



Affectivity and Motor Interaction in Popular Motor Games at School

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Abstract

Motor interaction and its sociocultural context are aspects that determine the type of motor game, providing it with specific characteristics that make it different in the Physical Education class. Thus, this motor activity should be studied from the emotional perspective to optimise the educational process. This study aims to identify the affective perception of 5th and 6th year primary school students in popular cooperation and cooperation-opposition games in Physical Education classes. The study used a quantitative approach, involving 70 students (35 boys and 35 girls) aged between 10 and 12 from the province of Alicante. The data were collected using the PANAS (Positive and Negative Affect Schedule) survey validated in Spanish for children and adolescents. The main results indicate that positive affects obtained the highest perception in the two types of popular games studied, whereas negative affects obtained the lowest perception. It is concluded that this type of sociomotor games with sociocultural content allows students to develop social skills in a positive learning environment.

Keywords: affectivity, physical education, motor interaction, popular game

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Introduction

Physical education in primary education (PEP) should seek to achieve the comprehensive development of students as provided for in Royal Decree 126/2014, which states that its purpose is as follows:

To develop motor skills in people, where this fundamentally means the integration of knowledge, procedures, attitudes and feelings related to motor behaviour. Mere practice does not suffice to achieve this, as a critical analysis which enhances attitudes and values related to the body, movement and the relationship with the surroundings it also required. In this way, students will be able to control and afford meaning to their own motor actions, understand the perceptible, emotional and cognitive aspects related to these actions and manage the feelings related to them while also integrating knowledge and cross-cutting skills such as teamwork, fair play and respect for the rules (Official State Gazette, 1.3.2014, p. 19406).

As mentioned in the Royal Decree, the affective dimension must be factored into the analysis of teaching practices so as to promote PEP that considers the human being as a person who is sensitive to their surroundings and experiences emotions during class activities. PEP classes in Spain are a good opportunity to generate positive affective experiences, as shown in a study in which 376 6th year students from the city of Albacete took part and whose purpose was to examine emotional self-perception. Specifically, its main results indicate that “the percentage of students who express pleasant emotions in the subject of PE ranges from 84.3% in the case of those who feel ‘calm’ (somewhat, quite or very calm) to 76.5% for those who feel ‘enthusiastic’ (somewhat, quite or very enthusiastic)” (Gil-Madrona & Martínez, 2016, p. 187).

Educational processes change, and are constantly updated, and call for students to address new learning venues and challenges which sometimes cause them anxiety and often emotional conflicts. These are the conflicts that teachers need to tackle to avert negative impacts. Anchored in subjective wellbeing, a classification of positive affect and negative affect has been generated in which positive emotions are viewed as favourable and negative emotions as unfavourable for such wellbeing (Redorta, et al. 2006).

On the basis of a theoretical review of the benefits of positive emotions in children’s mental health, schools are encouraged to be a strategic and central venue for emotional education. This is because “school institutions make it possible to centralise and unify efforts aimed at

promoting health. Similarly, mental health protection factors can be enhanced and promoted for a large number of children” (Greco, 2010, p. 90). With regard to the impact of optimistic thinking on children’s health, a study was carried out in the city of Murcia to examine the role of an optimistic explanatory style as a protection factor for child and adolescent depression. 172 pupils from 5th and 6th-year primary education with an average age of 10.7 years took part, and the main results indicate that “pupils with an optimistic explanatory style present fewer depressive symptoms” (Sánchez & Méndez, 2009, p. 276). As such, it reflects the effectiveness of activities rooted in a positive psychology approach for the prevention of mental health illnesses in childhood and adolescence.

Furthermore, motor tasks (MT) have been classified by type of motor communication and are described as follows:

Those where there is an absence of interaction with other athletes (without teammates and without opponents), called psychomotor; those where there are teammates but no opponents, called cooperation MT; those where there are no teammates but there are opponents, called opposition MT; and finally MT, where there are teammates and opponents, called cooperation-opposition (Serna et al., 2017, p. 37).

Under this classification, there are psychomotor games, cooperation motor games, opposition motor games and cooperation-opposition motor games, which from an affective standpoint present differences depending on their motor communication (Alcaraz-Muñoz et al., 2017). This can be seen in a PEP study in Spain conducted in the municipality of Ceutí in which 21 students aged between 8 and 9 took part. The purpose of this research was to analyse the emotions experienced after performing a specific type of motor interaction and also to relate them to motivation for fields in the curriculum. The results included the finding that “positive emotions predominated in all motor domains” (Medina, 2015, p. 75).

Moreover, a PEP class is an appropriate venue, given the possibilities it can afford for students to interact socially. This was demonstrated in a study in the Region of Valencia which found that “during PE classes. students have more fun being with their peers when working cooperatively rather than in competition” (Gutiérrez & Pilsa, 2006, p. 226). In the same vein, a PEP study conducted in Chile found that the main positive emotion for subjective wellbeing attributed to socialisation in the classroom is fun. Accordingly, this

research concludes that it is of crucial importance for the wellbeing of students “to allow communication in a framework of respect during activities” (Mujica et al., 2016, p. 5).

At the same time, and depending on the sociocultural context, motor games can be classified as popular where this means “games known to and played by the general public” (Rebollo, 2002, p. 3). They are part of the heritage of nations and are, in turn, a symbol of cultural diversity. For the same reason, they can be part of a teaching process that inspires social values and cultural awareness in new generations. Dorado (2011) takes the same view when she points out that “popular games are everyone’s heritage which we should be aware of and preserve because we will thus have a global vision of our culture” (p. 33). Similarly, and given that people’s affectivity is shaped by interaction with specific cultural environments (Mujica-Johnson & Jiménez, 2019; Puig et al., 2001), it is essential to investigate affects during the performance of popular motor games in order to enhance educational interpretations in PEP.

In short, popular games are distinguished by their widespread presence in a particular geographical area. They are also credited with valuable cultural significance due to their social construction based on the subjectivity of their practitioners, thus making them an excellent teaching resource for PE classes. This means they are valuable in themselves and are geared towards the development of the whole child. Hence “leveraging popular games in PE classes would make an enormous contribution to the intellectual, affective and manual work done by students in the classroom” (Mendoza et al., 2017, p. 82).

Consequently, and with a view to exploring the affective dimension in the abovementioned games, the main purpose of this study was to identify the affective perception of 5th and 6th year primary education students in popular cooperation and cooperation-opposition games.

Methodology

The study followed a quantitative approach with a non-experimental cross-sectional and descriptive design.

Participants

A total of 70 students (35 boys and 35 girls) aged 10-12 doing the second stage of primary education at the state-run San Juan Bosco Infant and Primary School in

Cocentaina in the province of Alicante took part in this study.

Instruments and Procedures

In order to achieve the study objective, the positive and negative aspects assessment survey was used in the PANAS (Positive and Negative Affect Schedule) version in PE classes. This survey was validated in Spanish for children and adolescents. A Cronbach’s alpha (posar-hi el símbol) coefficient of 0.73 in boys and 0.72 in girls was obtained for the positive affect (PA) variable. As for negative affect (NA), 0.74 was obtained in boys and 0.75 in girls (Sandín, 2003). This survey consists of 20 items and has a two-dimensional structure: positive affect and negative affect, with 10 items on each subscale.

The first step was to contact the school authorities and request their approval for the study. The second was to communicate with the PE teacher, who teaches the third stage, consisting of the 5th and 6th years, to tell her about the research project and secure her cooperation. Subsequently, informed consent was sought from the students, who all agreed to voluntarily engage and cooperate in the study and had a very good attitude towards the research team. The next step was to conduct two 45-minute PE classes. The first class focused on the following popular unopposed cooperation motor games (PUCMG): a) *el pelotón* (skipping rope game); b) *carrera de tortugas* (crawling race with a cushion on your back); c) *el pañuelo* (trying to grab a handkerchief), and, d) *el marro* (a chase and capture game). As for the second session, the following popular cooperation-opposition motor games (PCOMG) were played: a) *el pillao* (tag); b) *la caza del tesoro* (stealing the opposing team’s treasure); c) *duelo entre caballeros* (trying to force an opponent out of a circle), and, d) *lucha turca* (trying to wrestle an opponent to the floor). Once each session was over, the students were individually given the PANAS survey to complete.

Data Processing

Statistical analysis was non-parametric and descriptive. The type of statistic used was “the distribution of cumulative relative frequency or cumulative frequency in percentages, which is the cumulative frequency divided by the total frequency” (Spiegel & Stephens, 2001, p. 39). A statistical analysis was performed using Microsoft Office 2010 Excel. The statistical tests used were frequencies and percentages.

Results

The findings obtained in each type of popular game are presented below along with the differences by gender and country of origin. When “never”, “sometimes” and “many times” are used to talk about positive and negative affect, they refer to the intensity of perception.

The overall picture in terms of PA and NA is shown in Table 1, where the item “many times” for positive affects obtained the greatest perception in the two types of motor game, as did the “never” intensity in negative affects. Therefore, the perception of PA in popular games may be said to be present to a greater extent than NA. The differences found between the popular games according to their motor interaction are that students in unopposed cooperation games perceived a greater positive affect than in cooperation-opposition games. Nevertheless, in cooperation-opposition games, the students perceived less negative affect than in unopposed cooperation games.

Popular unopposed cooperation motor games

The affective perception results during the popular unopposed cooperation games are presented in Table 2, where it can be seen that PA was more perceived at the

Table 1

Distribution in percentages of the intensity of positive and negative affects in popular unopposed cooperation motor games and in popular cooperation-opposition motor games

Intensity	PA	PA	NA	NA
	PUCMG	PCOMG	PUCMG	PCOMG
Many times	54.57	54.43	2.57	2.43
Sometimes	39.86	35.86	18.86	16.57
Never	5.57	9.71	78.57	81

Note. PA: Positive affect; NA: Negative affect; PUCMG: Popular unopposed cooperation motor games; PCOMG: Popular cooperation-opposition motor game.

“many times” intensity compared to NA. The greatest intensity of perceived PA is found in the item of vitality and interest in the social and environmental surroundings. In addition, a high percentage of students also expressed pride, which may be related to knowledge of and identification with the motor game. Although positive affects were preferred in affective perception, three items predominate in perception at the “sometimes” intensity. They are attention, enthusiasm and animation in the game, indicators that were related to interest and motivation in the games.

In NA perception, the students perceived jitteriness most intensively, followed by nervousness and

Table 2

Distribution by percentages of the perception of affective items in popular unopposed cooperation motor games

Affective item	Never	Sometimes	Many times
I am scared	91.43	7.14	4.3
I am an active child	0	20	80
I feel bodily sensations of being jittery	68.57	24.29	7.14
I am an attentive, caring person	0	52.86	47.14
I am a determined child	5.71	37.15	57.14
I feel nervous	74.29	21.43	4.28
I feel inspired	8.57	58.57	32.86
I am ashamed	65.71	32.86	1.43
I am a sharp, alert child	2.86	40	57.14
I am in a bad mood (get upset or irritated)	82.86	15.71	1.43
I feel proud (of something), satisfied	7.14	31.43	61.43
I am enthusiastic (about things, people, etc.)	20	45.71	34.29
I am angry and furious	82.86	15.71	1.43
I am a frightened boy or girl	82.86	15.71	1.43
I feel guilty	84.29	14.28	1.43
I feel I have vitality, energy	1.43	21.43	77.14
I feel upset or annoyed	74.29	24.28	1.43
I'm an animated person, I usually get excited	5.71	58.57	35.72
I feel tense, overwhelmed, with a sensation of stress	78.58	17.14	4.28
I'm interested in people or things	4.28	32.86	62.86

Table 3
Distribution in percentages of the perception of affective items by gender in popular unopposed cooperation motor games

Intensity	PA (boys)	PA (girls)	NA (boys)	NA (girls)
Many times	52.57	56.57	2.29	2.86
Sometimes	41.72	38	22.57	15.14
Never	5.71	5.43	75.14	82

Note. PA: Positive affect; NA: Negative affect.

in third place stress. Similarly, the students present a low percentage at the “never” intensity of different negative affect items. In addition, the highest percentage of such intensity was found firstly in the feeling of fear and secondly in the guilt item. In third place, three items were identified with the same percentage: anger, self-perception of being frightened and bad mood.

In terms of gender, Table 3 shows that boy and girl students recognised PA most. In addition, the girls perceived the “many times” intensity to a greater extent and the “never” intensity to a lesser extent. As for NA, girls identified themselves more with the “many times” and “never” intensities than boys, while boys obtained a higher percentage than girls for the “sometimes” intensity.

Popular cooperation-opposition motor games

The results for affective perception during popular cooperation-opposition games are shown in Table 4, where PA are more perceived at the “many times” intensity with respect to NA. The item with the highest percentage in “many times” of perceived PA is vitality, as in the other popular game studied, followed by the feeling of being active. Finally, there is the ability to be attentive during the game. This reflects a variation as a function of the motor interaction in the game, since this item presented a low perception in relation to PUCMG. In PA, two items were identified which dominated the “sometimes” perception, namely inspiration and enthusiasm. These indicators are similar to those found in this same situation in PUCMG and which are related to the motivation experienced. Nevertheless, animation and attention are the most perceived items in this type of game.

In NA perception, the students perceived jitteriness and fear with greater intensity. These two perceptions were equal at the highest percentage and were followed by nervousness. By contrast, the “never” intensity presents a high value in the feeling of anger and annoyance. They were followed by the feeling of guilt at high intensity which demonstrated that competition caused little subjective discomfort.

Table 4
Distribution by percentages of the perception of affective items in popular cooperation-opposition motor games

Affective item	Never	Sometimes	Many times
I am scared	90	10	0
I am an active child	4.29	21.43	74.28
I feel bodily sensations of being jittery	71.43	22.86	5.71
I am an attentive, caring person	4.29	30	65.71
I am a determined child	7.14	37.14	55.72
I feel nervous	72.86	24.28	2.86
I feel inspired	21.43	47.14	31.43
I am ashamed	72.86	24.28	2.85
I am a sharp, alert child	10	31.43	58.57
I am in a bad mood (get upset or irritated)	78.57	18.57	1.85
I feel proud (of something), satisfied	5.71	44.29	50
I am enthusiastic (about things, people, etc.)	17.14	48.57	34.29
I am angry and furious	88.57	8.57	2.85
I am a frightened boy or girl	78.57	17.14	4.29
I feel guilty	87.14	11.43	1.43
I feel I have vitality, energy	4.29	20	75.71
I feel upset or annoyed	88.57	10	1.43
I'm an animated person, I usually get excited	12.86	40	47.14
I feel tense, overwhelmed, with a sensation of stress	81.43	18.57	0
I'm interested in people or things	10	38.57	51.43

Table 5
Distribution by percentages of the perception of affective items by gender in popular cooperation-opposition motor games

Intensity	PA (boys)	PA (girls)	NA (boys)	NA (girls)
Many times	51.71	57.14	2.29	2.57
Sometimes	38.57	33.14	18	15.14
Never	9.72	9.72	79.71	82.29

Note. PA: Positive affect; NA: Negative affect.

Similarly, the results in Table 5 show that both boys and girls recognised PA most and, as in the other type of popular game, girls perceived PA most strongly at the “many times” intensity. In addition, the “never” intensity presents similar figures in terms of the gender perspective since the same percentage is obtained in both genders. The same trend is repeated for NA as in PUCMG, where girls perceived the “many times” and “never” intensities more than boys, while boys have a higher percentage than girls in the “sometimes” intensity.

Discussion and conclusions

The findings presented in this study show that students perceive mostly PA in popular cooperation games and popular cooperation-opposition games. However, it should be noted that students also perceive negative affect, albeit to a lesser extent. By motor interaction, popular unopposed cooperation games produce a greater perception of PA than cooperation-opposition games. Hence it could be said that in such games the objective of playing as a team and without having to outplay other players is an important factor in generating greater positive affect. Indeed, as in another PEP study, it is concluded that “cooperation games triggered greater intensity of positive emotions and, most of all, without competition” (Miralles et al., 2017, p. 92).

These results also coincide with another research study on emotional perception in PEP and unopposed cooperation games. Specifically, this is because the study in question concludes that in cooperation games without victory “there was a relationship between positive and ambiguous emotions, since this type of motor action domain triggers positive and ambiguous emotions, and as there is no result these ambiguous emotions operate as positive ones” (Molina, 2016, p. 128). Accordingly, considering unopposed cooperation motor games in PEP might encourage students to build social skills in an optimal affective learning environment since

“the greatest positive emotional intensity is associated with socio-motor domain games and more specifically with those in which the result does not count” (Duran et al., 2015, p. 16).

The socio-motor component of the popular games studied means they can be considered as arenas of great educational value because they fit ideally into PE classes. As such, they can be used to foster positive affect while developing attitudes, values and social skills, since “in this group of games, dialogue, reaching agreements, addressing strategies with peers and resolving unforeseen events associated with the uncertain relationships brought about by the opponents are factors that generate intense emotional experiences” (Duran et al., 2014, p. 29). One interesting observation is that this trend appears in similar fashion in university students studying physical activity and sport in Catalonia, where research which examined the emotional experience generated by cooperation motor expression situations concludes that there was a “connection between the variables that intervene in cooperation motor situations and their relationship with the creation of positive emotional environments for the improvement of harmonious interaction in schools” (Sáez de Ocáriz et al., 2014, p. 323).

In addition, NA was perceived by students to a lesser extent than PA in the popular cooperation-opposition games, a finding that similar to the results of another study conducted in the Region of Murcia. Indeed, this latter study acknowledged that “the educational application of cooperation-opposition motor games generates more positive than negative emotional intensity” (Caballero et al., 2016, p. 132). To understand these results, it is essential to refer to a PEP study which, from a qualitative perspective, investigated the positive emotions for the subjective wellbeing of students during their participation in a cooperation-opposition motor game. More specifically, this study found that students attribute their emotions firstly to internal logic aspects; secondly, to the combination of internal and external logic traits; and finally, to contextual factors (Alcaraz-Muñoz et al., 2017).

Comparing the results showed the relevance of cooperation motor games as a methodological strategy in PE classes, underlining “the importance of designing emotional education programmes in the PE subject and using teaching strategies to guide learning in the affective domain and verify achievements and results” (Gil-Madrona & Martínez, 2015, p. 932). As a result, these games not only achieve conceptual, procedural and attitudinal learning, but are also a tool which generates PA and enjoyment in their participants, thus contributing to subjective wellbeing.

In both types of popular games, students had a lower perception of enthusiasm, hence this motor activity would need to be approached strategically by teachers in order to encourage this affect, mainly because this type of game would be found in the motor and cultural biography of the students and would therefore be less likely to surprise them and attract their attention and, consequently, arouse the interest of teachers. In turn, García and Baena (2017) argue that it is essential to propose innovative games and avoid repeating activities in order to motivate students.

Finally, and as part of PEP that fosters socio-cultural learning, the need to continue building knowledge about popular motor games in Spain and the various nations from various scientific perspectives is acknowledged.

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