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PEDAGOGY

High School Females' Emotions, Self-Efficacy, and Attributions During Soccer and Fitness Testing in Physical Education

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Abstract

Female enthusiasm toward engaging in physical education decreases significantly with age. This has been linked to, among other things, the negative emotional experiences that sometimes occur when learning and participating in a variety of curricular content such as games or fitness activities. Little is yet known about how females' enjoyment, state anxiety, social physique anxiety, self-efficacy, and causal attributions vary between such content. In this study, we examined how levels of these constructs differed between soccer and fitness testing units in 67 female students in Grade 9 physical education. Results revealed higher levels of affect in fitness testing than in soccer, specifically in state anxiety ($p = .04$), social physique anxiety ($p = .008$), and the attributions that "something can be changed" ($p = .003$) and "is because of me" ($p = .01$). Students' concerns in the fitness testing unit were mainly apprehension about their performance and physical appearance (i.e., athletic physique), whereas in soccer they were more concerned with social comparisons, how their skills were being assessed, and their lack of skill ability. This, coupled with the prediction ($p = .003$) of soccer unit performance ratings by emotions and beliefs (notably self-efficacy; $p = .003$), provides new insight into how these units might uniquely challenge students.

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School-age females tend to be less active, have lower and declining rates of enrollment in optional physical education (PE), and often develop more negative affiliations to PE in early adolescence compared to school-age males (Dishman et al., 2005; Lenskyj & Van Daalen, 2006; O'Brien, Martin Ginis, & Kirk, 2008). This concerns educators and health care professionals because students' attitudes toward PE relate to their overall physical activity and healthy lifestyle behaviors (S. Duncan, 1993; Hairul, Grove, & Whipp, 2008; Smith & St. Pierre, 2009). Based on the social-cognitive perspective used in this study (Bandura, 1986), these trends and affiliations are due to the dynamic interaction of environmental factors, personal characteristics, and behavior as part of a person's ongoing initiatives to regulate and control learning to attain personal goals. Learners' beliefs and emotions are among the numerous influences on students' attitudes, engagement, and achievement in movement settings such as PE, and these fluctuate according to contextual factors such as instructional content (S. Duncan, 1993; Barr-Anderson et al., 2008). In other words, units such as games and fitness testing taught in PE provide students with different environments, tasks, and learning situations that influence their motivation, emotions, and subsequent achievement (Bandura, 1986; Smith & St. Pierre, 2009). For example, research has shown that adolescent females' emotional, social, and cognitive needs are often compromised in PE programs that emphasize competitive sport, skill-based learning, and fitness testing wherein performance tends to be prominent and salient to others (Smith & St. Pierre, 2009; O'Brien et al., 2008). More insight is needed into relations among various combinations of beliefs and emotions and how they fluctuate and differ across specific content in PE (Lirgg, 2006). Therefore, the aim of this study was to investigate quantitatively and qualitatively unit-specific (soccer and fitness testing) differences in high school female PE students' emotions (state anxiety, enjoyment, and social physique anxiety) and beliefs (attributions and self-efficacy) and how each predicts students' unit performance ratings.

Games and Fitness Testing

Territorial games—including soccer as the most played sport globally—are the most commonly taught content in most high school PE programs (Baron & Downey, 2007). The understanding, develop-

ment, and assessment of health-related fitness for regular personal physical activity across the life span is also a core element of most high school PE curricula (Harris, 2005). Researchers have reported varied students' experiences, beliefs, and emotions in fitness testing and in territorial games such as soccer. For example, Silverman, Deng Keating, and Phillips (2008) reported that appropriate fitness instruction and experiences can increase the rate of physical activity among sedentary youth including those not involved in competitive sport. Meanwhile, when learning games in PE, students enjoy the playful participation, healthy competition, and autonomous pursuit of successful personal development, motor skills, tactics, and teamwork, and they report elevated levels of perceived competence and less emotional and behavioral disturbances (Donaldson & Ronan, 2006; Lirgg, 2006). On the other hand, students also experience less enjoyment (Smith & St. Pierre, 2009), counterproductive attributions (Baron & Downey, 2007), and negative feelings of embarrassment, boredom, and shame during the learning of games in PE (Pringle, 2010), particularly when they are taught with an overemphasis on external rewards (i.e., winning), evaluations, and public performances (Ridgers, Fazey, & Fairclough, 2007). Female students appear to be more drawn to cooperative and novel individual activities such as dance and aerobics (Hairul et al., 2008; Lenskyj & Van Daalen, 2006).

Although controversial (e.g., Harris, 2005), fitness testing is often used in PE to provide students with feedback about their fitness status using a variety of and mainly criterion-referenced assessments such as the sit-and-reach test for flexibility, sit-ups and pull-ups or the flexed arm hang for muscular endurance and strength, the 20-meter shuttle run for agility and speed, the standing broad jump for explosive power, and the "Beep Test" or 12-minute run test for cardiorespiratory endurance (Ortega et al., 2008). On the other hand, some forms of fitness assessments—such as those focusing on increasing students' understanding of fitness concepts and their benefits, along with engagement in authentic, formative, transferable, success-oriented, and personally meaningful procedures (i.e., self-set goals, scoring, and evaluating)—have been associated with advantageous levels of student motivation and effort regardless of most ability levels (Silverman et al., 2008; Wiersma & Sherman, 2008). It appears, however, that fitness testing often consumes most of the time

allotted for fitness learning, occurs near the beginning and end of the course with many teachers awarding marks for improvements across tests (Wiersma & Sherman, 2008), and unnecessarily promotes public comparisons and competition among students (Cale & Harris, 2009; Harris, 2005; Silverman et al., 2008). Furthermore, research (e.g., Silverman et al., 2008) suggests that minimal if any corresponding increases in physical activity or levels of fitness and health knowledge occur as a result of fitness testing units and that many students experience boredom, enter class unprepared, and do not enjoy, take seriously, value, or understand the purpose of fitness testing; in fact, many find creative ways to avoid or cheat at it. It is unclear how the experiences of learning games, such as soccer and fitness testing in PE, might uniquely constrain the very learning objectives they were designed to achieve by elevating counterproductive levels of state emotions such as anxiety and by compromising students' enjoyment, self-efficacy, and attributions.

State Emotions

Compared to more chronically experienced (trait-like) emotions, state emotions are "acute responses to stimuli and are representative only of a particular moment in time" (Plattner et al., 2007, p. 157). Among these are three emotions, enjoyment, state anxiety, and social physique anxiety, that sometimes affect students' engagement and participation in physical activity settings such as PE and sport (Motl, Dishman, Saunders, Dowda, Felton, & Pate, 2001). Enjoyment—a "positive affective state that reflects generalized feelings such as pleasure, liking, and fun" (Scanlan & Simons, 1992, p. 203)—is a consistent predictor of motivated engagement in movement settings (Barr-Anderson et al., 2008; Hairul et al., 2008). For example, adolescent females tend to experience anxiety and less enjoyment, motivation, and self-efficacy for performance in PE (Lenskyj & Van Daalen, 2006), especially if they are overweight (Fairclough & Stratton, 2006) and inactive outside of school (Barr-Anderson et al., 2008). Conversely, the more positive affective outcomes among adolescent females in PE are associated with increased meaning and value for the content, a respectful and collaborative teacher–pupil and social environment wherein they feel safe and empowered, choice from a greater diversity of physical activities beyond tradi-

tional sports, and experiencing assessment and teaching strategies that are more individualized (Flintoff & Scraton, 2006).

State anxiety involves being cognitively, emotionally, and physically tense about something particular, which often prompts or is prompted by feelings of vulnerability and fear, a lack of desired control, and lowered self-efficacy, cognitive processing (e.g., memory, attention control, retrieval efficiency), and performance (Pintrich & Schunk, 1996). These and other negative effects of anxiety on motivation and performance have been reported in PE, particularly among students with body image concerns (Lodewyk, Gammage, & Sullivan, 2009). Liukkonen (2007) and others (e.g., Ridgers et al., 2007) have reported that students often attribute negative emotions (i.e., insecure, fearful, nervous, and inadequate) with their PE experiences to the competitive, comparative, and evaluative dynamics in certain PE settings. These feelings of anxiety tend to increase in uncontrollable physical (e.g., low fitness, inadequate body size or shape), psychological (e.g., low interest, dislike of subject), and environmental (e.g., poor facility and equipment) situations. However, these and other researchers (e.g., Smith & St. Pierre, 2009; Wiersma & Sherman, 2008) have also reported that engagement in PE can be fostered despite some inherent anxiety if (among other factors) students perceive challenges to be positive and within their ability level.

Physical activity researchers (e.g., Eklund, Mack, & Hart, 1996) have also explored a subcategory of anxiety called social physique anxiety (SPA). SPA refers to anxiety that people experience when they have a negative perception of their body form and structure (e.g., as objectively unattractive) and when they feel their body is being negatively evaluated by those around them (Hart, Leary, & Rejeski, 1989).

SPA is often exacerbated in physical activity settings such as PE (deterring subsequent participation in it) when participants feel less competent in their ability to perform the necessary skills. This occurs particularly in activities that highlight and prompt peer comparisons and negative evaluations of a participant's performance and physique by others (Hart et al., 1989; Ridgers et al., 2007). Little is known about how SPA differs by content in PE.

Self-Efficacy and Attributional Beliefs

As a foundational construct of social cognitive theory (Bandura, 1986), self-efficacy refers to a person's judgment of and confidence in his or her abilities to perform a given task successfully in various circumstances. It is a consistent predictor of engagement, volume, performance, and cardiovascular fitness in physical activity settings such as PE (Gao, Newton, & Carson, 2008; Lirgg, 2006) and of achievement-related factors such as persisting and learning strategically despite challenges and experiencing more enjoyment and less anxiety (Dishman et al., 2005). The nature of instructional content (i.e., type, level of difficulty, and exposure time of learning tasks) and learners' previous engagement (e.g., effort) and experiences (e.g., success or failure, anxiety, enjoyment) with that content may influence self-efficacy (Chase, 2010; Dishman et al., 2005), with correspondingly negative implications on level of physical activity engagement in and out of school (Lirgg, 2006).

Attributions have also been linked to achievement-related beliefs, emotions, and instructional content in movement settings (e.g., Baron & Downey, 2007; Chase, 2010; Weiss, Ebbeck, McAuley, & Wiese, 1990). Weiner (2005) defines attributions as global (trait-like) or specific (relative to behavior, time, or situation) causal judgments about the reasons for an occurred success or failure categorized through the locus of responsibility, stability, and controllability factors. Locus of responsibility is the extent to which the cause of a performance is internal (e.g., ability and effort) or external (e.g., task difficulty and luck) to the individual. Stability refers to the duration and variance of the cause variable ranging from stable (e.g., consistent) to unstable (e.g., temporary and fluctuating). Controllability reflects the degree to which the individual can or cannot affect the outcome (how controllable or uncontrollable). To illustrate, students tend to have more advantageous levels of self-efficacy and emotions when they attribute their success to internal, stable, and personally controllable factors. For example, pride increases when success is attributed to internal factors, and guilt and shame decrease if success is attributed to external and uncontrollable causes. Little is yet known about how attributions relate to emotions and self-efficacy and if they differ as a function of games and fitness testing in PE.

Research Questions

This study was framed around three research questions whose answers could contribute valuable insight into high school females' beliefs and feelings during two curricular units that may show ways to engage females for heightened motivation in PE. First, are beliefs (self-efficacy and attributions) and emotions (anxiety, enjoyment, and SPA) significantly correlated? We anticipate that beliefs and emotions are significantly correlated based on previous studies that show positive relations between internal, stable, and controllable attributions for success and higher physical self-esteem and more advantageous emotions in youngsters (Baron & Downey, 2007; Weiner, 2005; Weiss et al., 1990). Second, do self-efficacy, attributions, anxiety, enjoyment, and SPA predict students' estimates of unit performance? Because of the scant research on this question relative to the games and fitness testing setting of this study, we forgo a hypothesis in favor of describing and discussing the findings. Third, do beliefs (self-efficacy and attributions), emotions (anxiety, enjoyment, and SPA), and estimates of unit performance differ between soccer and fitness testing quantitatively and qualitatively? As reported earlier, students report both negative and positive emotions toward features in games and fitness testing units. For example, although most females prefer individual over team activities (Hairul et al., 2008), many enjoy team games in conditions of clear skill and performance expectations, adequate challenge, positive social interactions, and peer affiliations characterized by a sense of belonging, comfort, cooperative teamwork, learning, and the building of friendships (Smith & St. Pierre, 2009). Fitness testing is often less enjoyed by adolescent females because it tends to increase self- and peer awareness of body performance and size (Harris, 2005), although this and clear performance standards may provide students with more credible information from which to attribute performance to internal factors (Weiner, 2005). Consequently, we posit lower enjoyment and self-efficacy and higher anxiety, SPA, and attributions (internal, stable, and controllable) in fitness testing than in soccer.

Method

Participants

The sample for this study consisted of 67 students (aged 14–15) from four compulsory female (single-gender) Grade 9 PE classes in two Catholic high schools located at opposite ends of a moderately sized (population 250,000) city of southwestern Ontario, Canada. Two of the classes (n = 34) were engaged in a five-lesson (1-week) soccer unit taught by the same female teacher (Marisa), and the other two classes (n = 33) were engaged in a five-lesson (1-week) fitness testing unit and were taught separately by two female teachers (Jessica and Patti).

Procedure

After the attainment of ethical approval from necessary levels and the notification of participants of the confidentiality of their data, students completed a short (5–7 min) survey periodically (near the end of their first, fourth, and fifth class of the unit). This periodic pattern of survey administrations enabled the researchers to get a more balanced assessment of students' self-efficacy. The PE teacher administered the surveys after reading a scripted protocol, that we created, that introduced the study and its measures. An additional short (2 min) demographic survey was administered with this measure on the first day of the unit and an additional seven-item attributions survey was included on the final day of the unit.

Teachers and Units

The complex and situated nature of learning renders it impossible to account for all the variance between classes and teachers; nevertheless, we purposely selected classes that were relatively similar demographically and shared consistent content, assessments, and pedagogy. Each of the PE classes followed the provincial Healthy Active Living Education curriculum (Ontario Ministry of Education and Training, 1998), which includes significant emphasis on games and fitness outcomes. A semistructured interview with each of the three teachers revealed that each had significant teaching experience with this Grade 9 course (9–25 years). Each teacher also emphasized learning to be active and healthy for life in an approachable context

of developmentally appropriate cooperation, physical and socioemotional safety, enjoyment, variety, and consistent routines so students were aware of their expectations. All teachers highlighted the importance of students experiencing a positive learning environment, because most students enter the class with negative associations toward PE, most have not experienced PE in a single-gender setting, and it is their first and only mandated high school PE course. Patti appeared to most use constructivist learning theory in her teaching, expressing that her students were at the center of learning and often helped to structure and lead the activities.

In terms of the classes, the soccer unit taught by Marisa occurred during the first and fifth periods of the school day. The lesson routine for the soccer classes began with a 10-min aerobic warm-up (choice of various activities such as basketball, skipping, and power walking) that was completed with a Grade 9 boys PE class from an adjoining gymnasium. A group stretch and some push-ups and sit-ups were then performed in a consistent routine. The two classes were then divided and a soccer lesson was implemented based around the progressive template of skill game, skill development, modified game (skill application), and debrief/review of the skills and concepts learned. For example, the soccer unit began with a lesson that developed the skills of dribbling and passing followed by participation in a fitness relay and variety of progressive activities to further enhance these skills. A mini modified game of soccer was the final stage of the lesson, during which students applied their learned skills. The evaluation criteria utilized for the soccer unit were based in two areas of the provincial Healthy Active Living Education curriculum (Ontario Ministry of Education and Training, 1998): knowledge and understanding (a unit test based on the content learned throughout the unit) and application (a daily mark out of 4 based on preparation, effort, and applying knowledge). Marisa described the assessment of students in soccer as being more heavily weighted toward their effort as opposed to their ability.

The fitness testing classes were from 13:00–14:20 (Jessica; n = 13) and from 10:55–12:05 (Patti; n = 20), and both had a Grade 10 boys PE class in an adjoining gymnasium with no shared experiences. Jessica's and Patti's class routines began with a cardiovascular and muscular warm-up that included but was not limited to squats,

jumping jacks, skipping, a dance routine, and then the completion of one or two fitness assessment tasks by each student (e.g., sit-ups, push-ups, long jump, flexibility, and "beep" cardiovascular). Students were given one trial to complete the task, with the choice of a retrial if desired. Students' scores were based against a standardized score chart to judge their performance and progress over the year. For example, the chart divided each assessment into performance quantities with a corresponding rating ranging from 1–5 (1 = *needs improvement*; 5 = *excellent*; e.g., to achieve an excellent standing in the sit-up test, individuals had to complete 54 or more sit-ups in 1 min). Scores for each assessment were summed and averaged to produce students' overall fitness performance, which was used as a part of their overall unit and course mark. Compared to Patti, Jessica placed slightly more emphasis on students' improvement between the first two testing units and the final testing unit.

Measures

Demographics. Students reported individual characteristics such as age, ethnicity, student ID number (for identification purposes), and past academic average in PE by completing a short (2 min) demographic questionnaire.

Enjoyment. We assessed state enjoyment using a shortened version of the Physical Activity Enjoyment Scale (S-PACES) that has been used in a variety of settings and with a variety of ages to measure physical activity enjoyment among adolescent females in PE (Motl et al., 2001). The measure has adequate factorial and predictive validity, alpha coefficients ranging from .77 to .96, and invariance across time (Dishman et al., 2005; Motl et al., 2001). The S-PACES consists of 16 statements (nine positive items and seven negative items) that are scored on a 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). For this study, we excluded the positively worded statements to increase the scale's factorial validity and reduce participant burden, as described by Motl et al. (2001). In other words, we used the mean of students' ratings on the seven negatively worded items, with the stem of each being "Currently, in this Fitness Testing/Soccer unit …," and a sample item is "It's no fun at all."

State anxiety. To assess state anxiety, we used a shortened (six-item) form of the Spielberger State-Trait Anxiety Inventory (STAI-6; Marteau & Bekker, 1992). Previous uses have demonstrat-

ed acceptable validity and internal consistency coefficients of greater than .90 (Kvaal, Ulstein, Nordhus, & Engedal, 2005). We used the mean of the six-item scale because items were rated on a 4-point Likert scale ranging from 1 (*not at all*) to 4 (*very much*). Sample items include "I feel upset" and "I am relaxed."

Social physique anxiety. We assessed SPA from the nine-item Situational Social Physique Anxiety Scale (Martin, Rejeski, Leary, McAuley, & Bane, 1997), which is a shortened version of the original 12-item Social Physique Anxiety Scale (Hart et al., 1989). Previous uses (e.g., Kruisselbrink, Dodge, Swanburg, & MacLeod, 2004; Martin et al., 1997) of the measure revealed satisfactory levels of internal consistency (.88–.90), test–retest reliability (.82), and construct validity, and minimal social desirability bias. We used the mean of the nine-item scale because each item was scored on 5-point Likert scale ranging from 1 (*disagree strongly*) to 5 (*agree strongly*). A sample item is "When it comes to displaying my physique/figure in this Fitness Testing/Soccer Unit of PE class, I feel shy."

Self-efficacy. We assessed self-efficacy using the four self-efficacy for performance items of the Motivated Strategies for Learning Questionnaire, which has demonstrated robust validity and reliability internationally (Duncan & McKeachie, 2005) and in PE settings (Lodewyk et al., 2009). Participants rated each item on a 7-point scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*). A sample item for use in this study is "I'm expecting to do well in this fitness testing/soccer unit in PE."

Attributions. Following previous protocol (e.g., Baron & Downey, 2007; Weiss et al., 1990), we assessed students' causal attributions with the Modified Causal Dimension Scale, which reflects the extent to which students attribute their performance outcomes to factors that are internal or external, stable or unstable, and controllable or uncontrollable. First, students rated their performance success in their respective (e.g., soccer and fitness testing) unit on a 5-point Likert scale ranging from 1 (*not good at all*) to 5 (*very good*). Second, they completed an open-ended attribution item to indicate what they perceived to be the cause of their performance ("The most important reason for why I rated myself this way is . . ."), which serves to also prompt students to reason specifically about their causal attributions. Third, a structured alternative format was used

whereby students categorized each of the four attributions into one of two options: "This reason is because of me" or "This reason is not because of me" (e.g., for the locus of causality attribution). Finally, students selected the degree of truth that the causal dimension holds and rated it on a 4-point scale ranging from 1 (*sort of true*) to 4 (*really true*). Values for each of these attributions were then converted to an 8-point scale (1 = *least advantageous* to 8 = *most advantageous*) based on their responses to their chosen alternative. In other words, to reflect the strength of each attribution, we reverse-coded scores for the less advantageous alternative ("This reason is not because of me"; 4 = 1, 3 = 2, 2 = 3, 1 = 4), and we transformed scores for the more advantageous alternative ("This reason is because of me") to corresponding values from 5 to 8 (1 = 5, 2 = 6, 3 = 7, 4 = 8).

Qualitative item. A single open-ended question was included at the end of each questionnaire. The authors constructed it and adapted it to meet the suggestions that the pilot study participants made. We used this question to gain a better understanding of the female adolescents' perspectives regarding factors that influence and/or relate to their emotions in their current PE class. The students were reminded to write things that were affecting them in the current moment. The question was, "Please explain the main factors in this fitness testing/soccer unit that are affecting your current feelings (environmental, social, physical, etc.)."

Data Analysis

The Statistical Program for the Social Sciences (SPSS 21.0) was used for the statistical analyses in this study. Descriptive, bivariate correlation, multiple analysis of variance (Pillai's Trace), and multiple regression analysis were computed to answer the research questions quantitatively. For qualitative coding and analysis of students' responses to the open-ended survey item, in which students reported unit-specific factors related to their feelings, we used Creswell's (2007) layered approach of content analysis—thoroughly analyzing the data through multiple examinations (levels) with increased delving and interpretation at each new level. Content analysis is the process of identifying, coding, and categorizing primary patterns and themes within the data. Following the verbatim typing of each student's response, the second author categorized each student's responses into positive or negative emotions relative to either soccer or

fitness testing. The second author then further coded the categorized data into major patterns. For example, a theme within the negative emotions category for fitness testing was embarrassment, which appeared to coincide with students' perceptions of low skill level and students' concerns of being observed by others. For coder bias control and validation of the data analysis, a portion of the data was coded independently by a graduate student researcher from another related department following a review of the second author's initial coding scale and subsequent themed categories. Consistent coding practices were determined, with 92.1% of the coding themes being matched. Both individuals discussed discrepancies in the coding until they came to a mutual agreement.

Results

Quantitative Unit Differences

Analysis of the descriptive statistics revealed no abnormal distributions, and scale internal consistency reliability coefficients by unit and assessment time were satisfactory (< .70) except for Assessment Time 1 for state anxiety in soccer (.57) and fitness testing (.41). Assessment Time 1 was therefore deleted for this scale, rendering it the mean of only Assessment Times 2 and 3 (see Table 1). Two cases with excessive Mahalanobis distance (> 20.27 for $\alpha^2 = .005$) were deleted, reducing the sample size from 68 to 66. Analysis of the percentages of students within each unit to make functional attributions (choosing the more advantageous structured alternative on the four causal attributions) revealed that most of the students held functional attributions for personal control (83% soccer; 93% fitness testing), instability (66% soccer; 100% fitness testing), causality (69% soccer; 97% fitness testing), and internal control (55% soccer; 66% fitness testing).

Significant relations were not evident between any attributions and the emotion or belief constructs in either unit, although numerous significant ($p < .05$) bivariate correlations occurred between emotions, beliefs, and unit performance ratings within and across units (see Table 2). First, between fitness testing and soccer, significant relations were evident among state anxiety and SPA ($r = .68, .51$), enjoyment ($r = -.58, -.37$), and self-efficacy ($r = -.72, -.41$); between enjoyment and self-efficacy ($r = .50, .47$); and between unit perfor-

mance ratings and both state anxiety (r = -.54, -.55) and self-efficacy (r = .48, .60). Meanwhile, statistical relations in only fitness testing were between SPA and enjoyment (r = -.61) and between SPA and self-efficacy (r = -.42), and associations unique to soccer were between performance ratings and both enjoyment (r = .45) and stability attribution (r = -.47).

Table 1

Descriptive Statistics by Assessment Time and Unit

	Assessment time							
	Soccer				Fitness testing			
Measure	**1**	**2**	**3**	***M***	**1**	**2**	**3**	***M***
State Anxiety								
α	-	.70	.85	.78	-	.78	.87	.82
M_{AP}	-	1.53	1.47	1.51	-	1.51	1.75	1.60
SD	-	.47	.57	.43	-	.44	.73	.38
Enjoyment								
α	.77	.87	.88	.95	.83	.93	.93	.90
M_{AP}	4.19	4.15	4.11	4.15	4.12	4.18	4.15	4.15
SD	.62	.60	.71	.58	.69	.86	.94	.78
Social Physique Anxiety								
α	.87	.88	.89	.88	.89	.90	.81	.87
M_{AP}	2.25	2.29	2.13	2.23	2.55	2.57	2.60	2.58
SD	.80	.79	.76	.70	.84	.83	.82	.79
Self-Efficacy								
α	.82	.91	.93	.89	.79	.82	.87	.83
M_{AP}	5.70	5.36	5.57	5.55	5.66	5.45	5.47	5.53
SD	1.01	1.34	1.31	1.14	1.01	1.10	1.29	1.06
Attributions				***M* (*SD*)**				***M* (*SD*)**
PCA				6.28 (2.49)				6.66 (1.59)
STA				5.07 (2.88)				6.79 (.90)
LCA				5.52 (2.84)				7.03 (1.21)
ICA				4.55 (2.73)				5.34 (2.29)

Note. n = 35 (Soccer); n = 31 (Fitness Testing). α = alpha internal consistency reliability coefficient; M_{AP} = assessment point mean; PCA = personal control attribution; STA = stability attribution; LCA = locus of causality attribution; ICA = internal control attribution.

Table 2
Bivariate (Pearson) Correlations

Scales	SA	ENJ	SPA	SE	PCA	STA	LCA	ICA	PR
SA	-	-.58**	.68**	-.72**	.01	-.17	.05	.06	-.54**
ENJ	-.37*	-	-.61**	.50**	-.04	.07	-.16	.15	.34
SPA	.51**	-.19	-	-.42*	-.05	.12	.07	.08	-.31
SE	-.41*	.47**	.06	-	.06	.30	-.03	-.16	.48**
PCA	-.26	.004	-.23	-.09	-	.32	.38*	-.33	.23
STA	.22	-.35	.11	-.19	.22	-	.14	-.31	.10
LCA	-.02	-.09	-.25	-.05	-.16	-.04	-	-.25	.006
ICA	.04	-.11	.03	-.27	.32	.55**	.03	-	-.06
PR	-.55**	.45*	-.11	.60**	.20	-.47*	.06	-.36	-

Notes. Correlations for soccer are below the diagonal and those for fitness testing are above the diagonal. SA = state anxiety; ENJ = enjoyment; SPA = social physique anxiety; SE = self-efficacy; PCA = personal control attribution; STA = stability attribution; LCA = locus of causality attribution; ICA = internal control attribution; PR = students' ratings of unit performance.

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

Results of an ANOVA revealed no significant differences in students' unit performance ratings between units ($p = .87$). To discover the predictive strength of each emotion (anxiety, enjoyment, SPA) and belief (self-efficacy, attributions) on students' ratings of unit performance, we performed two multiple regression analyses ($p < .05$; one for each unit). Soccer performance ratings were predicted by emotions and beliefs, $R^2 = .63$, $F(8, 20) = 4.24$, $p = .004$, with self-efficacy emerging as the sole predictor of unit performance in soccer ($t = 2.15$, $p = .04$). Emotions and beliefs did not predict performance ratings in fitness testing, $R^2 = .40$, $F(8, 20) = 1.63$, $p = .18$.

To control for the effect of teacher variance by unit, we used a preliminary multiple analysis of variance test to analyze teacher differences in self-efficacy, attributions, the three emotions, and beliefs, and this revealed no main effect ($p = .057$). The same analysis for differences by unit revealed a main effect, $F(8, 49) = 3.51$, $p = .003$, ES = .36, with significantly higher levels of state anxiety, $F(1, 56) = 4.27$, $p = .04$, ES = .07; SPA, $F(1, 56) = 7.66$, $p = .008$, ES = .12; and attributions that something can be changed (is not stable), $F(1, 56) = 9.48$, $p = .003$, ES = .15, and that it is personally

(because of me) causal, $F(1, 56) = 7.02$, $p = .01$, ES = .11, in fitness testing than in soccer. No between-unit differences were found in enjoyment ($p = .82$), self-efficacy ($p = .96$), personal control attribution ($p = .49$), or external control attribution ($p = .24$).

Qualitative Unit Differences

Results of the qualitative data analysis of within-unit variation in emotion and self-efficacy revealed prominent fitness testing unit themes of social evaluations, body image, and internal motivation. Soccer unit themes were security, social interaction, and internal motivation. We then conducted an in-depth analysis of these theme sets to analyze the variation in emotion and self-efficacy between the fitness testing and soccer units. More specifically, negative social evaluation factors were prominent in both units, as evidenced by students' emotions being affected by the presence, thoughts, and perceptions of others.

Students in the soccer unit highlighted the role of positive social interactions and relationships on their emotions more than those in the fitness testing unit did. To illustrate, one student commented, "Sometimes I feel like some of the girls judge me. Also, when Grade 10 boys watch they openly mock us and it sucks." The following are sample positive comments in soccer: "My feelings during this unit are social because you can be partners with new people you don't usually talk to and happy because you are with friends and energetic because you are constantly moving" and "I think the social factor of playing soccer makes it more fun because we're not all good at it and we joke around with each other."

Although the role of physical comfort on students' feelings was a prominent theme in both units, students in the fitness testing unit appeared noticeably more apprehensive about their physical appearance (i.e., athletic physique) and fitness level, whereas students in the soccer unit focused more on perceived ability, social comparison, and assessment of skills. Two sample comments in fitness testing follow: "Maybe it is that I am not comfortable with my body and I think other people will judge me and make fun of me and that would make me feel worse" and

> The main factors that are affecting my feelings are my weight and how everyone else is so like small and skinny. I feel bad during fitness testing if someone gets a better mark than me. I feel like they got it because they are skinnier than me.

Between the two units, differences in emotions were evident in students' motivational influences. Students in the fitness testing unit reported more reliance on self-motivation and challenge to improve their scores, whereas students in the soccer unit were more motivated by socialization with friends while playing. For example, one girl discussed her fitness testing motivations: "The main factor I think about is that I can do better than the last time and hopefully I became stronger." But another participant's dislike of fitness testing is evident: "I dislike running; it's boring and annoying. I am not a good athlete, so I feel uncomfortable amongst good runners and athletes." Negative motivational comments from the soccer unit were focused on boredom (particularly in relation to skill development drills) and a lack of self-efficacy, such as "Passing the ball back and forth bores me…." and "When I play I feel happy, but sometimes like I am not good enough; therefore, I tend to worry and be a little shy on how well I play."

In regard to self-efficacy, improvement was a prominent factor in the fitness testing unit compared to a focus on participation in the soccer unit. To illustrate, in the fitness testing units, students reported personal achievement ("higher mark/bad"), improvement ("improving/dropping"), and satisfaction ("I'm happy with my overall score/disappointed") in the pursuit of personal goals. For example, one girl stated,

> I have to do the beep test today and I haven't done that in a while. I have to beat my score from last time, but because I haven't been exercising as much as I used to I might not get a higher score.

In comparison, students' self-efficacy in the soccer unit seemed more aligned with their actual achievement than with their improvement. This is reflected in these statements: "I find as long as you run for the ball you get good marks for effort" and "…It's easy to get good marks

and it's not difficult to understand soccer concepts or have fun while playing it."

Finally, students had positive and negative feelings relative to each unit. Positive feelings toward the fitness testing unit were evident in a lower number of student comments (n = 20) than those expressing negative feelings (n = 41; 67%). Here is an example of a positive feeling in fitness testing: "I am confident in everything I do. I know I do my best and that's all I can do. If people aren't happy with it, then that's too bad because I tried." Terms such as "judgment," "athletic figure," "failure," "awkward," "uncomfortable," "watching," "anxiety," "hate," and "nervous/scared" were common in the fitness testing unit, reflecting a prominent student concern to avoid embarrassment stemming from low perceived skill level and from social observations. This is illustrated in this statement: "When I hear we are doing fitness testing I want to give up because Grade 10 and 11 boys are watching us … they mock us. It's scary." Conversely, in soccer, positive responses made up a majority (n = 60; 79%) of the students' comments. Associated terms were "fun," "play," "energized," "good," "friends," "happy," "comfortable," "enjoyment," "environment," and "supportive," reflecting a theme of comfortable active social play. For example, one student said, "Good time playing with peers … even though I'm not the greatest soccer player so that made me a bit shy/tense… having good friends around me allowed me to be calmer." Less than a third of the responses (n = 16) pertaining to the soccer unit were negative, and these tended to focus on the feeling of embarrassment stemming from social judgments of individual ability, which was evident in terms such as "evaluation," "athletic ability," and "boredom." One girl described her physical inability as an influential factor of her embarrassment: "When I play soccer, I feel that people judge me because I am not good."

Summary

In summary, the unit-specific validity of state anxiety, SPA, self-efficacy, and enjoyment was reinforced through bivariate correlations and internal consistency. First, correlations were similar within the soccer and fitness testing units, with the exception of SPA being related to self-efficacy and enjoyment only in fitness testing and performance ratings being associated with enjoyment and a sta-

bility attribution only in soccer. Further, although students generally had functional attributions in both units, none of the four attributions related to the three emotions or two beliefs in either unit. Second, these emotions and beliefs collectively predicted soccer but not fitness testing unit performance ratings, with self-efficacy being the sole predictor in soccer. Third, with no main effect for teacher difference in emotions and beliefs, there was a main difference by unit; specifically, there were statistically higher levels of state anxiety, SPA, and two attributions (that something can be changed/is not stable, that something is personally causal/because of me) in fitness testing.

Qualitatively, there were similarities across units about why students felt certain emotions, with social evaluation concerns, physical comfort, and internal motivation emerging as themes in both units. Relative to unit, students in fitness testing reported notably more apprehension about their physical appearance (i.e., athletic physique) and fitness level, whereas students in soccer were more concerned with the lack of perceived ability, social comparisons, and assessment of skills. Students were notably more reliant on self-motivation and challenge to improve their personal goals in fitness testing compared to the greater focus on socialization with friends while playing in soccer. Finally, there were proportionally more negative comments about fitness testing than about soccer.

Discussion

This study provides fresh insight into unit-specific (soccer and fitness testing) differences in high school female PE students' emotions (state anxiety, enjoyment, and SPA) and beliefs (attributions and self-efficacy) and how each predicts students' performance ratings. The study revealed that positive and negative emotions are manifest in soccer and fitness testing units during PE. With the exception of SPA, which seems more pronounced in fitness testing, relations among students' emotions, self-efficacy, and attributions were similar in soccer and fitness testing, as were some of the reasons students provided for why they experienced certain emotions (social evaluation concerns, physical comfort, and internal motivation).

Despite these similarities across units, the study also revealed noteworthy differences in girls' emotions and beliefs within units. In soccer, emotions and beliefs (especially self-efficacy) predicted

performance ratings and students reported more socialization with friends. Student concerns in soccer also centered on their perceived lack of ability, potentially negative social comparisons, and uncertainty as to how their skills would be assessed. Meanwhile, in fitness testing, SPA was negatively related to self-efficacy and enjoyment. Further, performance ratings were associated with enjoyment and a stability attribution; there were higher levels of state anxiety, SPA, and positive attributions of performance to being personally alterable. Students in the fitness testing unit were also more reliant on self-motivation and challenge to improve their personal goals, and they were notably more apprehensive about the unit overall and about their physical appearance (i.e., athletic physique) and fitness level.

The generally heightened potential for state anxiety and SPA and the higher levels of negative comments relative to fitness testing may reflect research reporting the negative emotionality in some contexts of fitness testing in PE wherein assessments, physical performance, and a more "ideal" physique are relatively salient (Cale & Harris, 2009). For example, studies have associated SPA with settings that emphasize appearance such as body figure and tight clothing (Eklund & Crawford, 1994).

Pubescent females may be particularly at risk; they have been associated with greater peer comparisons and experience more pressure to be thin, attractive, and accepted compared to males and females of other ages, potentially leading to decreased interest in and avoidance of PE activities (Hart et al., 1989; Lodewyk et al., 2009). Implications for physical activity are clear, yet the individuals most in need of exercise tend to be the least likely to involve themselves in it when they perceive they will be negatively evaluated by others (Ridgers et al., 2007). This study adds to this research by showing that the influence of SPA and state anxiety on self-efficacy and enjoyment may be more poignant in fitness testing than in games units such as soccer. More research using experimental research designs or structural equation modeling statistical analyses are needed to more conclusively ascertain this.

Another noteworthy finding of this study was that the majority of students gave functional attributions for their unit performances, although their attributions did not relate statistically to state or SPA,

enjoyment, self-efficacy, or unit performance ratings. This absence of association was somewhat novel compared to that in previous attribution research in movement settings (e.g., Baron & Downey, 2007; Chase, 2010; Weiss et al., 1990), which prompted our expectation of higher levels of enjoyment and self-efficacy and lower levels of anxiety and SPA when the outcome of unit performance was attributed to internal, stable, and controllable reasons. Baron and Downey (2007) noted that "causal attributions are situation-specific and may be influenced by the nature of the task" (p. 16), so attributions may have related less to state anxiety, enjoyment, SPA, and self-efficacy among females in the particular soccer and fitness testing settings in this study. Future studies are needed to confirm this in other instructional, pedagogical, and demographic contexts in PE because varied settings may uniquely prompt variance in attributions and emotions such as anxiety through, for example, student differences in perceived control, interest in the subject matter, ability, and the motivational climate (Liukkonen, 2007; Weiner, 2005).

In this study, advantageous attributions (that something can be changed and is personally causal) were higher in fitness testing. Qualitative concerns about socialization and assessment were higher in soccer, which contradicts Baron and Downey's (2007) finding of no differences in attributions between games, dance, and gymnastics for students in elementary school PE. Thus, our finding that emotions and beliefs (notably self-efficacy) predicted unit performance ratings in soccer and not fitness testing, and the significant interactions between SPA, self-efficacy, and enjoyment in fitness testing compared to soccer collectively provide new insight into how soccer and fitness testing might uniquely stimulate emotions and beliefs in adolescent females. The higher dependence on physiological and genetic capability for performance success in fitness testing (Harris, 2005), compared to soccer (in which assessment may be perceived as more ambiguous, assessment is centered around collaborative teamwork, and self-efficacy is perhaps connected to subsequent performance), may explain the presence of more advantageous attributions reported in the fitness testing unit. In other words, students may perceive that fitness testing has clearer performance criteria (i.e., standards) from which they can calibrate their self-efficacy and potential achievement (e.g., attitude, physical and tactical skills). Researchers

have reported, for example, that learners are able to infer future performance success and/or failure under similar circumstances when attributions of their current performance are based on stable factors (Weiner, 2005).

Based on this study and relevant research evidence, we suggest that teachers be aware of the particular vulnerability of adolescent females in certain game and fitness testing settings and intervene pedagogically when necessary. For example, in fitness testing it may be useful to decrease students' levels of embarrassment and anxiety as well as to increase their enjoyment, effort, and motivation. Silverman et al. (2008) and Wiersma and Sherman (2008) suggest that students clearly comprehend the requirements of each test item, have adequate time to practice for it before the actual testing session, and understand the importance of testing and what their test results mean in regard to their health level.

Further, PE teachers can de-emphasize normative performance results (especially publically) and peer judgments, rotate students through test stations in small groups, enable students to wear appropriate attire that they deem comfortable, and emphasize skill mastery, positive feedback, and improvement through setting and monitoring personal fitness goals. Meanwhile, it may be useful for teachers of soccer lessons to focus on internal improvement, self-referenced (vs. group) competition and progress, and to provide choices and clear and consistent expectations and assessment practices so students can more accurately calibrate and attribute their performance. These are some ways that might help female adolescents feel more confident and less anxious and physically vulnerable in PE with positive implications on their participation in PE and physical activity.

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