna, 2018). Implementing a walking club at schools offers staff members the ability to be positive role models for their students and engage in a healthy lifestyle. The U.S. Department of Health and Human Services (2018) asserts that physically active and fit children perform better academically short term and long term and exhibit better classroom behavior, have a stronger capability to focus, and have higher rates of school attendance. Thus, there are many reasons

schools should institute an after-school walking club for students and staff members.

There are many recommendations on how to structure a walking club (Schultz et al., 2019), including areas such as safety considerations, club leadership ideas, club size and grade-level participation, club meeting time and duration, location of the club, and physical activity tracking along with goal setting. Key factors for consideration of planning a walking club include having emergency contact information, following a waiver protocol, having at least two adults to lead the club along with administrative support, having a maximum 30 children per adult coach, considering weather conditions, using the program time as a goal to reach the recommended 60 min of daily physical activity, having indoor and outdoor options, using cones or landmarks to form a track, allowing students to track their own miles, and setting goals to help motivate students (Schultz et al., 2019).

The program coordinator must also consider their school's available resources, staff, students, weather conditions, and so forth. Guidelines for constructing a supportive and fun walking club comprise providing choice, playing music, having incentives, using imagery, and creating a positive atmosphere (Schultz et al., 2019). In more detail, reducing competition and more so focusing on team values; tracking total miles for the entire club; offering safe, fun obstacle courses; having walking/running games such as tag, relay races, and line races; letting participants go at their own desired pace; playing motivational music and allowing song requests; providing incentives when goals are met and recognizing effort; and mapping out the club's total mileage as a picture across the state or to a specific place (Schultz et al., 2019). Creating a positive and enjoyable club is essential to maximizing participation and long-term participation. Not only is it a goal to increase students' physical activity levels but also to have students develop and maintain a healthy lifestyle, so it is valuable to make the experience enjoyable. Utilizing these tactics can establish a sense of social connection between the participants, help motivate the participants, and show the significance of self-improvement rather than peer comparison (Schultz et al., 2019). Generating a social connection among staff and students can

develop a positive culture at the school, and self-comparison is an imperative tool to have in life for growth.

Langley and Kulinna (2018) reported strategies for implementing an after-school walking club for staff members. They included six tips for incorporating a walking club program in schools: Gaining administrative support and approval, creating a walking route at the school, having the club at a time available to all staff members, develop a tracking system, promoting the walking club, having incentives (Langley and Kulinna, 2018). Similarly with Schultz et al.'s (2019) recommendations included the use of incentives, creating a lap course, and acquiring administrative support.

## Physical Activity Benefits From Before- and After-School Programming

Before- and after-school walking programs provide students and staff a greater chance of reaching the recommended 60 min of moderate-to-vigorous physical activity (MVPA). For example, Stylianou et al. (2016) shows an increase of physical activity to 1,502 steps and 8.30 MVPA minutes, and this accounts for 12.52% of daily step recommendations and 14.17% of the daily MVPA recommendations at a public school. In the same study, but at a K–8 private school, there are similar results, an increased amount of physical activity, 1,731 steps and 10:02 MVPA minutes, and this accounts for 14.43% of daily step recommendations and 16.72% of the daily MVPA recommendations. This is similar to the discovery of Salway et al. (2019), who reported that on days students attend an active after-school club, they increase the average amount of MVPA at school to 7.6 min. Salway et al. suggest that students can raise their time being physically active.

Walking programs at schools improve students' and staff members' energy, mood, and overall stress levels. The Langley and Kulinna (2018) study of staff members at a school shows positive staff perceptions regarding a school walking club, that it increases their energy and mood, and that it helps build rapport with coworkers and students. Haugland et al.'s (2003) research of leisure-time physical activity in adolescent students shows an inverse linear relationship between being physical active and stress. Students who have school-related stress are less likely to report health complaints

if they participate in leisure physical activity at least once a week (Haugland et al., 2003). Pascoe et al.'s (2020) study of stress, anxiety symptoms, and mood states from varying levels of physical activity, from sedentary to light intensity such as yoga or stretching, to moderate intensity such as team sports, cycling, jogging, to moderate-to-vigorous activity such as enhanced physical education classes, strength training, and gymnastics, provides evidence of showed reduced anxiety symptoms (in 16% of students), stress reduction (in 33% of students), and increased state of mood (in 100% of students). These two studies show that physical activity programs can help lower stress levels, anxiety symptoms, and elevate a person's frame of mind.

Before- and after-school walking clubs also contribute to improved classroom behavior among students. Stylianou et al.'s (2016) finding of more on-task on days when students participate in a before-school walking club shows that a before-school walking program leads students to be more focused. Similarly, "Energizer" activities in the classroom for third- and fourth-grade students can improve students' on-task behavior in the classroom (Mahar et al., 2006). From these studies, thus, being active at school can also have behavioral benefits.

## Rationale

This study can make an immediate positive change on the students and staff at the school and create optimistic long-term benefits from the learned outcomes of this study. Armstrong et al.'s (2016) research shows that long-term benefits from a walking club include improved cardiovascular endurance, increased bone strength and health, increased physical activity, and lowered stress.

Physical activity plays a key part of academic success in terms of long- and short-term goals. SHAPE America and the American Heart Association (2016) claim that children who are more physically active and fit achieve higher academic accomplishments, are more likely to behave in the classroom, have higher attendance rates, and have a stronger ability to focus and remain on task. An after-school walking program as part of a CSPAP model at a school can have short-term benefits such improved classroom behavior, increased days at school, and better ability to pay attention.

A major theme from the research is that an active before- or after-school program can increase physical activity levels, leading to the accomplishment of 60 min of recommended MVPA. There is also evidence of other benefits from walking/running clubs and actively commuting (walking) to school such as elevating mood, reducing stress levels, creating a positive environment, building relationships among students and staff members, and improving mental and cognitive health. Along with the benefits, the research provides a sufficient amount of suggestions that can be very useful for conducting a walking club. This study on the impact of an after-school walking club on physical activity and stress levels of elementary students and staff members builds on studies of students and staff members to further understand the effect of physical activity on stress levels and mood levels. Such a study is necessary because of the paucity of studies in this area.

## Purpose and Research Questions

The purpose of this research was to determine if an after-school walking club for teachers and students would increase physical activity levels, reduce stress, and improve mood. This study asked these research questions:

1. What is the average contribution to daily physical activity from participating in an after-school walking club for teachers and students?
2. Can an 8-week after-school walking class significantly reduce teachers' and students' stress levels?
3. What are participating members' perceptions of this after-school walking program?

# Method

## Participants and Setting

Human subjects approval was obtained for this study from both Arizona State University and the school. Parents/guardians provided consent, and students provided assent. This school has Grades K–8. According to publicschoolreview.com, at the time of the study, there were approximately 1,040 students. Of those students, 64%

were White, 19% Hispanic, 6% Asian, 4% Black, 7% two or more races, and < 1% other. Twenty percent of the students came from low-income families and 51% were female and 49% male. There were about 60 staff members, and 100% of the full-time teachers were certified and 88% had 3 or more years of teaching experience. At this school, students in grades third through sixth had an opportunity to choose a Physical Education (Momentum) route or Music (Mozart) route. This means if they chose to focus on physical education, they received 4 days of physical education for 45 min and 1 day of music each week, and vice versa for the students who chose the music path. Students could change programs after each quarter or the following year. Students in junior high could choose physical education as an elective, and if they did, they had physical education class every day for 53 min. At this school, they had a half day of school every Wednesday. The curriculum concentrated on a back-to-basics approach with a Saxon Math curriculum and a Spalding Method language arts curriculum. This school also provided free breakfast and lunch for all students and staff.

The participants for this study included staff members ($N = 8$) and fourth- to eighth-grade students ($N = 51$) from a charter school in the Southwestern United States. Of all student participants, 68.6% were White, 13.7% Hispanic, 9.8% Black, 1.9% Asian, and 5.9% other. Males made up 67% of all student participants, whereas 33% were female. In terms of grade levels represented, 51.9% were from the fourth grade, 26.9% from the fifth grade, 11.5% from the sixth grade, 5.8% from the seventh grade, and 3.8% from the eighth grade. Thus, most student participants were from lower grade levels. The control teachers only participated in school day physical activity. The purpose of this was to determine if school day steps were similar across teacher groups. They also completed the Irritation Scale twice. Table 1 shows staff intervention group and control group demographics.

## Dependent Variables

The dependent variables included students' and staff members' physical activity levels, stress levels, mood levels, and perceptions regarding the after-school walking program.

**Table 1**
*Staff Intervention and Control Group Demographics*

| Group | Gender | Ethnicity | Teaching experience |
|---|---|---|---|
| Intervention | 100% female | 7 Caucasian, 1 Latin American | 6 > 5 years' teaching experience |
| Control | 8 females, 1 male | 6 Caucasian, 2 Asian, 1 Latin American | 8 > 5 years' teaching experience |

## Research Design

This study used a quasi-experimental research design. Data were collected over 8 weeks from the end of October until Winter break in December 2021. A preassessment was given 1 week prior to the start of the study to both the participants and the control group. The purpose of this was to gain initial knowledge on their current stress levels. Qualitative data were gathered through surveys filled out by participating staff and students. Quantitative data were collected from the pedometers. Twice during the 8-week period, staff members filled out a mood survey prior to the start of the club and then immediately after the club. A postassessment was handed out in person following the completion of the 8-week club. The purpose of this was to determine final stress levels from both staff groups and students and to determine staff members' perceptions of this CSPAP program, the after-school walking club.

## Intervention

This study involved an 8-week after-school walking club held twice a week for 45 min. This study compared participants' number of steps during the school day prior to the start of the club to their number of steps after the club. This intervention also compared stress levels before and following the 8-week walking club with the participants.

## Data Collection/ Instruments

The data were collected with a variety of instruments. This allowed for a thorough understanding of what was occurring as well

as verification of the information on the dependent variables. The instruments consisted of pedometers to accurately determine number of steps, a quantitative assessment of stress levels, a quantitative assessment of current mood, and a survey regarding overall perceptions of the walking program. Observations with field notes were taken by the researcher each session of the walking club. Staff members took the quantitative assessment of stress levels (i.e., Irritation Scale), the quantitative assessment of current mood (i.e., Positive and Negative Affect Schedule), and a survey regarding overall perceptions of the walking program. Students took the quantitative assessment of stress levels and the survey regarding their perceptions of the walking club.

## Pedometers Used by Staff and Students

Students and staff members wore a Yamax Digi Walker pedometer during the school day and after-school walking club to measure physical activity levels. The Yamax Digi Walker pedometer has been shown to produce reliable and valid scores for measuring children's physical activity levels and has been commonly used (Brusseau et al., 2012). Participants had the opportunity to practice wearing and using the pedometer 1 week prior to the study. This ensured their comfortability using and wearing it. Shake tests were done before the study and every 2 weeks to eliminate calibration problems. Total number of steps were recorded every Tuesday and Thursday by the researcher. Extreme outliers were removed (i.e., below 1,000 more the school day).

## The Irritation Scale for Staff and Students

The validated Irritation Scale test entails eight Likert-like scale questions on a scale from 1 (*completely disagree*) to 7 (*completely agree*; Merino-Tejedor et al., 2013). This tool was modified for fit with the school atmosphere for students instead of a workplace (e.g., "I have difficulty relaxing after work" was changed to "I have difficulty relaxing after school"). The Irritation Scale has been found to be reliable and valid for use with students and in work-related situations (Merino-Tejedor et al., 2013).

## Qualitative Survey for Staff and Students

On the last day, the participating students and staff members filled out a survey with five open-ended questions regarding the

after-school walking club. This allowed for an assessment of the participants' overall thoughts regarding the walking club. Sample items included "What are your thoughts and feelings towards the after-school walking club?" and "Were you in a better mood on days with the walking club (Tuesdays and Thursdays)?"

## Mood Survey for Staff

Teachers filled out the Positive and Negative Affect Schedule (PANAS) right before the start of the club and then immediately following the end of the club for that day. For example, participants ranked from 1 to 5 various emotions and feelings such as interested, proud, and upset. This scale has been determined suitable over a 2-month period when used with concise instructions (Watson et al., 1988), and this scale is sensitive to variations in mood. This scale measures positive and negative mood. It has been shown to produce reliable and valid scores with teachers (Watson et al., 1988).

## Procedures

The research protocol for this study looked at students' and staffs' physical activity levels on days of the walking club over 8 weeks. Members of the study picked up their pedometer each intervention morning (i.e., Tuesday and Thursday) before school between 7:30 a.m. and 7:50 a.m. in the gym. They wore the pedometer during the school day and turned it into the researcher at the end of the day at 4:00 p.m. The walking club took place on Tuesdays and Thursdays from 3:15 p.m. to 4:00 p.m. This allowed the teachers time to release their students and change if needed. This also provided time for the students to complete their homework and change if needed before the club began. The club took place outside on the field in the back of the school, and the course was outlined with cones. Physical activity levels and number of steps were recorded only on club days on Tuesday and Thursday. Prior to the start of the club, the walking club members took a presurvey (i.e., Irritation Scale) for evaluation of their stress levels. Staff members completed a mood survey prior to the start of the club and immediately after the club twice. Then immediately after the walking club 8-week intervention, all participants took the Irritation Scale and qualitative survey.

## Data Analysis

This study consisted of a mixed-methods design. Therefore, multiple methods of data analysis were used in the sythesis of the results.

Investigation of school day physical activity differences on school days with the after-school walking club for teachers, students, and the entire sample was done with *t* tests. These tests were also used in the investigation of pre- to postdifferences in the Irritation Scale, measuring stress for teachers, students, and the entire sample. Further, *t* tests were used in the exploration of pre- and postdifferences for individual mood items for teachers. Data were also graphed for a visual representation.

Descriptive statistics of results showed similarities and differences between the two teacher groups on school day physical activity and the Irritation Scale results (stress measure; Figures 3 and 4).

Themes across open-ended survey responses were determined with common comparison analysis. Trustworthiness measures included member checking (sharing findings with participants for their feedback), search for negative cases, and peer debriefing.

# Results

## Pedometer

Figure 1 illustrates the accumulation of steps during the school day. Overall, the students' average number of steps during the 13 school days was 7,657 (*SD* = 2,661). Overall, the staff members' average number of steps during the 13 school days was 5,896 (*SD* = 2,617). Figure 2 illustrates the accumulation of steps from the walking club. During the 13 sessions, the mean number of steps for the students participating in the club was 2,585 (*SD* = 699). Over the 13 sessions, the mean number of steps for the staff members participating in the club was 3,063 (*SD* = 331).

Students gathered more steps than the staff members during the school day, but staff members gathered more steps than the students during the after-school club. Figure 2 shows the daily steps in the after-school walking club, and Figure 3 shows similar steps during the school hours across the two teacher groups.

**Figure 1**

*Mean Physical Activity Levels for Students and Staff During the School Days Across Club Day Sessions*

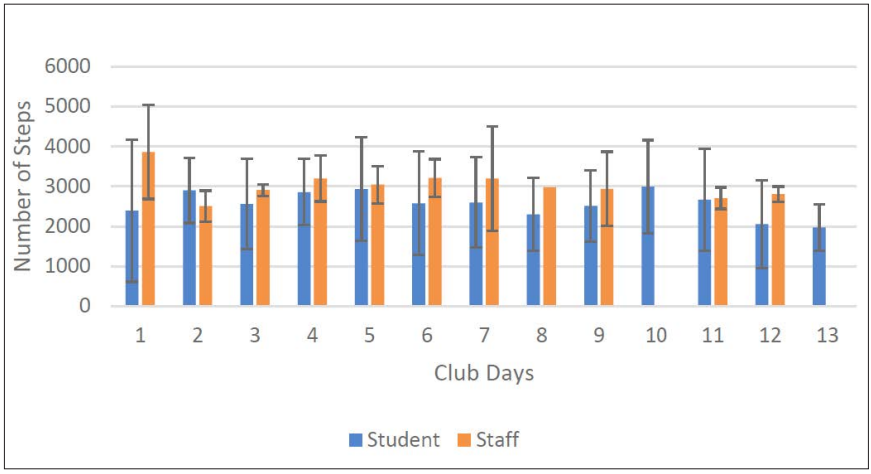
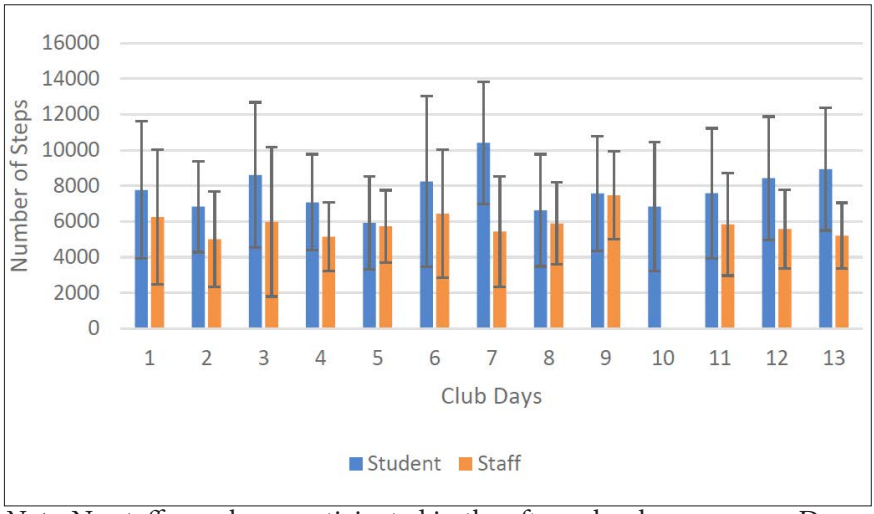



**Figure 2**

*Mean Physical Activity Levels During After-School Walking Club Sessions for Students and Staff Members Across Days*




*Note.* No staff members participated in the after-school program on Day 10 and Day 13.

**Figure 3**
*Mean Physical Activity Levels During the School Day for Staff Members Across Treatment and Control Groups*

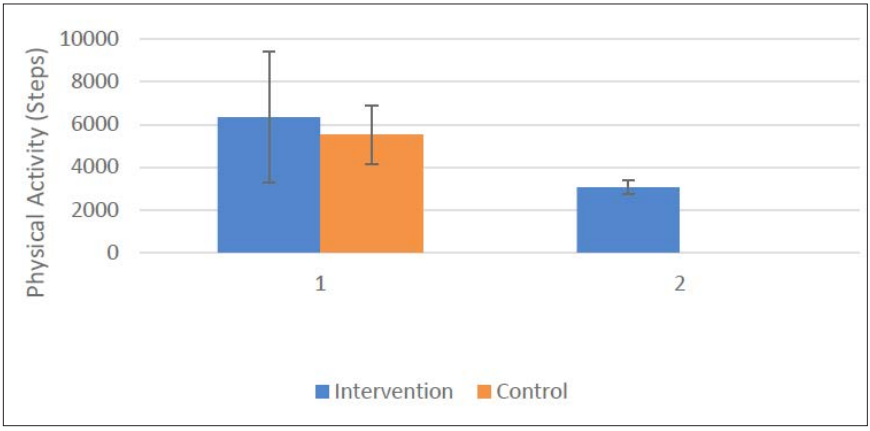
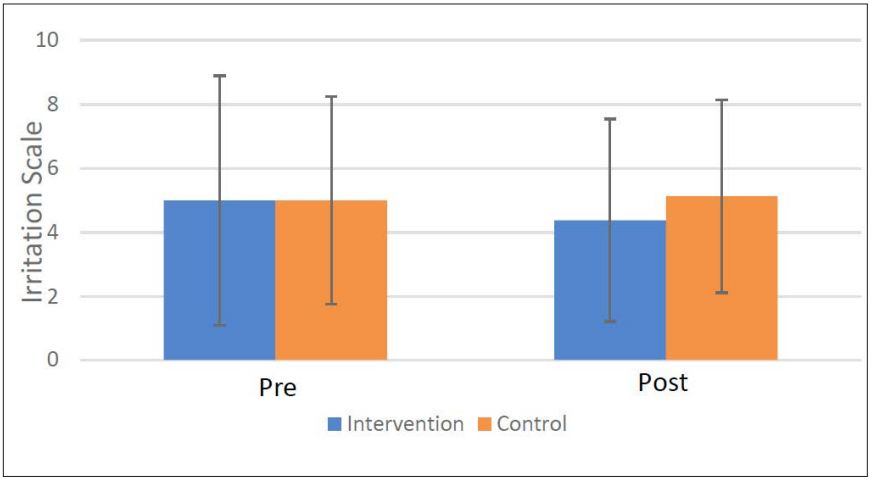



**Figure 4**
*School Staff Members' Mean Irritation Levels Across Intervention and Control Groups*




## Irritation Scale

The students' mean for the Irritation Scale pretest was 3.13 (*SD* = 1.15) and posttest was 2.47 (*SD* = 1.02). The scale ranged from 1 to 8, suggesting that at the beginning of the project students were more stressed. The intervention staff members' mean for the Irritation Scale pretest was 3.89 (*SD* = .93) and posttest was 3.16

(*SD* = 1.00). These results parallel the students', again suggesting that during the intervention the staff members were less stressed. Across teachers and students, stress significantly decreased across the program, $t(51) = 4.50$, $p < .01$, Cohen's $d = .98$. Although teachers in the intervention group reported significantly lower stress at posttest, their scores were not significantly different from the control group participants' at posttest, $t(15) = 1.47$, $p = .82$. This appears to be related to higher pretest stress for participants ($M = 3.89$, $SD = .93$) than for the control teachers ($M = 3.24$, $SD = 1.41$), making the project even more useful for the teacher participants.

## Mood Instrument

The 8-week after-school walking club decreased stress and increased mood. Two *t* tests showed significant improvement in mood from pretest to posttest (Table 2). Three *t* tests showed significant decreases in negative mood from pretest to posttest (Table 2). The overall positive mood mean pre-club was 3.38 (*SD* = .33) and post-club was 3.76 (*SD* = .63), $t(7) = 2.35$, $p = .05$, Cohen's $d = .467$. The overall negative mood mean pre-club was 1.65 (*SD* = .52) and post-club was 1.10 (*SD* =.18), $t(7) = 2.96$, $p = .02$, Cohen's $d = .526$. Table 2 shows 10 positive items and 10 negative items that staff participants ranked on a scale from 1 to 5 pre-club and post-club.

## Program Themes About the After-School Program

Twenty-three of the students said they would participate again in an after-school walking club, whereas one said they might and one said they would not. Eighteen students stated they were in a better mood on days with the walking club, two said they were not, two stated they felt the same, and three stated they sometimes did. Most students reported they would change nothing about the after-school walking club program, but a few suggestions included (a) making it on more days, (b) doing more exercising, (c) having all students run a lap before they play a game, and (d) having the students create goals. Of all participating students, 88% indicated they attended the club twice a week and 12% indicated they attended once a week. Major themes the students described as their thoughts and feelings toward the after-school walking club included that they "liked it," "fun," "awesome," "amazing" and a "great way to get exercise after school."

**Table 2**
*Mood of Teachers*

| Item | Pre-club | | Post-club | | | Cohen's *d* |
|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *p* | ES |
| Positive | | | | | | |
| Interested | 3.50 | .76 | 4.13 | .35 | .01* | .518 |
| Excited | 3.50 | .54 | 3.88 | .99 | .35 | |
| Strong | 3.63 | .52 | 4.00 | .76 | .08 | |
| Enthusiastic | 3.50 | .54 | 4.00 | .93 | .10 | |
| Proud | 3.75 | .71 | 4.38 | .52 | .10 | |
| Alert | 3.38 | .52 | 3.25 | 1.04 | .79 | |
| Inspired | 3.00 | .93 | 3.63 | .92 | .05* | .744 |
| Determined | 3.50 | .54 | 3.75 | .89 | .52 | |
| Attentive | 3.13 | .64 | 3.00 | 1.07 | .73 | |
| Active | 2.88 | 1.13 | 3.63 | 1.30 | .20 | |
| Negative | | | | | | |
| Distressed | 2.25 | .46 | 1.38 | .74 | .00* | .354 |
| Upset | 2.25 | 1.28 | 1.38 | .74 | .06 | |
| Guilty | 1.00 | .00 | 1.00 | .00 | | |
| Scared | 1.13 | .35 | 1.00 | .00 | .35 | |
| Hostile | 1.25 | .46 | 1.25 | .71 | 1.00 | |
| Irritable | 2.88 | 1.36 | 1.38 | .52 | .02* | 1.41 |
| Ashamed | 1.00 | .00 | 1.00 | .00 | | |
| Nervous | 1.63 | .74 | 1.13 | .35 | .03* | .535 |
| Jittery | 1.88 | 1.46 | 1.25 | .71 | .25 | |
| Afraid | 1.25 | .46 | 1.00 | .00 | .17 | |

*Note.* Range is 1 to 5, 5 being the most positive and 1 being the most negative.

The staff members also filled out the five open-ended questions regarding the after-school walking club. All of them reported they would participate again in the walking club. The staff members stated they loved the club, they looked forward to it, it was a great way to decompress, and it motivated them to be active on other days as well. All of the staff members indicated they were in a better mood on days with the walking club, and it was something to look forward to.

The staff members suggestions ranged from (a) making the club all year long, (b) having it separate from students, and (c) having more of a variety of games. One staff member attended the walking club twice a week, whereas all the others attended once a week.

# Discussion

## More Participation From Younger Participants

There was more participation from younger participants with over half between the ages of 9 and 11, which is similar to the participants in Kahan and McKenzie (2017), in which the majority of participants for their after-school running club were boys between 9 and 11.

The after-school walking program adds an average of 2,650 more steps to students' and staff members' daily physical activity patterns. Given students can accumulate 2,000 steps from a 30-min physical education class (Brusseau et al., 2012), this shows participants in an after-school walking club program can accumulate more steps than in a typical physical education class. Like Salway et al.'s (2019) students who attended an active after-school club increased their MVPA by an average of 7.6 min on the club day, the students in this study increased their daily physical activity time. This also concurs with Schultz et al.'s (2019) statement that walking and running clubs can help students achieve the recommended 60 min of MVPA. Further, results concur with Kahan and McKenzie's (2017) participants who were in the running club for 37 min, 24.2 min on average being physically active, with 50% of this time in MVPA. Students participating in an after-school club increased their daily physical activity time.

## Decreased Stress and Increased Mood

This study shows that an 8-week after-school walking club significantly decreases stress and increases mood. This result aligns with findings from Pascoe et al. (2020) that physical activity and exercise have a positive effect on mental health, with 17 out of the 22 studies demonstrating such. It is also similar to the finding of Haugland et al. (2003) that students who participate in leisure-time physical activity have less school-related stress and fewer health complaints.

## Limitations and Strengths

This study has a couple of limitations. First, the relatively small sample size of student and staff participants makes generalizations difficult. Second, due to the school's policy regarding COVID-19, students were periodically quarantined and unable to participate in the after-school program. Further examination on the impact of physical activity on mood and stress levels may be warranted. A few strengths from this study are its inclusion of both students and staff members and its examination of stress and mood as well as physical activity levels.

## Conclusion and Implications

Participating in an after-school walking club can increase overall daily school-based physical activity. An after-school walking club can also decrease stress levels and improve overall mood, specifically feeling more interested and inspired and feeling less distressed, irritable, and nervous for staff members. An after-school walking club can also decrease stress levels for student participants. This study is important because not only does it explore the daily physical activity patterns of children and adults, but it also looks at stress and mood levels. Understanding of physical activity contributions from an after-school walking club is essential in designing effective physical activity interventions. The school day and more specifically an active after-school walking club appear to be extremely important for increasing physical activity levels, decreasing stress, and improving overall mood. This provides valuable new information as well as baselines measures for practitioner and researchers to use in school-based physical activity interventions.

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The Physical Educator Vol. 80 • pp. 677–700 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-11613

PHYSICAL EDUCATION

# Enhancing the Legitimacy of High School Physical Education

*Nicholas Washburn*

## Abstract

*Compared to elementary physical education, high school physical education has historically lacked quality. Students struggle to find relevance in the subject, team sports dominate the curriculum, and teachers generally do not actively teach to the extent of their elementary counterparts. Though the need for change has long been acknowledged, substantive change has failed to permeate practice. Indeed, the same issues that plagued high school physical education 30 years ago continue to do so today. This article presents a splintered identity, misaligned curriculum, and a negligible commitment to teaching as fundamental issues that should be addressed if high school physical education is to successfully enhance its status in the eyes of key stakeholders, including students, other teachers, administrators, parents, and policy makers.*

I remember entering physical education teacher education (PETE) with the mindset to assist in efforts that bring positive change to high school physical education (HSPE). Such changes are necessary when students experience boredom from repetitive material (Couturier et al., 2005) and view the class as irrelevant (Rikard & Banville, 2006). Despite calls for change (Corbin, 2002; Curtner-Smith, 2009; Doolittle, 2007; Griffey, 1987; P. Ward et al., 2021), actualized change remains scant. Indeed, the "dominant model" for HSPE (Locke, 1992)—a model identifiable in part by introductory-level instruction, low academic learning time, and content based on teacher interest and convenience—maintains its dominance today

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(Rikard & Banville, 2006). This is particularly troubling given Locke's (1992) claim from almost 30 years ago that "if physical education is to have a significant presence in the secondary schools of the 21st century, it is better to chuck the dominant model (and thereby most school programs) and start over from scratch" (p. 362). It is never too late to actualize change, and what better time to begin doing so than now? In this article, I provide candid commentary on how a lack of identity, a misaligned curriculum, and non-teaching prevent the field from gaining standing in the eyes of students, teachers of other subjects, administrators, parents, and community members. I stand with Henninger and Carlson (2011) in the perspective that we, as a profession, can no longer use marginalization as an excuse to "roll out the ball." To begin, however, I present a brief overview of the physical education (PE) teacher socialization process.

Unique to the teaching profession is the extensive experience future teachers gain as students in school, observing what it means to be a teacher. Few, if any, other career paths involve such a substantial preview. This approximately 13,000-hour shadowing period is like an apprenticeship of observation (Lortie, 1975). During this time, future physical educators develop subjective theories about what it means to teach PE (Richards, 2015). They determine their fitness for the job through appraising personal abilities, interests, and beliefs about the purpose of PE with reference to those of the individuals occupying the socially constructed role of PE teacher in their school (Richards, 2015). The culture of the school nests and shapes this role. According to role socialization theory (Richards, 2015), everyone within a school community occupies a certain status (e.g., student, teacher, administrator, parent). Each status coincides with a role to play, or a script for how to act. Groups of individuals occupying the same status comprise role sets. Roles are socially constructed and contextually bound, informed by the views of what other role sets in a particular school consider appropriate and inappropriate. For example, the role of the PE teacher (the behaviors they enact and the values they hold) depends largely on the expectations of others. Students, other teachers, administrators, and parents within that school community hold expectations for PE as a subject and for the PE teachers themselves. This role may be very different in another school community.

Though some teachers retain an innovative orientation in that they seek to utilize the methods taught in their PETE programs (Mercier & Iacovelli, 2014), research indicates that many schools, functioning as custodial bureaucracies (Curtner-Smith et al., 2008), favor the status quo and promote a maintenance of sameness. Lawson's (1983) illustration of the custodial nature of schools likens them to prisons and mental hospitals, containing "large, heterogenous groups of clients who do not seek professional development voluntarily" (p. 5). Such bureaucracies standardize technique reproducibility of work in the interest of preserving order (Lawson, 1983, drawing from Downs, 1967). This highly regimented, routine-focused heritage of schools stands at odds with that of PETE, which espouses an emphasis on student learning over mere supervision and a humanistic approach as opposed to a pupil-control approach toward teaching (Templin, 1979). Even with the assumption that new teachers have internalized the professional teachings of their PETE programs, which is a major assumption, indeed, considering the potency of acculturation in relation to that of formal training (A. M. Woods et al., 2016), the socializing force of the school is quite powerful (Schempp & Graber, 1992; Zeichner & Gore, 1990). It can be even more powerful when multiple role sets (e.g., students, teachers, administrators, parents) within the bureaucracy hold similar views about the role of the PE teacher.

When the perspectives of others within the school align with those of the incumbent, the transition is relatively seamless. When they are misaligned, however, social turbulence in the form of role stress is likely to arise (see Richards et al., 2014). For example, if the students, veteran PE teachers, other faculty, and administrators in a school uniformly believe the purpose of PE is simply to "blow off steam" and the role of the PE teacher is to maintain positive student behavior, then an incoming physical educator who values individualizing instruction for success and focuses on student learning would likely experience significant intrarole conflict (Merton, 1957). The point is that most school cultures tend to possess relatively custodial views toward PE. The subject is afforded a lower status than those considered to be more academic in nature, and expectations for PE teachers pertain less to facilitating student learning and more to ensuring desirable student conduct (Henninger & Carlson, 2011). This

widely accepted perspective of the nature of PE places physical educators lower on the totem pole than teachers of other subjects. As a result, PE teachers often experience lower instructional expectations and interact with administration less than other teachers (Richards et al., 2018). This social structure facilitates the retainment of teachers willing to embrace a custodial, and frankly easier, approach to teaching PE. Those unwilling to compromise their innovative ideals (however they were formed) either leave voluntarily or are relieved of their post to be replaced by someone who will (Gaudreault & Woods, 2013). This is not to say that there are no motivated, humanistic veteran physical educators, though they appear to be among the minority (Woods et al., 2016). The ultimate and unfortunate consequence is that the next generation of aspiring physical educators then begin to develop their own subjective theories based on the custodial roles of their PE teachers, roles that have become worn and weathered to be custom fit for success in a culture that endorses the status quo.

## What Is the Place for Physical Education in Schools?

Prior to elaborating on issues of curricular revision and commitment to teaching, I offer my perspective on the place of PE in schools. Consensus on our identity as a field has been elusive since its inception in 1885 with the inaugural meeting of the Association for the Advancement of Physical Education (currently SHAPE America). At that time, in what came to be known as "The Battle of the Systems" (Weston, 1962), prominent founding individuals promoted the style, or system, of gymnastics they felt to be most appropriate for PE. Unlike Olympic gymnastics seen on television today, these gymnastics systems were more so gymnastics-themed approaches to *formal* (i.e., prescribed, whole-group) physical training (Siedentop, 2009). Though unique to each other, these systems shared the common goal of improving physical fitness. None of these systems ultimately took the lion's share in school curricula due to ongoing debates about the merits of any one system (Ennis, 2006) and student apathy toward forms of exercise they did not understand or were disinterested in (Halsey, 1964).

The vision for PE that emerged supreme was initially developed and touted by Thomas Wood (1910) and became known as "The New PE." This new version of PE expanded the goals of the subject

to educate the entire human through an emphasis on mind *and* body. According to Wood, to gain recognition in the world of education, PE needed to expand its focus beyond just physical training to include development in cognition and prosocial skills. The health benefits that once were the primary focus of gymnastics-based PE became viewed as by-products of activities that promoted social, mental, and ethical development (Davenport, 1984). To a large extent, formal gymnastics were replaced with competitive sports, recreational games, rhythmic movements, and modified gymnastics for the purposes of supporting students' physical, mental, social, and emotional development. The New PE (Wood & Cassidy, 1927) viewed physical activity as a medium for educating the whole child (Oberteuffer, 1951).

A resurging emphasis on fitness development in PE occurred toward the middle of the 20th century due to the inadequate fitness of American troops in the Korean War and the observation that almost 1 of every 2 young Americans were being rejected from military service on the basis of being either mentally, morally, or physically unfit. Chiefly, however, and prompting then-President John F. Kennedy to pen the article "Soft American" on the declining fitness of young Americans in a December 1960 issue of *Sports Illustrated*, was the *U.S. News and World Report* ("Are U.S. Kids," 1954) coverage of findings indicating children in the United States were weaker than those in Italy, Switzerland, and Austria (Kraus & Hirschland, 1954). Six fitness tests, five assessing muscular strength and one assessing flexibility were administered to 4,264 American children and 2,870 children from the other three countries. Results showed that 57.9% of American children failed at least one test, compared to 8.7% of European children. President Kennedy was particularly disheartened by the strength test results, as 35.7% of American children failed at least one of these, compared to just 1.1% of Europeans. The President's Council on Physical Fitness and Sport was created shortly following the release of these findings (1956). Despite this heightened awareness of the importance of fitness, the institutionalization of organized sport in American culture enabled sports to continue occupying center stage in PE curricula (Siedentop, 2009).

Following the release of *A Nation at Risk* (National Commission on Excellence in Education, 1983), the scathing critique of American

education as being mediocre and threatening the future of the nation, the National Association for Sport and Physical Education (1995) published the first set of national standards for PE. Though the standards have been condensed in number from seven to five in the last 26 years, there remains a clear connection to The New PE theme of education *through* the physical. Consider that Standards 2 through 5 pertain primarily to development in cognition and affect. The diversified focus of the standards is further reflected in what might be considered the most recent era in the PE field, the age of models-based practice (Metzler, 2017). Instructional models are developed to serve the purpose of PE as seen in the eyes of their creators. Sport education (Siedentop, 1998), for example, inducts youth more effectively into American sport culture, whereas teaching personal and social responsibility (Hellison, 2010) views PA as a vehicle to promote positive youth development. The play practice approach (Launder & Pilz, 2013) emphasizes development of tactical and technical gameplay competencies, whereas cooperative learning (Casey & Dyson, 2012) emphasizes blending positive interdependence in small groups with individual accountability for the achievement of academic and social outcomes. The implementation of instructional models is requisite for PE to retain legitimacy in the 21st century (Kirk, 2012). While I see value in incorporating various instructional models into the curriculum, I propose that a shift in *what* is taught rather than *how* it is taught in HSPE will prove more fruitful in pursuit of legitimacy.

## A Common Vision for the Future

PE was socially constructed around movement for the purpose of improving the physical dimension of the person, and a return to this purpose is recommended. What makes PE unique is a focus on movement. The subject exists as a vehicle for developing in youth a value for moving. While the Society of Health and Physical Educators (SHAPE America, 2021) states on its website that PE exists to develop physical literacy, "the ability, confidence, and desire to be physically active for life," the obesity rate in the United States increased from 26% in 2008 to a staggering 42% in 2018 (Warren, et al., 2020). This upward trajectory is projected to continue, with obesity prevalence among U.S. adults reaching almost 49% by 2030

(Z. Ward et al., 2019). Though it seems unreasonable to place the responsibility of flattening the obesity curve solely on school-based PE, one controllable factor that significantly influences an individual's weight is the amount of physical activity built into their lifestyle. Admittedly, youth cannot improve their fitness if the only time they are physically active is in PE; however, PE teachers can help to develop in students a value for PA that will lead them to be physically active outside of school and beyond.

Each week, adults ages 18 to 64 should (a) accrue 150 min of moderate-intensity (e.g., brisk walking) or 75 min of vigorous-intensity (e.g., jogging) aerobic activity, and (b) engage in muscle-strengthening activities (e.g., resistance training) that work all major muscle groups at least twice a week (Centers for Disease Control and Prevention, 2022). Just 24.2% of adults (18 years and older) are meeting the aerobic and muscle-strengthening guidelines (Elgaddal et al., 2020).. On the basis of these metrics, adults are not adequately physically active and PE is not sufficiently contributing to this cause, its initial sole purpose. This "PE effect" (Green, 2014), or the influence of involvement in PE outside of school, appears to be minimal (Green, 2014; Portman, 2003) with 82% of 515 students not participating outside of school in activities learned in PE.

It is important to acknowledge the monist perspective from which I comment, one that considers the mind and body to be inextricably linked. With improvement of the body comes improvement of the mind. While social and affective development is certainly important and deserves to be intentionally addressed through the PE curriculum, caution should be exercised in touting outcomes in these realms as primary programmatic initiatives (Corbin, 2002; Crum, 1993). Indeed, I respectfully welcome other subject areas in schools to consider making curricular space in their programs for formal instruction in these domains in the interest of collectively educating the whole child. In promoting an emphasis on the physical, I am not suggesting that students today need to become highly proficient sportspersons, dancers, swimmers, adventurers, yoga instructors, or fitness enthusiasts. Rather, I am merely suggesting a renewed commitment to helping students become lifelong movers. In this vein, there needs to be a shift in the focus of HSPE.

## Revising HSPE Curricula

The secondary PE curriculum is no longer meeting the needs of adolescents in 21st century (P. Ward et al., 2021). SHAPE America (2014) indicates that HSPE learning outcomes extend upon those established for middle school "but with a more concentrated focus on planning and implementing lifetime physical activity goals" (p. 53). This statement aligns with PA preferences among adults. Among individuals indicating they engage with sport or exercise on an average day, walking is by far the most popular form of exercise (30%), followed by weightlifting (9%), use of cardio equipment (9%), running (8%), aquatics activities (7%), basketball (3.5%), golfing (3%), cycling (3%), yoga (2.5%), and aerobics (2%). Basketball is the only team sport among the top 10 activity preferences. In total, just 5.2% are playing team sports. Further, data from this survey indicate that, with age, there is a shift in PA pursuits from team sports to lifetime activities. Roughly 75% of individuals participating in the team sports of baseball, softball, soccer, football, and basketball are 15 to 24 years of age. Most participants engaging in lifetime activities such as yoga, walking, use of cardio equipment, golfing, swimming, and hiking are 25 years of age and older (R. A. Woods, 2017). These data support research observing that, by far, Americans age 18 and older participate less in team sports and more in lifetime sports (e.g., golf, tennis), exercise, and recreation (Corbin, 2002; Ham et al., 2009; Simons-Mortons et al., 1999).

Nevertheless, traditional team sports (e.g., basketball, volleyball) continue to dominate HSPE curricula in the United States (Corbin, 2002; Gaudreault, 2014). Secondary physical educators' steadfast "love affair" with team sport are a product of their past experiences (Ferry & McCaughtry, 2013). The emotional connections between future PE teachers and sport form during their acculturation, producing in them a sporting habitus that influences their decision to become PE teachers. A crucial initial step toward fixing the PE system is changing the basis on which future HSPE teachers develop their subjective theories on the nature of the subject. If they largely experience team sport in high school, those wanting to teach HSPE in the future will likely do so with the perception that HSPE is a place to play team sports. Contrarily, if they experience HSPE as a place for learning about and developing competence in lifetime physical

activities, those entering PETE with the intention to teach at the high school level might do so because of a value for lifetime physical activities.

In light of the obesity and overweight statistics, indicating that there is a general lack of physical activity among U.S. adults and that the vast majority of those who keep physically active do so through lifetime activities, HSPE programs can make substantial contributions to public health and become increasingly meaningful to students (Carlson, 1995; Doolittle, 2007; Griffey, 1987) through re-allocating curricular space to formal instruction in a variety of lifetime activities (Fairclough et al., 2002; Trudeau & Shephard, 2008) that are culturally relevant to students. Examples of such "cool" PE (McCaughtry, 2009) include how to operate and interpret the display information on common fitness facility cardio machines, how to adjust and properly use resistance training machines, how to swim freestyle and breaststroke to swim laps for exercise, and how to competently play a recreational game of tennis. Students also claim to participate outside of school in activities they were introduced to in PE including archery, badminton, tennis, fencing, and weightlifting (Green, 2014). Though conceptual variations of PE that involve a blend of classroom time and activity time (Corbin et al., 2020; Dale et al., 1998) demonstrate moderate potential in improving the PE effect, I believe greater success toward this end will be realized with less classroom-based time and more time experiencing the joy that accompanies engagement in physical activities of interest. Accepting this as the principal goal of HSPE can aid in conceptual clarity and the attainment of learning outcomes (McKenzie & Lounsbery, 2014; P. Ward et al., 2021).

A better-aligned approach might be the health-based PE (HBPE) model from Haerens et al. (2011). The HBPE model is one approach that can be particularly effective in helping students develop a value for PA (Siedentop, 1996), compared to a traditional multiactivity sports-based curriculum (i.e., one that assumes a discipline mastery value orientation in teaching largely team sports) to make a meaningful contribution to PA health promotion. This model draws on self-determination theory (Ryan & Deci, 2017) in that planning to support students' psychological needs for autonomy, competence, and relatedness is important in providing enjoyable, independent yet

supported learning experiences that build competence and a value for PA.

Where I may slightly deviate is the emphasis, or apparent lack thereof, on the development of competence in the content. I believe that skillful performance, at least insofar as results are more often considered to be a product of one's actions rather than luck, is part and parcel to experiencing the deep level of enjoyment that is capable of producing sustained engagement (P. Ward, 2020). For someone to willfully play golf, go for a bike ride, or play tennis, they must have a reasonable level of confidence in their ability to have at least a moderate level of success. This does not mean that teachers must concern themselves with getting every student to be proficient in every activity. Not everyone is skillful or even cares about being skillful in golf, cycling, or tennis. Instead, the task becomes understanding that individuals' interests and aptitudes vary and helping them identify and excel in those activities in which they aspire to improve. Indeed, the paramount focus of PE should be on helping students learn to value PA as a crucial part of a healthy life. Haerens et al. (2011) support Siedentop (1996) in that the affective domain should take precedence when a value for PA is being developed in individuals. I concur, though I propose that the task should primarily be identifying content of interest to students and facilitating a utilization level of competence (Graham et al., 2020).

Table 1 serves as a sample HSPE curriculum that focuses on lifelong physical activities. Each block essentially represents a 4-week unit or miniature class. In line with previous suggestions for undertaking curricular revision (Cothran & Ennis, 1998), this sample curriculum comes from the belief that the current team sport–dominant model characteristic of many HSPE programs is misaligned with the purpose of HSPE in socializing adolescents into lifelong movement culture (Corbin, 2002). The curriculum involves activities from all four games classifications represented within the tactical games approach (Mitchell et al., 2020); however, team sport occupies just five of 20 blocks. The remaining 15 blocks pertain to instruction in lifetime activities, and fitness is not a standalone unit but rather is integrated throughout all blocks. One issue students have with HSPE is the inability to see gains in fitness (Rikard & Banville, 2006). This constant emphasis on allowing students to exercise enables them to

set goals and track growth over time and thereby develop desirable habits around fitness. Of course, if certain units involve significant exertion, such as cross-country skiing, it is the teacher's decision to abbreviate or omit the fitness portion for that block. Table 2 presents a sample block, specifically the content of golf taught through the sport education model (Siedentop, 1998). Grade-level outcomes from all five national standards are achieved in just this one block. I submit that a curriculum such as the one in Table 1 that is taught through the use of a variety of styles and models is capable of meeting all high school grade-level outcomes as set forth by SHAPE America (2014) while maintaining a primary focus on promoting lifetime PA.

Teachers looking to revise the curriculum in their own programs might begin the process by generating a list of lifetime activities that could realistically be taught by the PE staff or outsourced, asking students to select activities from this list they have not done before but would be interested in experiencing, and identifying the amount of time to be invested in each unit throughout the program (Gaudreault, 2014). It is worth underscoring that the term program was used instead of year, because a curriculum should not be recycled year after year (Rikard & Banville, 2006). What is taught each year should not be replicated in the following year. If activities are revisited, the content within that activity should review and build on what was taught previously. With the assumption students are growth-oriented (Ryan & Deci, 2017), one major step toward helping students identify a sense of meaning in HSPE lies with facilitating the development of an interest in any number of lifetime physical activities. Even then, the best of curricula can be rendered useless without teachers who are willing to teach it.

## Establishing a Commitment to Teaching

A third substantial hurdle to overcome if HSPE is to gain legitimacy as a subject is the problem of a weak commitment to teaching (Crum, 1993), or a general lack of acceptance that the physical educator's primary function is to help pupils learn. Much of what occurs in HSPE programs in the name of teaching can be more accurately characterized as managing, supervising, and socializing (Griffey & Housner, 1999; Henninger & Coleman, 2008; Placek, 1984). This current form of HSPE includes a longstanding trend of non-teaching PE teachers, including "sport officials," "sandwich eaters," and "chair

sitters" (Curtner-Smith, 2009). Breaking this trend requires garnering information from teachers, because "it seems pointless to find out even more about effective teaching methods or new curriculum models if we can't get anyone to use or do them" (Curtner-Smith, 2009, p. 222; Locke, 1977).

A non-teaching approach is traceable to the two foundational ideologies long competing for centrality within the subject, namely, education *of* versus *through* the physical (Crum, 1993). Early pioneers of the gymnastics movement and those who believe PE exists to develop fitness subscribe to the education of the physical ideology, whereas those who consider PE as a vehicle for holistic development, such as the promoters of The New PE, align with the education through the physical philosophy. In either case, the act of teaching is reduced. In the former, beyond teaching the movement initially, class time becomes little more than routine exercise. In the latter, teachers concern themselves primarily with socioemotional outcomes, thus undermining the importance of the content that makes up the subject.

I submit that non-teaching behavior among high school physical educators is a product of a flawed system and can be explained through operant conditioning theory (Skinner, 1953). Operant conditioning is an associative learning process that considers behavior to be influenced by consequences in the form of *reinforcers* and *punishers*. Reinforcers are consequences that increase the likelihood of a behavior being repeated, whereas punishers decrease such a possibility. Both reinforcers and punishers can be positive (i.e., applied) or negative (i.e., withheld). For example, to get a child to finish their homework, a guardian might reward them with ice cream when their assignment is complete (positive reinforcer). Contrarily, they might remove their responsibility for washing the dishes that evening if the assignment is completed (negative reinforcement). To get a child to stop cussing, a guardian might impose a time-out (positive punishment) or remove 15 min off a curfew (negative punishment) for each cuss word they hear. Through leveraging something of value, such as the desire for ice cream and a later curfew, or the disdain for washing dishes and time-out, the guardian can promote in their child desirable behavior.

I believe the system for teacher evaluation is structured to enable non-teaching. Specifically, there is a lack of reinforcement for investing the effort needed for teaching well and a lack of punishment for non-teaching. In my state of residence, along with many others, teachers are awarded permanent contracts through tenure after successfully completing 3 years of service. Once a teacher is tenured, it is very costly and laborious for a district to dismiss that teacher. At first glance, having a teacher prove their abilities during a probationary period prior to earning a permanent position seems like a rational policy. Once a teacher is tenured, however, there is little, if any, incentive for them to continue investing as much effort in teaching as they did to become tenured. Regardless of lesson quality, all tenured teachers earn the same stepwise raise year after year. Guaranteeing the equality of outcome suppresses drive and innovation. Eventually, absent positive reinforcement, efforts dedicated to teaching at a high level will become reduced or even extinct. This might explain why so many veteran physical educators become burned out (A. M. Woods et al., 2016).

The teacher evaluation system should become merit-based instead of time-based. Teaching competence should not be considered as commensurate with years of service. There must be incentives for teachers going above and beyond, trying new techniques, offering students new experiences, and so forth. Teachers should be eligible for bonuses, additional paid leave, expanded program budgets, or other forms of positive reinforcement when revising their curricula to meet students' needs and provide differentiated instruction.

In addition to recalibration of the teacher evaluation system, what can be done to eradicate this non-teaching approach? PETE faculty need to be stricter gatekeepers for the profession (Graber et al., 2016). We cannot make individuals one day want to teach. If someone is not interested in teaching, external intervention will only do so much to change that, at least in the long term. PETE programs need to be more stringent in gatekeeping. Individuals who love teaching, who possess a teaching orientation (Curtner-Smith et al., 2008), and who demonstrate a desire to continue to learn should be admitted, whereas hardcore coaching-oriented and low-achieving students should be denied admission and advised toward alternate career paths (Templin et al., 2019). That many high school

PE teachers prioritize coaching over teaching is well-documented (Washburn et al., 2020). If they want to coach badly enough, they will find a different job that allows them afternoons and weekends off to do so. Their path to the playing fields should not be through PETE. Though this is potentially harsh, I believe it is necessary.

I further recognize that PETE enrollment is perilously low with respect to numbers at the turn of the century (Templin et al., 2019). Indeed, the entrance to the teacher "pipeline" is now a trickle (P. Ward, 2019). This sport analogy sums it well: We cannot afford to make cuts if it is a struggle to field a team. To become more exclusive, we need to generate interest and increase recruitment. I offer these suggestions in this very interest:

- The structure of PETE faculty workload should be reconsidered. Traditionally, faculty are expected to devote most of their efforts between teaching and research, with the remainder dedicated to service (Terpstra & Honoree, 2009). The problem is that this model is not yielding desirable results. The custodial, potent institutional press gradually erodes foundations of humanism (Templin, 1979), and the knowledge available in the literature rarely translates to improved practice (Kirk, 1989; Lawson, 1992; Stadulis, 1973). More credit within faculty workloads should be allocated to service to the profession and the community. For instance, PETE faculty should be given credit for supervising interns, providing relevant professional development opportunities for physical educators, and organizing family fun nights with the help of preservice teachers. This could improve local PE program quality, strengthen school–university partnerships, provide additional practical experience for PETE majors, and generate greater visibility for PETE programs.
- In addition, PETE faculty could offer a brief overview of their programs and the work of a PE teacher in local PE classes. This need not be anymore than a 5-min message in each of the PE classes in a high school. Before leaving, they might ask the PE teacher for permission to post a QR code that students could scan to see the PETE program's website. Considering the extent to which adolescents use their phones

today (Hirsh-Yechezkel et al., 2019), this could be an effective means for promoting the profession.

- Another approach might be to offer course credit to PETE majors for setting up an information table in high school cafeterias. With age being a factor in approachability (Bonnet & McAlexander, 2012), high school students might be more inclined to approach college students than professors.
- A final consideration, and one that we at Western Washington University have implemented, is to create program informational flyers and distribute them to high school guidance counselors and career offices in 2-year institutions. Students cannot apply to programs they do not know exist. Raising awareness can potentially increase recruitment.

As stated at the beginning of this article, my love for PE led me to PETE because I believe HSPE has the potential to be so much better than it is currently. Our standing as a profession, in my opinion, can be improved substantially if we establish consensus on the purpose of HSPE being to instill in adolescents a value for lifetime PA, revising programs' curricula accordingly, and becoming more rigid with respect to gatekeeping. Understandably, concerted efforts, including those offered as examples, are necessary to boost recruitment, thus enabling PETE faculty to become more selective in the admission process. This should not be viewed as an insurmountable task, however, but welcomed as a challenge for the achievement of something special. Much like companies set quarterly finance goals, PETE programs could set SMART goals (Rubin, 2002) pertaining to the number of applicants and those gaining admission.

I would be remiss if I neglected to acknowledge that, even with these hurdles being overcome, gaining legitimacy in schools and in the eyes of the community is likely going to be an ongoing and difficult process. Teacher marginalization is well-documented in the PE literature. Relative to their counterparts who teach "core" subjects, physical educators inherit larger class sizes, receive less support from administration, and are afforded less prestige (Lux & McCullick, 2011; Richards et al., 2018). This marginalization partly stems from the dualistic perspective pervasive in Western society that the mind is separate and superior to the body (Rozemond, 1998). Substances

that consume space, such as chairs, tools, and our bodies, known as "res extensa," are controlled by the thoughts of the mind, known as "res cogitans." Theoretical and academic activities are given status above those that are practical and physical (Kretchmar, 1996). This perspective manifests in the occupational hierarchy, which identifies professional jobs such as lawyers and doctors as more prestigious than vocational jobs such tradesmen and caregiving (Lynn & Ellerbach, 2017).

Another reason traces from the widely accepted "American Dream" that boasts hard work leads to success (Hochschild & Scovronick, 2003). PE content is leisure oriented and thus viewed as peripheral, if not inhibitory, to the process of self-improvement. If a person is playing or exercising, they are not working and making progress. This perspective, of course, is grounded in the belief that improvement is measured in terms of work-related qualities (income, title, visual progress, etc.). So, while I believe the standing of PE can be appreciably increased relative to its current level, I also recognize that for the aforementioned reasons and possibly others, this progress will take time and will not be experienced without the constant challenge of advocating for the unique and essential contribution HSPE makes to a child's education: establishing a value for PA and identifying as a mover. Nevertheless, seeking to rid our profession of the enemy that is the non-teaching physical educator through sound gatekeeping and revised teacher accountability and refocusing HSPE toward an emphasis on learning about and participating in lifelong physical activities will serve us well in this uphill but noble battle.

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The Physical Educator Vol. 80 • pp. 701–707 • 2023
https://doi.org/10.18666/TPE-2023-V80-I6-12183

STRENGTH & CONDITIONING

# Navigating Concussions: Empowering Strength and Conditioning Professionals for Optimal Recovery and Performance

*Lawrence W. Judge*

## Abstract

*Concussions and their impact on athletes are a major concern within the realm of strength and conditioning. This article delves into the significance of concussions, exploring their implications for athletes, coaches, and strength and conditioning professionals. Emphasizing the necessity of evidence-based practices in concussion management and prevention, this piece highlights recent developments in research and technology that shed new light on concussions. Furthermore, it presents promising advancements in early detection and improved management that ensure the safety and optimal performance of athletes.*

The noticeable rise in the number of reported concussions among athletes in recent years emphasizes the importance of implementing effective preventive measures and comprehensive management protocols (Tator, 2013). Along with this rise comes intense debate on the impact of concussions on athletes within the field of strength and conditioning and increased research, policy changes, and global awareness. Coaches seeking to make well-informed decisions must rely on relevant research and embrace evidence-based practice

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(EBP), utilizing the best available evidence from current peer-reviewed research in conjunction with their professional experience and judgment (Griffiths et al., 2018; Foster et al., 2018). Concussions present unique challenges to athlete safety and well-being, which emphasizes the importance of EBP in their management. However, coaches face significant obstacles in the adoption of EBP because of a lack of standardized protocols and tailored guidelines for diagnosing and managing concussions (McCrory et al., 2017). Inconsistent assessment methods, varied treatment approaches, and limited consensus on return-to-play guidelines also contribute to this challenge (Echemendia et al., 2017; McCrory et al., 2017). Addressing these gaps requires ongoing research, collaboration among professionals, and the establishment of evidence-based protocols (Echemendia et al., 2017; Leddy et al., 2019). Despite these challenges, strength and conditioning coaches can play a crucial role in supporting concussions through targeted strategies for prevention, recognition, and postinjury rehabilitation. This brief article explores the significance of the concussion and its implications for athletes, coaches, and strength and conditioning professionals.

## Background and Key Issues

Concussions, commonly referred to as mild traumatic brain injuries (mTBIs), are prevalent and have potential serious consequences in sports. Athletes participating in contact sports, such as football, rugby, ice hockey, and soccer, are at a higher risk of experiencing concussions. These injuries occur because of sudden impacts or blows to the head, leading to a disruption of normal brain function. Strength and conditioning professionals often work closely with athletes in contact sports and play a critical role in enhancing athletic performance and implementing injury prevention strategies. Therefore, it is important for them to develop concussion management protocols to protect the well-being of the athletes. The key issues surrounding concussions and their impact on athletes are as follows:

1. Awareness and recognition: One of the critical challenges in dealing with a concussion is ensuring that athletes, coaches, and strength and conditioning professionals are well-informed and vigilant in recognizing the signs and symptoms of concussions. Proper education and early iden-

tification are crucial in the management and prevention of long-term damage.
2. Return-to-play protocols: Establishing effective and consistent return-to-play protocols is essential to protecting the health and safety of athletes. The process of evaluating an athlete's readiness to return to the field after a concussion requires careful consideration, as premature return may exacerbate the injury.
3. Prevention strategies: Strength and conditioning professionals play a pivotal role in implementing evidence-based injury prevention strategies to reduce the occurrence of concussions. Proper training techniques, equipment selection, and injury-preventive exercises are essential components of an effective prevention program.
4. Long-term effects: The long-term consequences of concussions, such as chronic traumatic encephalopathy, raise significant concerns. Understanding the potential risks and implementing appropriate measures to protect athletes' brain health is a priority.

## Recent Developments

Recent research and advancements in technology shed new light on the understanding of concussions and their impact on athletes. Innovations in diagnostic tools, such as concussion assessment protocols and imaging techniques, contribute to early detection and improved management (Echemendia, et al., 2017). Examples of recent developments in the field that incorporate cutting-edge technology include the following:

1. Advanced imaging techniques: Improvements in medical imaging, such as MRI and diffusion tensor imaging (DTI), make it easier to detect subtle changes in the brain caused by concussions. These technologies provide valuable insights into the extent of brain injury and aid in determining appropriate recovery timelines.
2. Portable concussion assessment tools: Portable and user-friendly concussion assessment tools enable quick and reliable evaluations of athletes on the field. Mobile applications and devices equipped with neurocognitive tests and

balance assessments help in the identification of potential concussions immediately after an injury.

3. Biomarkers for concussion diagnosis: Research suggests that potential biomarkers in the blood or cerebrospinal fluid can indicate the presence of a concussion. These biomarkers may aid in the early detection of concussions and help track the recovery progress.
4. Virtual reality (VR) training: VR technology utilized in concussion management provides a controlled environment for athletes to safely practice cognitive and balance exercises during the recovery process. VR training can help accelerate rehabilitation while minimizing physical risks.
5. Concussion management apps: Mobile applications can assist athletes, coaches, and medical professionals in tracking and managing concussion recovery. These apps provide personalized care plans, symptom monitoring, and return-to-play guidance on the basis of evidence-based protocols.
6. Expanded research on long-term effects: Recent studies provide a deeper understanding of the long-term effects of concussions, especially concerning the association with chronic traumatic encephalopathy (CTE). This research provides a greater awareness of the potential risks and the need for proactive measures to protect athletes' brain health.

These examples highlight that recent advancements in research and technology enhance the field's ability to address concussions in athletes more effectively. Additionally, coaches must prioritize the referral of athletes to medical professionals for thorough evaluation and treatment to ensure proper management of concussions and safeguard the long-term health of the athletes. With ongoing efforts to improve concussion detection, management, and prevention, the strength and conditioning community can play a crucial role in safeguarding athletes' well-being and promoting long-term health. Ensuring the safety and well-being of athletes is paramount in any sport, and when it comes to minimizing the risk of concussions, implementing these effective prevention tips becomes an indispensable responsibility.

## Prevention Tips

In the quest for comprehensive concussion prevention and management, a multidisciplinary approach brings together the expertise of medical professionals, coaches, strength and conditioning specialists, and the latest technological advancements to devise effective strategies. Some essential prevention tips can safeguard athletes from the risks of concussions.

1. Educate athletes on proper techniques to minimize head impacts: Provide thorough training and coaching on safe and effective methods of playing the sport to reduce the risk of head injuries.
2. Be vigilant in observing high-risk positions: Pay special attention to athletes in positions that are more susceptible to concussions, such as those involved in contact sports, to identify potential concussion cases promptly.
3. Enforce sports rules for safety and fair play: Ensure strict adherence to the rules of the sport, emphasizing the importance of fair play, safety, and sportsmanship to reduce the likelihood of dangerous incidents.
4. Encourage the use of appropriate protective gear: Promote the use of well-fitting and high-quality helmets and other protective equipment designed to mitigate the impact of head injuries.
5. Implement regular health checkups: Conduct periodic medical assessments to evaluate athletes' overall health and identify any potential risks or concerns, including signs of concussions.
6. Establish a concussion management protocol: Develop a clear and comprehensive plan to address suspected concussions, including immediate removal from play and proper evaluation by a health care professional.
7. Foster a culture of communication: Encourage athletes to report any head injuries, symptoms, or concerns promptly to coaches, trainers, or medical staff.
8. Monitor and track injuries: Keep thorough records of any head injuries or suspected concussions, enabling better assessment of trends and risk factors for future prevention strategies.

9. Emphasize rest and recovery: Educate athletes on the importance of rest and gradual return-to-play protocols following a concussion to ensure proper healing and minimize the risk of further injury.
10. Stay up-to-date with concussion research: Stay informed about the latest advancements and guidelines related to concussion management and prevention to improve safety practices within the sport.

## Summary

The treatment and prevention of concussion remains a crucial challenge in the field of strength and conditioning. Heightened awareness, comprehensive education, and evidence-based practices are vital in addressing this important issue. As the conversation surrounding concussions continues to evolve, it is essential for strength and conditioning professionals to stay informed and proactive in promoting the health and safety of athletes. By supporting effective prevention strategies and return-to-play protocols, the strength and conditioning community can play a pivotal role in mitigating the impact of concussions and promoting athlete well-being.

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YOU AND THE LAW

# Who's Liable for Injuries at a Sports Facility?

*Thomas H. Sawyer and Tonya L. Sawyer*

BPJ, et al. v. West Virginia State Board Of Education, et al.
United States District Court, Southern District of West Virginia
550 F.Supp.3d 347 (S.D.W.Va. 2021)
July 21, 2021

Going to a sports game should be a fun and enjoyable experience. Unfortunately, if proper safety measures are not followed, fans can sometimes leave a stadium or arena with completely preventable accident-related injuries. If you were hurt while attending a sporting event, it is important to understand your legal options. In the event that another party was responsible for your injuries, you may be entitled to recover your economic and noneconomic damages by filing a personal injury action.

## Sports Facility Owner Liability

Under a state's premises liability laws, stadium owners have a duty to ensure stadium grounds are kept in a reasonably safe condition. This means that an owner or another responsible party can be held liable for failure to remedy property hazards they knew about or should have known about in a timely manner. For instance, a sports facility owner may be accountable for injuries to a spectator as a result of any the following:

- slip and fall accidents on unmarked wet surfaces,
- broken seating,

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- escalator and elevator malfunctions,
- defective handrails,
- lack of proper safety railings,
- falls from balconies or elevated heights,
- inadequate security,
- lack of proper crowd control,
- broken steps,
- inadequate lighting,
- negligent security,
- inadequate safety netting,
- overserving alcohol to visibly intoxicated patrons,
- physical assaults and fan violence,
- parking lot (surface lots and garage) and pedestrians injuries,
- food poisoning,
- stairwell incidents, and
- additionally, creating a dangerous condition that causes the injury and failing to remedy it or warn about it.

## The "Baseball Rule"

In limited circumstances, a stadium owner might also be legally liable for a spectator's injuries under the "baseball rule[1]." This doctrine states that a stadium owner may have a duty to exercise reasonable care and protect those who sit in high-risk areas of an arena from being injured. For instance, a net may be required to catch foul balls in the seating area behind home plate at a baseball game. However, the duty may be limited in a low-risk area of the stadium

[1] The baseball rule stems from the assumption of risk defense available to defendants in personal injury tort claims. The baseball rule only requires that stadium owners owe spectators a limited duty of providing screened seats for as many fans as can reasonably be expected to desire them. While this rule is similar to the assumption of risk defense, and even though courts have allowed stadium owners to claim this defense alongside the baseball rule in the past, the two rules are very different. While the defense of assumption of risk only applies to the behavior of the plaintiff, the baseball rule only requires the stadium owners to provide sufficient netting to protect individuals from stray balls or debris. In addition, under the baseball rule, the responsibility for avoiding any harm from foul balls and shattered bats falls to each fan. Naturally, this can be problematic when foul balls or shards of baseball bats fly at high speeds towards spectators.

While the baseball rule is generally a court rule, several states have adopted the baseball rule in statutory form, including Arizona, Colorado, New Jersey, and Illinois.

because fans generally assume the risk of the inherent dangers of attending a sporting event.

## Recoverable Damages in a Sports Facility Accident

Injuries incurred at a sporting event can range in severity on the basis of the type of accident. In severe cases, such as those involving a traumatic brain injury or paralysis, a sporting event injury may cause permanent disability and require lifelong medical treatment. A victim of a sports facility accident may be entitled to a wide variety of damages in a personal injury lawsuit if they can establish that someone else's negligence is to blame for their injuries. In such cases, a victim may be eligible to recover both their economic damages and their noneconomic damages.

Economic damages are meant to cover unreimbursed medical expenses, lost wages, future lost earnings, and out-of-pocket expenses connected with the accident. Noneconomic damages are more difficult to quantify and are not pecuniary in nature, for example, damages in connection with pain and suffering, loss of enjoyment of life, loss of consortium, and other nonmonetary damages.

## Slip and Falls at a Sports Facility

To win a premises liability case against the owner of a sports facility, you must be able to prove the stadium owner was negligent (i.e., the owner did something wrong). Simply because you slipped and fell does not mean that the owner was negligent. Further, simply because the floor was slippery does not mean the owner was negligent. The floor had to have been unreasonably slippery. Then, to prove the stadium owner was negligent, you must prove the owner knew or should reasonably have known the floor was unreasonably slippery and they failed to take steps to fix the problem.

## Proving Negligence of a Sports Facility Owner in a Slip and Fall Case

A not uncommon example of a slippery condition at a sports facility is a wet floor in a bathroom. Everyone who has ever been to a stadium has probably seen a soaking wet bathroom floor at least once. Wet bathroom floors can be slippery and hazardous, and fans have fallen in stadium bathrooms. But not all slippery conditions in stadium bathrooms involve negligence.

For example, if someone drops a big cup of water (or even two cups) on the floor, and you slip on the water two minutes later, the stadium owner would probably prevail in a lawsuit. There is no negligence in this situation for two reasons: (1) because one or two cups full of water on the floor is probably not an unreasonably slippery condition, and (2) even if it was an unreasonably slippery condition, the stadium owner had no reasonable opportunity to learn about the condition and clean it up in those two minutes.

Here is an example in which a slippery bathroom floor would be a negligent condition. The bathroom floor has two inches of water on it because drunken fans constantly put paper towels in the sinks and leave the water running so that all the sinks overflow onto the floor, and this happens game after game. In this type of situation, the stadium owner has reasonable notice the bathroom floors are constantly slippery. In this situation, a person who slips on the bathroom floor can make a reasonable argument that the stadium owner knew or should have known the bathroom floors were always slippery and that the owner should have done something about it.

## Injuries That Occur When a Fan Is Hit by a Ball or Puck

Another not uncommon occurrence at a baseball stadium or hockey arena is a fan getting hit by a ball or puck, and some of these injuries can be severe. What are the fan's legal rights? If you turn over your ticket to the sports event, you will see a paragraph or two of legal language in extremely small print. This is the stadium owner's attempted disclaimer of legal responsibility for any injuries that might occur to fans at the stadium. The disclaimer usually says something like balls, pucks, and even players occasionally leave the field of play; the balls or pucks might be traveling at high speeds; and the fan assumes the risk of injury from any balls, pucks, or players that leave the field of play.

What happens if you get hit by a foul ball at a baseball game? Is this disclaimer valid? While every state's law is different, these disclaimers are valid, with exceptions.

The sports facility owner still has an obligation to act reasonably to minimize the risk of injury to spectators. That is why all baseball stadiums have netting behind home plate to protect against foul balls. The netting is behind home plate because balls that are fouled straight back are going so fast, and the spectators are so close, that a

spectator could not reasonably get out of the way. However, although home run balls also leave the field of play, there is no netting in the outfield because the balls are not traveling as fast and because the spectators in the outfield seats have four or five seconds to track the ball traveling toward them.

If you get hit by a foul ball while sitting between home plate and first base, you might be able to make an argument that the netting was not large enough, depending on exactly where you were sitting. The stadium industry has standards for how far away from home plate the netting should extend. If the stadium that you were injured at did not meet those standards, you may have a legal case against the stadium owner. Another example where the disclaimer might not hold up is if you were sitting behind home plate and a foul ball went through a hole in the netting. In this situation, you could argue the stadium owner was negligent in its upkeep of the netting.

In a hockey arena, Plexiglas is installed around the ice to protect the first ten row of seats from flying pucks. Some arenas have marked rows of seats in a specific color to indicate there is a chance that a flying puck could hit individuals seated in these seats. For example at NHL hockey rinks, there is protective Plexiglas as well as netting surrounding the ice to shield spectators from flying hockey pucks.

Though the ticket disclaimers as well as preventive measures serve to protect venues from legal responsibility should someone be seriously injured, and courts typically disregard personal injury claims because of that rule, there are some exceptions. Personal injury and negligence claims may be filed if an injured party can prove the owners of the sports stadium or entertainment venue did not take adequate measures to keep them safe. Examples of premises liability situations that do not fall under the "assumption of risk" disclaimer include a faulty railing or broken steps that cause a fan to fall and become injured because of faulty property maintenance. Remember, property owners have an obligation to keep their premises safe and free of hazardous conditions that can cause serious injury.

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