

Achievement Emotions, Intention to Be Physically Active, and Academic Achievement in Physical Education: Gender Differences

Sebastián Fierro-Suero, Pedro Sáenz-López, José Carmona-Márquez, and Bartolomé J. Almagro

Universidad de Huelva, Huelva, Spain

Purpose: The objective of the study was to evaluate the relationships among the achievement emotions experienced during physical education classes, the intention to be physically active, and academic achievement. **Methods:** The sample consisted of 764 Spanish secondary education students (348 boys and 416 girls). **Results:** Pride, enjoyment, and hopelessness were the main emotions to explain the intention to be physically active, whereas enjoyment and boredom were the most important emotions to explain academic achievement. Given that boys had a better emotional experience than girls, the effect of gender in the prediction was studied. It highlights the significant moderating effect of gender for enjoyment and pride in the intention to be physically active. **Discussion/Conclusion:** These results show the need to apply strategies focused on each emotion, taking into account the students' gender, for those that help to improve their emotional experience during physical education classes.

Keywords: control-value theory, secondary education, emotional state, physical activity, adolescence

Physical education (PE) plays a fundamental role in the development of a lifelong physical activity commitment and in decreasing the dropout rate from this physical activity (Hulteen et al., 2015) as it is the only, or the most important, physical activity experience that most of the students have (Trudeau & Shephard, 2008). This experience, which is determined by contextual and educational variables (Bailey et al., 2009), can be positive or negative depending on the emotion that the student feels during their participation (Simonton et al., 2017). Emotions involve sets of interrelated psychological processes, including cognitive, expressive, physiological, and motivational components (Scherer, 2009). During PE class, students can experience a wide range of emotional states (Simonton et al., 2017), making it a suitable context for developing the emotional health of students (Pekrun, 2014). Recently, the number of studies focused on emotions in PE classes has increased, showing their relationship with different factors, such as classroom climate (Fierro-Suero et al., 2021; Simonton et al., 2021), disruptive behaviors, sedentary time, and so forth (Simonton & Garn, 2019). However, the relationship of emotions with the intention to be physically active (IPA) and academic achievement in PE classes has not yet been studied. Therefore, this was the main objective of the study.


Until now, affect (which combines group emotions into two single factors: positive or negative) has been studied more than individual or discrete emotions (Leisterer et al., 2019; Simonton & Garn, 2019). This simplification leads to a loss of valuable information (Simonton & Garn, 2018) on relationships between discrete emotions and specific behaviors (Pekrun et al., 2006; Simonton et al., 2017), which could help us understand how students' in-class experiences could explain some outside school behaviors, among other things (Simonton & Garn, 2019). So far, motivational frameworks such as self-determination theory (Deci & Ryan, 1985; Ryan & Deci, 2017) or achievement goal theory (Ames, 1992; Nicholls, 1989) have been used to explain these

specific behaviors outside school (e.g., Castillo et al., 2020; Sevil-Serrano et al., 2020). However, despite their importance, emotional frameworks have not been developed as much (Simonton & Garn, 2018).

Control-Value Theory of Achievement Emotion

In the last two decades, the control-value theory of achievement emotion (CVTAE; Pekrun, 2006) has successfully positioned itself as one of the most important emotional theories in education, which have been used to explain the relationship between emotions and academic and nonacademic outcomes (Pekrun, 2006; Pekrun & Stephens, 2010; Pekrun et al., 2007). This framework, used with teachers (e.g., Keller & Becker, 2020) and with students in various subjects and contexts (e.g., Fierro-Suero, Almagro, Sáenz-López, & Carmona-Márquez, 2020; Pekrun et al., 2017; Simonton et al., 2021), proposes a categorization of emotion in the academic field based on a social cognitive perspective (learning environment, control-value appraisals, discrete achievement emotions, and achievement-related outcomes), integrating assumptions from previous work (see Pekrun, 2006; Pekrun & Stephens, 2010; for more information). Appraisal of the environment and oneself and one's conceptual knowledge provides a large range of emotions (Simonton & Garn, 2019). This appraisal happens continuously during the educational process, either consciously or unconsciously (Pekrun & Stephens, 2010). Thus, CVTAE organizes emotions in three dimensions depending on the valence (positive or negative), object focus (activity or outcome), and activity level (activating or deactivating) (Fierro-Suero, Almagro, & Sáenz-López, 2020).

Thus, enjoyment (positive, activating emotions focused on the activity) is experienced by students when they focus their attention on learning. For example, enjoyment arises when students solve creative problems, when they participate in an exciting challenging task, or when they feel competent to perform a task demanded (Pekrun, 2006; Pekrun & Stephens, 2010). Pride (positive, activating emotions focused on the outcome) is felt by students when they

Fierro-Suero (fierro.suero@ddi.uhu.es) is corresponding author,  <https://orcid.org/0000-0001-7977-6220>

think they are the cause of success in an important event. For example, if students feel that the football competition is important, and their goals help the team win the match, they will probably feel a sense of pride. By contrast, if the competition is not important to them, or they feel that they have not participated significantly, they probably will not feel proud.

Boredom (negative, deactivating emotions focused on activity) acts as a classroom hindrance (Pekrun et al., 2002) because it promotes amotivation and loss of focus and interest (Daschmann et al., 2014). The student can feel bored when the activity lacks any intrinsic incentive value, such as when performing monotonous and routine tasks (Pekrun & Stephens, 2010). However, very little is known about the effects of boredom outside the PE classroom (Simonton & Garn, 2019). Hopelessness (negative, deactivating emotions focused on the outcome) is the feeling when they focus on the impossibility of success or the impossibility of avoiding failure (Pekrun et al., 2007), such as when the task is too difficult for the students, or if they feel that the opponent is much better than they are.

Anxiety (negative, activating emotions focused on the outcome), similarly to pride, arises when students feel that the event is important, but the situation is only partly controlled, and the focus is on failure (Pekrun et al., 2007): for example, students who need to score a goal to end the match in a tie, and they see the time to achieve this goal dwindling. Finally, anger (negative, activating emotions) could be focused on activity or outcome and is characterized by an increasing likelihood of aggression and reducing cognitive activation (Pekrun, 2006; Pekrun & Stephens, 2010). When the focus is on the activity, anger appears when students have the situation under control, but they need to make a huge effort to achieve it. In other words, the task demands seem unreasonable (Pekrun & Stephens, 2010). When the focus is on the outcome, anger appears when the students feel that the result is dictated by others (Pekrun, 2006). For example, if students need to get 15 points in 3 min, and they keep up a good rate, but then the teacher decreases the time to 2 min, they probably feel that the blame for the failure lies with the teacher.

Emotions and IPA in the Future

One of the main functions of PE must be to prepare children for a lifetime of physical activity (Leisterer et al., 2019). The intention expressed by children to practice physical activity can be a good predictor of this behavior (Ajzen, 1985). Although, in many cases, the intention expressed by the students does not result in practicing physical activity in the future (Rhodes & Bruijn, 2013), there are several studies that have shown the relationship between autonomous motivation and the IPA (Vasconcellos et al., 2020). By contrast, the relationship between discrete emotions and the IPA has been less studied. Some studies conclude that emotional experiences could help in the understanding of leisure-time physical activity (Yli-Piipari et al., 2009, 2013), but others state that this experience does not increase engagement in physical activity outside of school (Simonton & Garn, 2019). Probably, this disagreement is due to the different emotions studied. For example, enjoyment is associated with higher physical activity levels (e.g., Barr-Anderson et al., 2008; Yli-Piipari et al., 2009, 2013), whereas boredom is associated with lower physical activity levels (Daschmann et al., 2014; Simonton & Garn, 2019). Other emotions, such as anger experienced during PE class, look to be unrelated to sedentary behavior outside school (Simonton & Garn, 2019).

Emotions and Academic Achievement

Academic achievement could be defined as a “product achieved by students in educational institutions and that is normally expressed through school grades” (Fraile-García et al., 2019, p. 58). Several factors influence academic achievement, such as motivation, engagement, attention, and so forth (Furrer & Skinner, 2003). Among these factors, we would highlight the role of emotions (Pekrun et al., 2009, 2017) that have been demonstrated in different subjects (e.g., Goetz et al., 2006; Simonton & Garn, 2019). The studies in PE have shown the relationship between physical activity and better levels of cognitive and academic achievement (Arday et al., 2014). However, most studies have focused on general academic achievement and not specifically on academic achievement in the PE classroom, characterized by being more practical than cognitive (Fierro-Suero, Almagro, & Sáenz-López, 2020). Therefore, aspects related to attitude or behavior could have greater weight on academic achievement in PE. Similarly, positive emotions, such as enjoyment or pride, are linked to adaptive behaviors, and negative emotions, such as boredom or anger, are linked to maladaptive behaviors (Simonton & Garn, 2019; Simonton et al., 2017).

Student Emotions by Gender

Some studies in PE have suggested that behaviors are different in girls and boys (e.g., Alcaraz-Muñoz et al., 2017; Lodewyk & Muir, 2017). For example, it has been pointed out that even though there are exceptions, it is possible to highlight a tendency to find profiles of the “compliant girl” and the “resistant boy” (Barker et al., 2019). Differences in public self-consciousness, appreciation for PE, and boys’ and girls’ opinions on content in PE (sports, fitness test) are some of the aspects that have been studied previously, which bring some clarity to their behavior (Lentillon-Kaestner & Patelli, 2016; Lodewyk & Muir, 2017; Moon et al., 2016). Thus, the emotional footprint experienced by girls and boys could be different as the perceived control and academic values differ between genders, so the emotions experienced will also vary (Pekrun, 2006). In this way, boys attribute their emotions to aspects related to internal logic, such as winning or losing, rules, and so forth (Alcaraz-Muñoz et al., 2017; Mujica & Jiménez, 2021). However, girls give greater importance to aspects related to external logic, such as playing with friends, laughing, and so forth (Alcaraz-Muñoz et al., 2017). Nevertheless, there are a few studies that focus on the different emotions felt by each gender (Fierro-Suero et al., 2021).

On the other hand, research has shown that, in Spain, there are differences in IPA based on gender among adolescent PE students wherein girls tend to have less intention to practice outside the educational center (Fernández-Espínola et al., 2021; González-Serrano et al., 2020; Muñoz González et al., 2019). In fact, in European countries, this intention seems to be related to the level of physical activity of adolescents wherein boys are more active than girls (Van Hecke et al., 2016).

Regarding academic performance in PE, some studies have shown statistically significant differences depending on the gender of the students with the boys obtaining higher mean scores (González-Hernández & Portolés-Ariño, 2016; Marmeleira et al., 2020). Along these lines, academic performance in PE could have an influence on the IPA outside the school (Engström, 2008). A question then arises, can the emotional experience in PE be related to the academic performance and the IPA of adolescents?

This Study

The exploration of discrete emotions in PE has so far highlighted the important role that these emotions play in explaining outcomes during PE classes and also outside school. But most studies have two main problems. First, some studies have measured emotions in an individual and isolated way (Simonton & Garn, 2019). Second, studies that took different emotions into account at the same time have focused only on emotions with the same value (positive or negative; e.g., Mujica & Jiménez, 2021; Simonton & Garn, 2019). Therefore, it is necessary to explore possible outcomes in PE classes taking into account a wide range of emotions simultaneously (both positive and negative; Simonton & Garn, 2019). This fact could help us to look more deeply into the relationship between specific behaviors and individual emotions (Zimmermann et al., 2021). Thus, the objective of this study is to find out how individual emotions can be related to outcomes in PE, such as academic achievement and IPA (Obj1). In addition, the aim is to find out whether the individual emotions experienced by the students are different in girls and boys (Obj2). Finally, if differences in individual emotions by gender are found, we want to know whether gender could be a moderator of the effects in the relationship with the outcomes studied (academic achievement and IPA) (Obj3).

Methods

Participants

There were 764 participants (348 boys and 416 girls), secondary school students aged between 11 and 17 years ($M=13.12$, $SD=1.20$) from five secondary schools (public and private) in the province of Huelva (Spain). These were students from the four grades of lower secondary education: 252 first graders, 277 second graders, 179 third graders, and 56 fourth graders. The students had classes twice a week with a duration of 1 hr each. The selection of the sample was done according to those secondary schools that agreed to participate in the study (nonprobabilistic).

Measures

Achievement Emotions Questionnaire for Physical Education

The original version of the Achievement Emotions Questionnaire for Physical Education was used (Fierro-Suero, Almagro, & Sáenz-López, 2020). This scale, validated with Spanish students, consisted of 24 items covering the three main quadrants of the CVTAE (Pekrun, 2006). The emotions measured were pride (e.g., “I am proud to be able to keep up with the PE class”), enjoyment (e.g., “I enjoy being in the PE class”), anger (e.g., “I feel anger welling up in me during the PE class”), anxiety (e.g., “I get scared that I might say/do something wrong in the PE class, and I would rather not say/do anything”), hopelessness (e.g., “I would rather not go to the PE class because it is impossible to perform the exercises correctly”), and boredom (e.g., “The PE class bores me”). Participants indicated the extent to which they agreed with the statements on a 5-point scale (1 = *totally disagree* and 5 = *totally agree*).

Intention to Be Physically Active Scale

The Spanish version (Moreno et al., 2007) of the Intention to Be Physically Active Scale (Hein et al., 2004) was used. The scale was headed by the phrase, “With respect to your intention to practice some form of physical activity. . . .” This scale consisted of five

items (e.g., “I regularly practice sport in my free time”). Participants indicated the extent to which they agreed with the statements on a 5-point scale (1 = *totally disagree* and 5 = *totally agree*).

Academic Achievement in PE

Participants’ scores on their final assessment in PE were used as a measure of academic achievement in this subject. This score was decided by the teachers based on the evaluation criteria established in the educational laws for PE (Decreto 111/2016, 2016; Real Decreto 1105/2014, 2015; Orden del 14 de Julio de 2016, 2016). The scale used by teachers to grade the student was 0–10. This measurement has been used in various studies previously (Hagen et al., 2021; Pekrun et al., 2009).

Procedure

First, the researchers directly contacted the school administrators and school boards to inform them and to request their cooperation in the research. Five of the secondary schools agreed to participate. Written informed consent and authorization were required from the parents or legal guardians for the participation of their children. The questionnaire was administered during school hours in the presence of a member of the research group, who gave a brief explanation. The students’ participation was anonymous and voluntary, and it took around 5–10 min to complete the scale. This study was carried out in accordance with the ethical principles of the American Psychological Association (2010) and was approved by the Andalusian Ethics Committee for Biomedical Research (TD-OCME-2018).

Data Analysis

First, the reliability and validity of the scales used was tested by confirmatory factor analysis, Cronbach’s alpha, and McDonald’s omega (Hu & Bentler, 1999; Schermelleh-Engel et al., 2003). Second, descriptive statistics and bivariate correlations were calculated. Third, regression analysis was performed to find out whether achievement emotions could predict the IPA and academic achievement. Bootstrap regression analyses were used to deal with the nonnormality of residuals. In addition to the bootstrapped regression coefficients, with bias corrected, accelerated 95% confidence intervals, and bootstrapped significance values, the squared semipartial correlations (sr^2) were given to find each emotion’s unique contribution to the variance of the dependent variables (Harrell, 2015). On the other hand, bootstrapped Student’s t tests were used to check for gender differences. Finally, to study the gender differences in the relations of emotions with IPA and academic achievement, we performed several regression analyses in which the emotion-by-gender interaction term was entered together with the mean-centered emotion and gender effects using the PROCESS macro in SPSS (Hayes, 2017). All the analyses were performed using SPSS (version 23.0; IBM Corp., Armonk, NY).

Results

Descriptive Statistics

The results of the confirmatory factor analysis gave acceptable fit indices for Achievement Emotions Questionnaire for Physical Education, $\chi^2(237) = 716.86$, $p = .00$, comparative-fit index = .94, Tucker–Lewis index = .93, standardized root mean square residual = .05, root mean square error of approximation = .05, and for

Table 1 Descriptive Statistics and Internal Consistency

Variables	RG	M	SD	α	ω	Skewness	Kurtosis
1. Pride	1–5	4.00	0.88	.81	0.81	–0.95	0.63
2. Enjoyment	1–5	4.05	0.90	.83	0.83	–1.07	0.78
3. Anger	1–5	1.43	0.67	.78	0.79	2.40	6.74
4. Anxiety	1–5	1.99	0.92	.80	0.80	1.12	0.84
5. Hopelessness	1–5	1.43	0.68	.81	0.81	2.36	6.54
6. Boredom	1–5	1.83	0.89	.82	0.83	1.39	1.67
7. IPA	1–5	4.19	0.81	.78	0.79	–1.22	1.36
8. Academic achievement	1–10	7.53	1.57	—	—	–0.58	–0.19

Note. IPA = intention to be physically active; RG = range; α = Cronbach's alpha; ω = McDonald's omega.

Table 2 Spearman Bivariate Correlations

Variables	1	2	3	4	5	6	7	8
1. Pride	—	.67	–.38	–.22	–.45	–.42	.43	.33
2. Enjoyment		—	–.41	–.20	–.51	–.58	.43	.40
3. Anger			—	.29	.44	.45	–.17	–.31
4. Anxiety				—	.43	.18	–.21	–.16
5. Hopelessness					—	.42	–.40	–.31
6. Boredom						—	–.24	–.35
7. IPA							—	.29
8. Academic achievement								—

Note. All correlations were significant at $p < .001$. IPA = intention to be physically active.

the Intention to be Physically Active Scale, $\chi^2(5) = 21.04$, $p = .00$, comparative-fit index = .99, Tucker–Lewis index = .96, standardized root mean square residual = .03, root mean square error of approximation = .08. Descriptive statistics and internal consistency for all measures are shown in Table 1. Positive emotions, such as enjoyment and pride, showed similar values and higher than those of negative emotions. The negative emotions with the highest values were anxiety and boredom, in that order. Anger and hopelessness had the same means and were the emotions with the lowest values. The mean of the IPA was 4.19. Finally, the average academic achievement in PE was 7.53. The Cronbach's alpha and McDonald's omega showed adequate internal consistency in all variables. Some of the univariate skewness and kurtosis indicated nonnormality in some of the variables.

Correlation analyses (Table 2) revealed that positive emotions were positively correlated with each other, with the IPA, and with academic achievement in PE. Negative emotions, however, were inversely correlated with the IPA and with academic achievement. All these correlations were statistically significant ($p < .001$).

Regression Analysis

Bootstrapped regression analyses (Table 3) were performed to address Obj1. To this end, achievement emotions were introduced as predictors of the IPA and academic achievement in PE. On the one hand, emotions explained 24% of the variance in the IPA, $F(6, 757) = 40.06$; $p < .001$. Positive emotions (enjoyment and pride) produced the highest values in the squared semipartial correlation coefficients. The emotion with the next highest value was hopelessness. The rest of the emotions were statistically nonsignificant.

Table 3 Results of Regression Analyses

Variables	R^2	sr^2	b [BCa 95% CIs]	p
IPA	.24			
1. Pride		.020	0.19 [0.10, 0.28]	.00
2. Enjoyment		.027	0.25 [0.14, 0.35]	.00
3. Anger		.002	0.07 [–0.05, 0.17]	.26
4. Anxiety		.000	–0.01 [–0.07, 0.05]	.76
5. Hopelessness		.015	–0.20 [–0.33, –0.06]	.00
6. Boredom		.002	0.06 [–0.04, 0.15]	.22
Academic achievement	.20			
1. Pride		.002	0.12 [–0.06, 0.30]	.17
2. Enjoyment		.012	0.32 [0.14, 0.51]	.00
3. Anger		.005	–0.20 [–0.46, 0.05]	.09
4. Anxiety		.000	–0.01 [–0.13, 0.10]	.86
5. Hopelessness		.003	–0.18 [–0.42, 0.05]	.14
6. Boredom		.007	–0.21 [–0.38, –0.05]	.01

Note. IPA = intention to be physically active; R^2 = coefficients of determination; sr^2 = squared semipartial correlations; b = regression weights; BCa 95% CIs = bias-corrected accelerated 95% confidence intervals; p = bootstrapped p values.

On the other hand, academic achievement in PE was predicted mainly by enjoyment, followed by boredom. All the emotions explained 20% of the variance in the academic achievement, $F(6, 757) = 30.55$; $p < .001$. In this case, pride, anxiety, hopelessness, and anger were statistically nonsignificant.

Gender Differences

Table 4 shows that boys showed higher values in positive emotions and in the IPA. By contrast, girls showed higher values in negative emotions. Significant gender differences (Table 4), with a moderate effect size, were found in enjoyment, anxiety, and hopelessness and in the IPA. Moreover, pride and boredom had significant gender differences but with a small effect size. Finally, there were statistically nonsignificant gender differences in anger and academic achievement.

Gender Moderation Effects

With regard to gender differences in the relations between emotions and the IPA, gender was a significant moderator of the effects of pride and enjoyment. In both cases, the emotional effects were

Table 4 Descriptive Statistics and Differences by Gender

Variables	Boys		Girls		T student		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>p</i>	<i>d</i>
1. Pride	4.09	0.82	3.93	0.91	2.55	.01	0.18
2. Enjoyment	4.24	0.79	3.89	0.95	5.56	.00	0.40
3. Anger	1.42	0.62	1.44	0.72	-.45	.64	0.03
4. Anxiety	1.84	0.78	2.11	1.01	-4.25	.00	0.31
5. Hopelessness	1.29	0.51	1.54	0.78	-5.32	.00	0.39
6. Boredom	1.75	0.83	1.90	0.94	-2.30	.02	0.17
7. IPA	4.37	0.74	4.05	0.84	5.64	.00	0.41
8. Academic achievement	7.57	1.59	7.49	1.55	.72	.46	0.00

Note. IPA = intention to be physically active; *t* = Student's *t*; *p* = bootstrapped *p* values; *d* = Cohen's *d*.

stronger for females (pride: $b = 0.45$, $p < .001$; enjoyment: $b = 0.42$, $p < .001$) than for males (pride: $b = 0.26$, $p < .001$; enjoyment: $b = 0.30$, $p < .001$), as can be seen in the corresponding interaction plots (Figure 1). On the other hand, we found no moderation effect of gender on the associations between emotions and academic achievement.

Discussion

Due to the importance of emotions during PE classes in explaining school and nonschool behaviors (e.g., Barr-Anderson et al., 2008; Simonton & Garn, 2019), this study had a triple objective. First, we wanted to know how achievement emotions could predict academic achievement in PE classes and the IPA (Obj1). Second, whether the achievement emotions experienced during the classes were different in boys and girls was studied (Obj2). The last objective of the study was to know whether gender could act as a moderator between emotions and the outcomes studied (academic achievement and IPA) (Obj3).

The students in this study reported that the balance of their emotional experience during PE classes was positive, agreeing with previous studies (Alcaraz-Muñoz et al., 2017; Fierro-Suero, Almagro, & Sáenz-López, 2020; Fierro-Suero et al., 2021; Simonton et al., 2017), because, in spite of experiencing negative emotions, they reached higher values in positive emotions. These emotionally positive school experiences could contribute to improving the emotional health of students, a priority objective of educational institutions (Pekrun, 2014). Emotions, being complex and interrelated constructs (Scherer, 2009), have many factors in common. This fact makes it necessary to study a wide emotional range to understand the possible outcomes in the educational field (Simonton et al., 2017), and this provides information on specific possible behaviors (Zimmermann et al., 2021). Most of the studies found so far have focused on studying certain emotions in isolation (Barr-Anderson et al., 2008; Engels & Freund, 2020; Yli-Piipari et al., 2013), and those studies that have taken into account various emotions have not combined emotions of different value (positive-negative; Mujica & Jiménez, 2021; Simonton & Garn, 2019). Therefore, identifying the specific emotions that students feel during PE classes is a priority as these, in addition to being a consequence of aspects such as the classroom climate (Fierro-Suero et al., 2021; Simonton et al., 2021), the teacher's support of autonomy (Zimmermann et al., 2021), the basic psychological

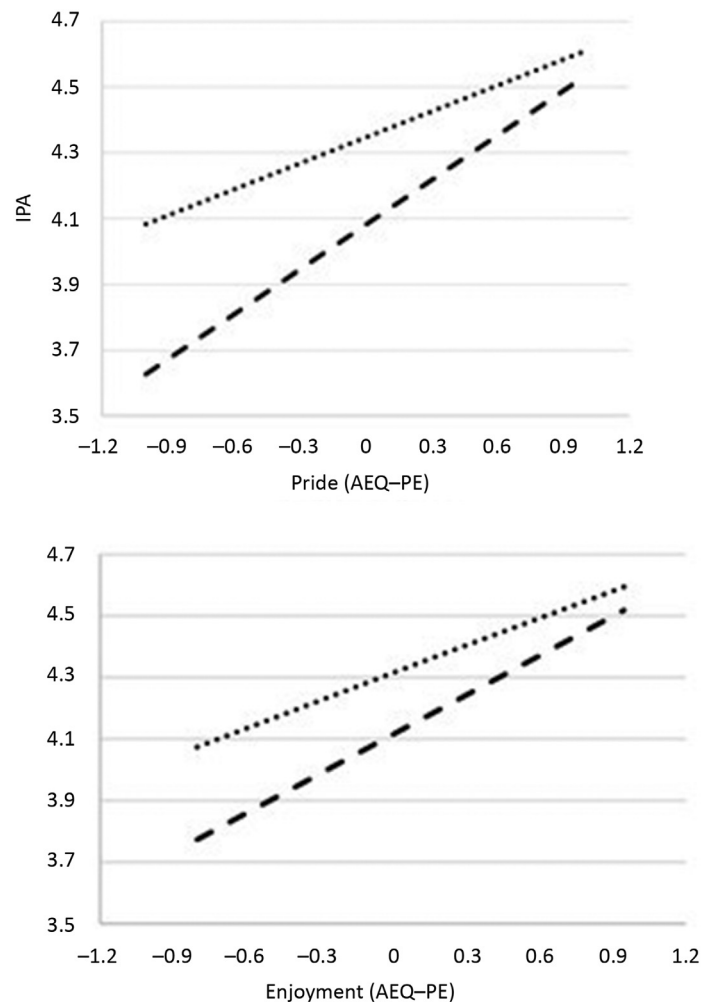


Figure 1 — Interaction plots of the gender-moderated relations of the intention to be physically active with pride and enjoyment. IPA = intention to be physically active; AEQ-PE = Achievement Emotions Questionnaire for Physical Education.

needs perceived by the students (Fierro-Suero, Almagro, & Sáenz-López, 2020), and so forth, may be the cause of possible outcomes (Pekrun, 2006; Simonton & Garn, 2019).

The IPA has been one of the most studied motivational consequences in PE classes (e.g., Castillo et al., 2020); however, the role that emotions play for this intention of future practice has been undervalued. In this study, we show that 24% of the explained variance in the IPA in the future may be due to the emotions that students experience during PE classes (Obj1). In this sense, the emotions of enjoyment and pride (positive) and hopelessness (negative) have been, in this order, the most important in explaining the IPA. Until now, the effect of discrete emotions on the IPA was unknown. Other studies focused on physical activity had shown that enjoyment is the most important emotion in motivating teens to stay active (Barr-Anderson et al., 2008; Engels & Freund, 2020).

On the other hand, the set of emotions explained 20% of academic achievement, with enjoyment and boredom being the most significant emotions (Obj1). These results are consistent with the scientific literature as enjoyment has been shown to be a facilitator of learning and participation (Pekrun et al., 2002; Simonton et al., 2017) and a predictor of academic achievement

(Fraile-García et al., 2019). Boredom, however, promotes demotivation and disinterest (Daschmann et al., 2014). These results show the importance of establishing specific strategies to enhance or reduce some achievement emotions.

Some previous studies have shown that male and female students assess the events that occur during PE class differently, which can lead to them experiencing different emotions (Alcaraz-Muñoz et al., 2017) or even having different behavior patterns (Barker et al., 2019). Therefore, it was necessary to find out first whether there was a difference in the emotional perception of boys and girls (Obj2). This fact could help to establish better defined strategies that are more effective for each gender (Burns et al., 2017). In this study, it was found that the emotional experience in girls and boys was positive, obtaining notably higher scores for positive emotions than for negative emotions, as was mentioned earlier. However, girls had slightly lower values for positive emotions and slightly higher values for negative emotions. In this sense, for all the emotions studied, except anger, there were statistically significant differences between boys and girls, most of them with a medium effect size. These results lead us to conclude that the emotional experience in PE classes for girls is worse than for boys. This difference in emotional perception between the two genders may be due, in part, to the importance that each gives to the various factors that occur in PE classes (winning or losing, the rules, participating with friends, etc.; Alcaraz-Muñoz et al., 2017). In addition, some studies have shown that male and female teachers approach the PE curriculum differently (Sáenz-López et al., 2010). This may be due to the significant burden of stereotypes that PE teachers continue to have today (Preece et al., 2020). Previous studies have shown that the teacher's gender influences variables such as the importance that students give to PE, the motivational climate, or social approval (Baños et al., 2018). Therefore, it would not be strange to believe that the gender of the teacher can also affect the emotional perception of the students. A gender difference was also found in the IPA in the future, which is in line with the high physical activity dropout rate suffered in adolescence, especially for girls (Lodewyk & Muir, 2017).

Given the emotional difference found between the genders, it was necessary to study how gender affected the outcomes studied (Obj3). In the first place, it should be noted that in cases where differences have been found, emotional effects were stronger for females than for males. Therefore, the emotional impact experienced by girls during PE classes seems to have greater consequences than that experienced by boys. This could be due to various factors. For example, some studies have pointed out that females have a more emotional character than males (Chaplin & Aldao, 2013). In addition, given that the rate of extracurricular physical activity is lower in girls than in boys (Lodewyk & Muir, 2017), we think that the experience during the PE class could be more decisive for females.

The results show that, although enjoyment plays an important role in predicting the IPA in both genders (Yli-Piipari et al., 2009, 2013) were significant differences between girls and boys. Moreover, it was not the emotion with the greatest impact for females, in contrast to the findings of previous work (Barr-Anderson et al., 2008). The increase in the emotional range has allowed us to discover that the most decisive role in explaining the intention in girls is played by the emotion of pride. Furthermore, statistically significant differences were found when predicting the IPA with respect to boys. The literature on pride and its relationship to the IPA is limited; nevertheless, recently, Simonton and Garn (2019) showed the relationship between shame and some outcomes in PE

classes. Pride and shame are activating emotions focused on the outcomes retrospectively but with opposite valence (positive and negative; Pekrun, 2006). In this way, shame, an emotion perceived when one believes oneself to have less ability than is needed to successfully perform a task, has been associated with lower levels of extracurricular physical activity (Simonton & Garn, 2019). Girls are usually more predisposed to experience fear and insecurity due to feeling rejected by a partner (Alcaraz-Muñoz et al., 2017).

In the present study, other negative emotions, such as anxiety or anger, have played a less important role in predicting outcomes in PE. It could have been expected that anger would associate to academic performance as this emotion has been related with disruptive behaviors in PE previously (Simonton & Garn, 2019). Although anger correlated significantly with academic achievement, this emotion did not play an important role in predicting this outcome. Thus, these possible disruptive behaviors during PE classes may not have a direct effect on academic achievement in PE.

Practical Implications

The results of this study have shown the importance of achievement emotions in explaining the IPA in the future and academic achievement. These emotions, which boys experience more positively than girls, predict the IPA differently for enjoyment and pride by gender. Therefore, it is necessary to establish a series of specific strategies focused especially on improving the emotional experience for girls, emphasizing the emotions that have proven to be key. Accordingly, promoting strategies in which gender equality is prioritized, through inclusive environments and cooperative games, has proven to be an effective strategy to increase enjoyment among female students (Barr-Anderson et al., 2008; Burns et al., 2017; Engels & Freund, 2020). This is because girls experience pleasure during mutual help experiences with other people (Alcaraz-Muñoz et al., 2017), raising their perception of competence and relationship with others (Engels & Freund, 2020), psychological needs that can predict enjoyment (Fierro-Suero, Almagro, & Sáenz-López, 2020).

On the other hand, pride has been shown to play a fundamental role in terms of its importance for girls to continue being active outside of school. Previous studies have shown that males are more competitive than females during PE classes (Alcaraz-Muñoz et al., 2017). This excess of competitiveness could make girls feel incompetent, a psychological need strongly associated with pride (Fierro-Suero, Almagro, & Sáenz-López, 2020). An excess in this feeling of incompetence could turn into hopelessness (Fierro-Suero, Almagro, & Sáenz-López, 2020), an emotion opposed to pride and related with shame, which has been shown to play a key role in the extracurricular physical activity level (Simonton & Garn, 2019). Therefore, creating environments in which girls feel safe, comfortable, and supported in carrying out physical activity in the presence of boys is a priority (Barr-Anderson et al., 2008). In addition, care must be taken in other aspects, such as the selection of content, to avoid comparison between schoolmates; to give positive feedback prioritizing effort and downplaying the importance of mistakes, or making them feel good about their bodies, could increase feelings of competence and pleasure and decrease hopelessness about PE (e.g., Barr-Anderson et al., 2008; Lodewyk & Muir, 2017).

Apart from enjoyment, boredom has an important weight on academic achievement. Some of the aspects mentioned earlier could also influence boredom given the interrelationship between

the various emotions. However, some specific strategies to reduce boredom in students could provide the appropriate pace to classes, present striking challenges, and increase interest in the task by making it attractive (Simonton & Garn, 2019): in short, avoid monotony by proposing novel classes (Baños et al., 2020). To learn more about how to introduce novelty into PE classes, it is advisable to consult the recent work of Fierro-Suero, Almagro, Sáenz-López, and Carmona-Márquez (2020).

Limitations and Future Work

This study has made important contributions to the field of PE; however, it has a number of limitations. First, although the sample was made up of a significant number of participants, it focused on Spanish students, so it would be of interest in the future to replicate the study with a sample from other countries to check the consistency of the results. But, although the squared semipartial correlations have been studied to find the importance of each emotion, we must not forget the important interrelation that exists between the various emotions. Furthermore, the correlational and cross-sectional design used has a number of limitations, so the conclusions and practical implications should be taken with prudence. Therefore, it would be of interest to carry out interventional and longitudinal studies in the future to help to clarify the role of emotions on the outcomes studied. In this study, differences have been found in the role of some of the achievement emotions; therefore, it is necessary to continue widening the emotional range. Thus, emotions such as hope or shame could be added to cover dimensions of the CVTAE not yet analyzed in PE. That way, we could focus on the prospective/retrospective nature of emotions and see how this could affect the outcomes studied. Conversely, given that it has become clear that emotions can predict outcomes traditionally associated with motivation, it would be of interest to propose studies that take both constructs into account. That way, interventions focused on both the emotional and motivational aspects could be set up to help make the experience in PE classes more positive and, thus, enhance the positive consequences of these constructs.

Conclusions

In conclusion, this study has shown the importance that achievement emotions play in predicting outcomes in PE classes, such as the IPA in the future and academic achievement. On the other hand, it has been shown that boys and girls experience differences in the intensity of each emotion, highlighting the fact that the emotional experience for girls, despite being good, is worse than it is for boys. In addition, it was observed that the role that enjoyment and pride plays in predicting the IPA varies by gender. Based on these results, strategies focused on each gender have been suggested to improve the emotional experience and increase the intention of future practice and the academic achievement of students.

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