The relationship between popular motor games and emotional intensity in undergraduate students

La relación entre los juegos motores populares y la intensidad emocional en estudiantes universitarios

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Abstract. Games play a crucial role in strengthening social skills and facilitating the management of emotions while creating spaces for interaction, active participation, and teamwork. In addition, popular games allow the transmission of cultural heritage from one generation to the next. These games are an educational tool with the potential to promote cooperation and encourage individuals to value and respect others regardless of gender. Regarding emotions, it is essential to practice self-regulation. Therefore, this study aimed to analyze the effects of popular motor games on emotional intensity and determine the relationship between motor action domains and gender. The sample consisted of 132 university students from a Physical Education Faculty of in Colombia. The instrument used was the GES Scale (Games and Emotions Scale). The results indicate high intensity for positive emotions, intermediate levels for ambiguous emotions, and lower values for negative emotions. There were no significant differences between men and women in terms of negative and positive emotions. This study concludes that it is essential to prepare future physical education teachers with social and emotional competencies to create an environment in the classroom that fosters well-being and promotes experiential experiences that strengthen socialization. In addition, the importance of play as a significant scenario in which positive emotions are generated is emphasized. Finally, we recommend the design and implementation of activities to create an inclusive and equitable space.

Keywords: motor expression; emotions; play; gender.

Introduction

In education, it is important to promote social responsibility and emotional competencies. Individuals need to learn how to regulate their emotions and manage their behavior (Sáez de Ocariz et al., 2014; Fonseca et al., 2019). Therefore, effective teaching practices should incorporate social skills.

From this perspective, physical education is a pedagogy of motor behaviors where the student must be at the center (Parlebas, 1993). Also, it is important for the comprehensive development of individuals (Gea et al., 2017). By providing experiential learning environments, sports practice contributes to the development of self-motivation, empathic abilities, and interpersonal skills (Sáez de Ocáriz et al., 2014; Durán et al., 2015; Romero-Martín et al., 2017; Zamorano-García et al., 2018; Fonseca et al., 2019; Sáenz-López et al., 2022).

Students are recognized as the focus and actively participates and engages with others, thereby eliciting responses through the exchange of motor behaviors (Parlebas, 2001; Lavega et al., 2014). Following this statement, a space is created where they can manifest and interact with respect, participation, effort, and concern for others (Richards et al., 2019).

Motor practices contribute to self-regulation and overall health. These practices enable individuals to enhance their emotional competencies, manage conflicts, interact effectively with others, and maintain a conducive environment (Rovira et al., 2014; Durán et al., 2015). Emotional competencies promote self-awareness, responsible decision-making, and self-regulation (Bisquerra & Chao, 2021), resulting in improved academic performance by facilitating better environmental adaptation (Zamorano-García et al., 2018).

Classification of the game based on motor action domains

The game has been utilized to address social issues that have a significant impact on people’s lives, allowing for the stimulation of emotions (Almeida et al., 2018). Similarly, it promotes the development of intellectual, physical, and motivational skills and abilities (Daza et al., 2020; Cornellà et al., 2020). Through game, students can enjoy moments
of leisure while actively and dynamically participating (Londoño & Rojas, 2020; Ojeda, 2020). Consequently, game stimulates meaningful learning, enhances the autonomy of children, youth, and adults, and contributes innovatively to the educational process. It facilitates experiential learning and skill development (Carrió, 2020).

Sports games allow individuals to experience different emotions, which may impact their personal and social well-being (Parlebas, 2001; Lavega et al., 2013). In this sense, Parlebas (2001) presents a classification based on motor action:

- Psychomotor games: these are games that do not require motor interaction with others, allowing participants to develop their skills independently. Similarly, there is no influence or assistance from partners in performing motor actions.
- Cooperative games: these require participants to engage with others to overcome challenges and obstacles and encourage communication, assistance, solidarity, and participation by all.
- Opposition games: these are individual games that involve minimal interaction with an opponent of similar characteristics, where the opposition can be physical or involve the use of objects.
- Cooperation/opposition games: they are played with the collaboration of a team and the opposition of opponents, requiring the cooperation of the team members.
- Popular games: represent a cultural and social contribution that transcends generations. According to Rebollo (2002), these games are universal, with widespread participation, few rules, flexibility, spontaneous development, ease of sharing, and suitability for play at any time.

**Emotional well-being and gender**

Emotions are states of the organism that excite or disturb, have a short duration, and are provoked by specific stimuli (Bisquerra, 2003; Lavega et al., 2013). They can influence individuals both physiologically and socially in response to external and internal factors (Ruiz & Cifo, 2021). It is important to note that each person reacts differently to stimuli and experiences different sensations, which can influence their way of thinking (Alcaraz-Muñoz et al., 2017). Therefore, people must learn self-regulation techniques (Durán & Costes, 2018).

Emotions can be classified into three categories: negative, positive, and ambiguous. Negative emotions, such as anger, fear, sadness, anxiety, shame, and rejection, occur when there are losses, threats, or goals that are not achieved. Positive emotions, such as joy, humor, love, and happiness, occur when progress is made, and goals are achieved. Ambiguous emotions, such as surprise, hope, and compassion, can have both positive and negative interpretations (Alonso et al., 2013; Bisquerra, 2000; Lavega et al., 2013).

The management of emotions is crucial to improving the well-being and quality of life of individuals in a balanced way, facilitating satisfying experiences. In addition, it helps to cope with challenges that arise at personal, social, family, and professional levels (Bisquerra, 2003).

According to Bisquerra (2018), it is essential to recognize, identify, and be aware of emotions and feelings to act empathetically in interpersonal relationships. Well-being is linked to a supportive environment of friends and family that promotes a healthy and balanced lifestyle, intending to meet daily challenges at a personal or professional level.

Therefore, it is important to set achievable goals, make informed choices, seek assistance and support resources, recognize rights and responsibilities, demonstrate solidarity, appeal to the value of civic duty, contribute to the well-being of the community, and generate positive experiences in daily life (Bisquerra & Pérez, 2007).

Emotional competence is the ability to understand and express different affective states appropriately (Muñoz et al., 2021). It includes awareness, regulation, and autonomy (Bisquerra & Pérez, 2007). Emotional learning is essential for society because it allows individuals to be aware of their feelings, experiences, and bodily expressions (Bisquerra, 2003; Canabate et al., 2018; Zamorano-García et al., 2018). It is important to regulate emotions and be aware of one’s thoughts and feelings (Sáez de Ocazí et al., 2014; Lavega et al., 2017; Pascual et al., 2017).

Currently, emotional education programs are being developed to promote self-management, self-regulation, and social and personal responsibility (Pascual et al., 2017) in the context of physical education, sport, recreation, and physical activity.

Gender has a moderating effect on emotional capacity, but it is important to note that women are often stereotyped as being more emotional and more expressive than men (Lavega et al., 2017). Because the construction of gender is based on the social acceptance of cultural behaviors, equality education is essential. Education helps children understand that equality of values is natural. Therefore, it is important to dismantle stereotypes about the expression of emotions between genders in childhood (Rovira et al., 2014; Alonso et al., 2019).

However, competitive sports are still unequally distributed between girls and boys in physical education classes, perpetuating stereotypes (Lavega et al., 2017). As a result, teachers and students should be aware of the self-regulation skills required for each game to promote more equitable relationships. Although games can be played by both genders, research has shown that girls tend to participate more in cooperative games, while boys tend to prefer oppositional and psychomotor games.

Several studies have demonstrated that the gender composition of physical education classes influences the emotions of girls and boys (Lavega et al., 2014; Lavega et al., 2017). Therefore, new scenarios that include innovative pedagogical elements are needed to draw students’ attention to the existing gaps (Fernandez, 2020).
It is essential to create scenarios for reflection. For example, in role-playing games, different ways of resolving conflicts are evidenced, as it is a pedagogical method that promotes the development of a healthy relationship between all students (Carrillo, 2018; Bonilla-Sánchez et al., 2019) since collaborative work promotes trust and interaction as a positive process (Álvarez, 2020).

Therefore, there is a lack of gender perspective in physical education, recreation, and sports programs, so it is important to socialize feelings and emotions. Consequently, it is relevant that universities teach future teachers that emotional competencies can be transmitted (Lavega et al., 2017). In this sense, spaces should be promoted where discrimination does not fit, and the participation of all is encouraged, to achieve more egalitarian relations (Ramos, 2020; Muñoz et al., 2021).

In this regard, we present studies that have used the GES scale in games that address motor action domains (psychomotor, cooperation, cooperation-opposition, and opposition). Cortés-Serrano & García-Pérez (2022) conducted a study with 81 students in the 4th grade of secondary education, aged between 15 and 18 years, to characterize emotions during physical education classes through the teaching of sports games. Cañabate et al., (2018) conducted a study with students in the 6th grade of primary education, with a sample of 21 students aged between 11 and 12 years, and conducted sessions with cooperative, traditional, strategy, and orientation games.

Romero-Martín et al., (2017) studied 358 students from Spanish universities, taking into account factors such as emotional intensity, type of practice, and gender. Muñoz-Arroyave et al., (2020) analyzed the influence of motor action domains and competition on the emotional intensity of 91 secondary school students from Catalonia, Spain. They concluded that motor play contributes positively to socio-emotional competencies. Additionally, Cifo-Izquierdo et al., (2023) focused on 73 university students between the ages of 19 and 23, and showed that males exhibited higher emotional intensities than females, especially in competitive games. Therefore, the main purpose of our study was to analyze the influence of popular motor games on emotional intensity in college students. In addition, we examined the association between the action domains and the intensity of emotional experiences and determined the relationship between gender and emotional expression.

Methodology

Participants

A total of 132 university students (89 males, 67.4%, and 43 females, 32.6%) from a physical education Faculty in the city of Bogotá, aged between 17 and 32 years, M= 20.80, SD=3.07, participated in this research. The number of females and males was unequal, as it was determined by the composition of the regular group. The students were selected by convenience sampling through the practical sessions at the university. Participation in the study was voluntary and anonymous. This research was approved by the Ethics Committee of the Faculty of Physical Education of the Universidad Pedagógica Nacional (code 340ETIC-001-2023).

Instrument

The data collection instrument used was the GES Scale (Games and Emotions Scale), which was validated by Lavega et al., (2013). This scale is designed to assess the intensity of 13 emotions, including positive emotions such as joy, humor, love, and happiness; negative emotions such as fear, anxiety, anger, sadness, rejection, and shame; and ambiguous emotions such as surprise, hope, and compassion. Participants were asked to rate the intensity of these emotions during each popular game on a scale of 0 to 10 (Lavega et al., 2013). A score of 0 indicated that the emotion was not experienced, while a score of 10 indicated that the emotion was experienced at its maximum intensity at the end of each of the 8 games.

Procedure

The approach of the study is quantitative and descriptive, with a non-experimental cross-sectional design. First, a theoretical workshop was held on emotions and their classification (positive, negative, and ambiguous), emotional education, and the difference between feeling and emotion (Bisquerra, 2000). This was followed by an introduction to popular games, and the mastery of motor actions (Parlebas, 2001). The 8 games selected and their relationship to each motor domain were explained, followed by an explanation of the GES scale.

In the second phase, the practical component was applied with the development of two sessions of 2 hours each. A total of 8 activities were implemented, with two activities corresponding to each motor action domain. During the first session, psychomotor and cooperation games were played, while during the second session, opposition and cooperation/opposition games were played. At the end of each activity, the participants individually filled out the provided questionnaire. The popular games were carefully selected to be well-known in Colombia and to be representative of each motor domain (see Table 1).

<table>
<thead>
<tr>
<th>Type of game</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychomotor games</td>
<td>Each participant intervenes without motor interaction with another player.</td>
</tr>
<tr>
<td>Gallinita Ciega</td>
<td>The main player (the blindfolded hen) has to catch his teammates, in some cases guessing who they are.</td>
</tr>
<tr>
<td>Golosa</td>
<td>Each player must walk back and forth through the proposed pattern without touching the marked areas.</td>
</tr>
<tr>
<td>Cooperation Games</td>
<td>Players intervene by interacting directly with their teammates.</td>
</tr>
<tr>
<td>Pasar por el aro</td>
<td>A ring is placed somewhere in the circle, and each participant must pass through it with their whole body, and all must do the same.</td>
</tr>
</tbody>
</table>
**Statistical analysis**

All the statistical analyses were performed using SPSS statistical software. Descriptive statistics were used to describe the classification of emotions, and the Student’s t-test was used to identify statistical contrasts regarding gender. The reliability for the present sample (n=132) was given by Cronbach’s alpha, the internal consistency of the scale in the present study was 0.88, and in the variables studied (motor action domains), the reliability registered the following values: psychomotor play (0.81); cooperative games (0.76); oppositional games (0.72) and cooperative-oppositional games (0.78). Acceptable internal consistency values were observed in all cases.

**Results**

Table 2 illustrates the mean scores obtained for each emotion. From this analysis, it can be seen that happiness and joy are associated with high mean scores among the positive emotions, while humor has moderate values and love has relatively low mean scores.

As for the ambiguous emotions (compassion, surprise, and hope), the mean scores indicate a moderate level of experience. For negative emotions, anxiety has the highest value, indicating a moderate level of intensity, followed by fear, anger, sadness, shame, and rejection with low values. Table 2 presents the mean estimates with high precision since the standard errors are small. As for the standard deviation, it should be noted that it is high, which is related to the variability in the experience of emotions by individuals.

We present in Table 3 that the highest mean for positive emotions was found in psychomotor games (5.75), followed by cooperation-opposition games (5.74), cooperation games (5.42), and finally, opposition games (5.39).

For ambiguous emotions, the highest value was found in cooperation-opposition games (4.73), followed by cooperation-opposition games (4.39), and psychomotor games (3.97). As for negative emotions, the highest value was obtained in the cooperation-opposition games (2.5), followed by opposition (2.28), psychomotor (2.11), and cooperation (2.00). The standard deviation is high for ambiguous emotions, while positive and negative emotions have lower variability.

When comparing genders, it is evident that males show higher scores for positive and ambiguous emotions, while females show moderately higher values for negative emotions (Table 4). Although there are some differences in the mean positive emotion scores between males and females in the different game types. Oppositional games produce more intense positive emotions in males (6.05) compared to females (5.39), while cooperative games can generate slightly more intense positive emotions in females (5.55) compared to males (5.44). As for ambiguous emotions, males tend to show higher mean scores than females in all games.

In general, opposition games seem to generate the most intense ambiguous emotions for both males (4.67) and females (3.82). For negative emotions, females have higher scores in cooperation-oppositional, cooperative, and opposition games, while males have a slightly higher mean in cooperation-oppositional games.
In this regard, the importance of including games in physical education classes is emphasized, since it allows for positive experiences, cooperative work, pleasurable learning and favors personal well-being. Regarding negative emotions, anxiety was found to be the highest in this study, these findings coincided with Gil-Madrona & Martínez (2016) and Alonso et al., (2019). However, the intensity of anxiety did not exceed the mean.

Similar to the study by Niubó-Solé et al., (2022), the most valued emotions were happiness, joy, and humor, while rejection, shame, and anger were of lower intensity. In contrast to the studies by Lavega (2017), Alonso et al., (2013), and Sáez de Ocáriz et al., (2014), women presented slightly higher levels of intensity in negative emotions than men, with no significant differences between the two sexes. These data coincide with the study by Zamorano-García et al., (2018), which also found no significant differences.

Based on the results, it is highlighted that oppositional games generate more intense positive emotions in males compared to females, while cooperative games can generate slightly more intense positive emotions in females compared to males. In this sense, Sáez de Ocáriz et al., (2014), Jaqueira et al., (2014), Lavega et al., (2017), Zamorano-García et al., (2018), and Ruiz & Cifo (2021) highlight the importance of implementing cooperative games, since they promote interaction among students and intense positive emotions are generated. In addition, coexistence and interpersonal relationships are improved, and the intensity of negative emotions is reduced.

The results showed that men and women exhibited similar levels of intensity in positive and negative emotions, while men obtained higher values in ambiguous emotions. In this sense, the present research differs from previous studies by Lavega et al., (2014), Alonso et al., (2019), Muñoz et al., (2021), and Ruiz & Cifo (2021), where they suggest that gender influences emotional and affective experiences as a function of motor action. In this regard, Lavega et al., (2014) found that women experience lower intensity of negative emotions, while Sáez de Ocáriz et al., (2014) suggested that men experience negative emotions with greater intensity. On the other hand, both Romero-Martín et al., (2017) and Cifo-Izquierdo et al., (2023) found that men show greater emotional intensity than women.

In contrast to the studies by Alonso et al., (2013), Sáez de Ocáriz et al., (2014), and Lavega (2017), women showed slightly higher levels of intensity of negative emotions than men, with no significant differences between two sexes. These data are consistent with the study by Zamorano-García et al., (2018), who also found no significant differences. Furthermore, Ruiz & Cifo’s (2021)
study presented different results where they found that women had greater intensity and were more expressive than men, but these findings could not be confirmed in the present study. Similarly in our study, Cortés-Serrano & García-Pérez (2022) did not observe any variability in the experience of emotions by individuals.

It is interesting to note that no significant differences were found between genders in this study, which could be because the subjects were students in the Bachelor of Recreation and Bachelor of Physical Education programs, which address gender equity in their curricula. In addition, workshops and lectures on emotional well-being, empowerment, and equality are offered.

It is important to avoid assigning roles in games so that everyone can participate equally and without prejudice (Lavega et al., 2017). People should have the freedom to choose the activities and roles they want, without restrictions based on gender (García-Prieto & Arriazu-Muñoz, 2020).

This study differed from other similar studies in that it focused on popular games, and the participants were undergraduate students in physical education and recreation at a university. It is important to continue conducting studies on the management of emotions in future teachers, as promoting the development of emotional competencies is essential for improving levels of well-being (Duque-Ramos et al., 2023). It is important to address emotions and intrapersonal relationships so that they learn to form positive bonds with their colleagues and students to promote equitable and nonjudgmental participation (Buitrago et al., 2017; Founaud-Cabeza et al., 2023). In this regard, Cañabate et al., (2018) argue that it is important for teachers to recognize that implementing participatory methodologies can lead to students experiencing positive emotions.

**Learning environments and the management of emotional intensity**

Our findings show that both men and women experience positive emotions during play, indicating that these spaces are rewarding. Hence, it is essential to create learning environments that focus on social and personal responsibility, promoting the formation of values through a climate based on respect and leadership, while encouraging active participation (Fonseca et al., 2019; Richards et al., 2019).

Understanding the relationship between emotions and motor behavior improves people's lives (Alonso et al., 2013; Founaud-Cabeza et al., 2023). Play provides a setting for experiential learning, generating intense sensations and positive effects on students' motor behaviors (Gea et al., 2017).

The incorporation of popular games in physical education classes favors the acquisition and strengthening of emotional and social skills (Muñoz et al., 2021). Therefore, it is crucial to train physical education teachers and students to reflexively integrate games into their classes by creating a pleasant environment that strengthens social skills (Richards et al., 2019; Muñoz-Arroyave et al., 2020; Duque-Ramos et al., 2023). For this reason, it is essential to train teachers in emotionality to empower them in the classroom.

Effective management of emotions can prevent conflicts that hinder the teaching-learning process. When students regulate their behavior, coexistence improves (Sáez de Ocáriz et al., 2014; Gea et al., 2017). It is important to have an impact at all educational levels, developing life skills, fostering affective bonds, and encouraging people to express their opinions and feelings (Falcón et al., 2020; Ruiz & Cifo, 2021). In addition, strategies should be developed to promote well-being and regulation (Durán & Costes, 2018; Bisquerra, 2000), and create spaces where people can learn to manage their emotions through workshops, courses, and other means that allow them to build positive perceptions (Durán et al., 2015).

Empowering students cognitively, socially, and emotionally leads to comprehensive and multidimensional improvement (Rovira et al., 2014). Developing emotional awareness allows students to identify and name their emotions, which is essential to understanding themselves and others. Learning to self-regulate equips them with the ability to manage negative emotions (Pascual et al., 2017; Bisquerra, 2018).

The contribution of our research and others like it is to strengthen emotional and social competencies and well-being through theoretical and practical exercises. This allows individuals to have positive experiences and consciously use their emotions, which has a positive impact on their emotional, psychological, and physical health (Muñoz-Arroyave et al., 2020; Ruiz & Cifo, 2021).

Educators can adapt their approaches and strategies to address the specific emotional needs of students (García-Prieto & Arriazu-Muñoz, 2020). Empowering people to cope with daily challenges is relevant to everyone. Emotions should be addressed in physical education classes through games and motor experiences (Durán & Costes, 2018) to promote emotional and social well-being (Falcón et al., 2020).

In conclusion, focusing on emotional and intrapersonal intelligence means creating an environment of continuous experiences in which students can build their self-esteem. This approach helps them become more aware of emotions, identify them, and develop strategies for managing them. Providing teachers with tools to regulate their own experiences and emotions, as well as to guide their students, is essential.

In addition, we believe that recreation and play are educational tools that play a fundamental role in the development of the various dimensions of being, providing important psycho-emotional, cognitive, physical, and social benefits through activities that focus on well-being.

Games are educational tools that allow the implementation of pedagogical strategies that contribute to understanding oneself and others while promoting
enjoyment and satisfaction. Raising awareness of the benefits of games is essential, as it facilitates socialization, enhances learning, develops social skills, and teaches values. In this sense, it is a fundamental part of our relationship with the world, reflecting the complexity of society and culture.

In terms of practical implications, we believe that games enable the creation of experiences and serve as a tool for the emotional development of students. Teachers should be aware of how they can improve emotional regulation through their teaching, as the game contributes to the improvement of emotional well-being through the predominance of positive emotions.

Conflicts of interest

The author declares no potential conflicts of interest.

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