Article

Analysing Emotions and Social Skills in Physical Education

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Abstract: The purpose of this study is to explore the assessment of emotions and social skills of sixth-year primary education students in a physical education (PE) teaching unit. Two instruments of analysis are used: the GES (Games and Emotion Scale) to evaluate emotions, and an ad-hoc questionnaire to measure the social skills of 21 students in their sixth year of primary education. The data analysis was carried out using a generalised estimating equation model (GEE), taking into account the correlation between the different scores of the same subject and the asymmetry of the data. The results show that positive emotions (happiness and joy) are significantly more highly evaluated than negative (fear, anger, and sadness) and ambiguous (surprise) emotions throughout all of the PE sessions.

Keywords: physical education; emotions; social skills; primary education

1. Introduction

Different authors agree that being aware of emotions, putting names to them, and identifying them in others, contributes to well-being and personal development [1–5], as well as strengthening social relations with others [6–8]. The concept of emotional intelligence was expanded thanks to the studies carried out by Goleman [9], who highlighted the need to reconcile emotion with cognition in the classroom and stressed that education should include the development of skills such as self-control, self-awareness, empathy, active listening, conflict resolution, and peer collaboration. Likewise, one of Bisquerra’s key principles highlights that [1,10]:

“emotional education should be understood as a process of human development that encapsulates personal and social circumstances, and which involves changes in cognitive, attitudinal and procedural structures” (p. 7).

Over recent years, various educational practices have appeared that are clearly focused on the development of emotional competencies [11,12]. Knowing which emotions are generated in students depending on the practices carried out provides the teacher with important information to orientate classes and activities and help students adapt to tasks accordingly [13–19].

Monjas [20] defines social skills as the skills possessed by individuals that enable them to execute interpersonal tasks. In other words, this refers to the behaviour that is needed to relate to others. Relations with others, including peers, are necessary and contribute towards knowledge and validation of the self, since shared activities help one reflect on oneself. When children play together, they are sharing experiences that help promote the development of significant social competencies, such as for example assuming responsibility, returning favours, and courtesy. These relations also provide
emotional support and help the child become less and less emotionally dependent on their parents and grow into adults [1,2,5,21–25].

Considering motor skills, researchers have confirmed the relationship between physical activity and improvements in psychosocial factors [26–28]. The studies carried out by these authors highlight improvements in following rules, respecting others, responsibility, cooperation, self-esteem, and solidarity, among other aspects. Moreover, the same authors also consider sport to be a tool of social transformation. It would seem that improvements in physical activity can also be extrapolated to other daily life situations [29,30]. Social attitudes and individual and collective behaviours learned by students during sporting activities are then available in the student’s behavioural repertoire and re-enacted and manifested in the future contexts such as work or family relations. Nevertheless, the socialising potential of sport can also have negative consequences, depending on the way the person establishes relations both with external social agents and the social context itself. The teacher’s role is thus vital, insofar as they are required to manage the classroom and decide what they can ask of each student, since asking a student to do more than they are capable of at any given time can produce negative results. Gutiérrez [29] and Rodríguez [30] classified the social and personal values that are developed when practising physical activity and sport, which refer mainly to social values such as: the participation of everyone, respect for others, friendship, teamwork, the expression of feelings, the struggle for equality; and personal values such as: mental and physical skills, creativity, enjoyment, perseverance, recognition, and respect.

Observing all of the benefits that physical activity brings to individuals, it is important to ask what happens in schools. Studies by various authors have highlighted the positive relationship between carrying out physical activity on a regular basis and academic achievement [31–37], particularly in students who are physically active outside of school, which is to say they are more active than those who are only physically active at school.

The purpose of this study is to explore the assessment of both emotions and social skills in a physical education (PE) didactic sequence. This study is based on scoring sixth-year primary students on two dimensions, emotions and social skills, as they participated in six physical education activities and strategies. We determine which specific activities and strategies better describe the type of emotions—positive, ambiguous and negative—and the type of social skills—conversational, interpersonal, social, and relational. This work intends to determine the contribution of physical education to both the personal and social development of young students.

2. Methods

The design of this study was quasi-experimental, since a non-random sample was used without a control group. The study took the form of a post-intervention control, since responses were observed after having applied the instrument without the application of a prior measure. The study presents mainly quantitative methodologies.

2.1. Sample

The study was carried out with 21 students aged between 11–12 years old (47.6% boys and 52.3% girls) in year six of primary education in the Mas Prats de Palafrugell school of Barcelona. All of the participating children who began the study continued to the end. All of the data was obtained anonymously, which means that no specific form of consent was required.

2.2. Instruments

The activities carried out during the sessions were: (1) group cooperation games, (2) cooperation–opposition games, (3) traditional games, (4) strategy games, (5) cooperative games in small groups, and (6) orienteering races. Traditional games are those that originated from popular tradition and have been preserved over time from generation to generation. They are site-specific recreational activities that present different rules according to the site where they are practiced.
Orienteering races are field time-regulated sport activities that are carried out without a prescribed itinerary, where the participating student has to pass through the controls indicated on a map in the shortest time possible, with the help of a compass. Orienteering races stimulate the power of concentration, quick decision-making, and imagination, as students need to interpret information and contrast it with the reality of the environment.

An adapted version of the GES (Games and Emotion Scale) questionnaire [38] was used, since it is considered easy to understand and can be completed by primary school students. The adaptation consisted of reducing the number of 13 emotions [1,10] to a total of six emotions: happiness, joy, fear, anger, sadness, and surprise. In the study, compassion, humor, anxiety, love, rejection, shame, and hope were not considered, based on a previous exploratory analysis where these seven emotions were not fully reliable to the programmed physical education activities. A 10-point Likert scale was used, in which one meant that they had not felt that emotion, and 10 meant that they had felt it in the most intense way possible. This instrument assessed the emotional intensity that was experienced in each of the motor practices carried out.

An ad-hoc questionnaire that was externally validated by six experts was also used. Two of the experts were doctors in Physical Activity and Sports Sciences, one was a doctor in Psychology, one was a primary school teacher, and two were doctors in Pedagogy. All of the experts had research experience in the educational field and at least seven years’ experience in the university sector. The questionnaire was inspired by the Programa de Enseñanza de Habilidades de Interacción Social, i.e., ‘Programme for Teaching Social Interaction Skills’ (PTSIS) [20]. The questionnaire included 10 questions related to the psychosocial aspects that students had learned about throughout the session. To pose some examples: (1) when there was a conflict with some peers during the game, I tried to be flexible and look for a joint solution, (2) I thanked my colleagues and the teacher when they helped me, (3) I apologized when I cheated during the game or when I accidentally injured another player, (4) I have played with all of the classmates without discriminating against anyone, and I have adapted to the needs and levels of each one to facilitate the game, and (5) I adapted and I did not get angry when I played with my colleagues if I considered that they had a lower level than mine. The same Likert scale that was used for the assessment of emotions, was used to assess the PTSIS questionnaire.

2.3. Procedure

The instrument (adapted version of the GES) was implemented during a teaching unit comprising six 90-min sessions that were carried out twice a week as part of a practice lasting three weeks (April and May 2017). The teaching unit presented a compilation developed with the PE teacher of everything that had been worked on throughout the upper cycle (year five and six of primary education).

According to Parlebas’s classification [39], the games belonged to three domains of motor action: psychomotor games, cooperation–opposition, and cooperation. After each session, the two instruments were administered to the participants to assess the intensity of emotions (GES scale) and social skills (PTSIS questionnaire).

2.4. Data Analysis

First, a descriptive analysis of the items of the GES questionnaire [38] and the items of the PTSIS questionnaire was carried out for each content session. The six emotions, the 10 social skills, and gender were considered to be dependent variables, while class activities and strategies were considered independent variables. The Shapiro–Wilk test was used to assess the normality fit of the assessment of the emotions and the intensity of the social skills. The normality hypothesis was rejected given the asymmetric distribution presented by the data that was obtained with the two instruments. Subsequently, the quantitative data was analysed using a generalised estimating equations model (GEE), taking into account the correlation between the different scores of the same subject and the asymmetry of the data [40]. Multiple comparisons were applied ad hoc to study the differences between the factor categories. The level of statistical significance that was considered stood at a value...
of \( p < 0.05 \), with a confidence index of 95%. Statistical software SPSS v. 23 (IBM, Armonk, NY, USA) was used.

In order to analyse the data, the emotions of the GES scale were classified into positive (happiness and joy), ambiguous (surprise), and negative (fear, sadness, and anger), according to the classification of basic emotions by Lazarus [41] and Bisquerra [1,10]. The same procedure was followed with the items of the social skills questionnaire, classifying them into: conversational skills (tone of voice and positive attitude), ability to solve interpersonal problems (knowing how to negotiate and adapt to find a solution), basic social interaction skills (acceptance, knowing how to say thank you and apologise), and skills related to feelings and opinions and making friends (non-discrimination, adapting, and helping), following the classification criteria presented by Monjas [20].

3. Results

A reliability analysis was conducted to ensure the reliability of scale items as good development procedures that may result in a reasonably reliable survey instrument. For the six close-ended questions on emotions, the overall Cronbach’s coefficient alpha for the positive type of emotions was 0.92, while it was 0.87 for the ambiguous emotions and 0.73 for the negative emotions. In addition, gender was considered in the analysis, but significant differences could not be attributed to this variable.

Overall, it should be noted that positive emotions obtained the highest results in all of the sessions carried out, with ambiguous emotions obtaining an intermediate intensity, and negative emotions obtaining lower results. Throughout the sessions, positive emotions obtained a mean score of no less than 8.04, with the cooperative games session in the small groups obtaining the highest scores, and the cooperation–opposition games obtaining the lowest (Table 1). Regarding negative emotions, the most important point to note is that the highest scores were obtained in the session’s cooperation games, the cooperation–opposition games, and the strategy games. It is not clear why the highest scores were found in the cooperative activities, while the lowest scores were obtained for the traditional games and cooperative activities in small groups. One reason for this could be the tendency of students to not accept games in large groups, where individual psychological needs might not be fulfilling. Although these scores were very low compared with the positive emotion scores, they were, nevertheless, the highest ones recorded (Table 1). Finally, ambiguous emotions obtained similar results in all of the sessions, with the traditional games session obtaining the highest score, and the cooperation–opposition games session obtaining the lowest. However, the difference between the highest and lowest score was only 0.76 (Table 1).

Table 1. Descriptive statistics of the sessions carried out and intensity of emotions. Mean and standard deviation.

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Type of Emotions</th>
<th>Positive</th>
<th>Ambiguous</th>
<th>Negative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Group cooperation games (whole group)</td>
<td>8.11</td>
<td>2.25</td>
<td>6.47</td>
<td>3.51</td>
</tr>
<tr>
<td>Cooperation-opposition games</td>
<td>8.04</td>
<td>1.85</td>
<td>6.33</td>
<td>2.10</td>
</tr>
<tr>
<td>Traditional games</td>
<td>8.97</td>
<td>1.23</td>
<td>7.09</td>
<td>2.50</td>
</tr>
<tr>
<td>Strategy games</td>
<td>8.80</td>
<td>2.00</td>
<td>6.71</td>
<td>2.81</td>
</tr>
<tr>
<td>Cooperative games in small groups</td>
<td>9.40</td>
<td>1.11</td>
<td>6.71</td>
<td>3.45</td>
</tr>
<tr>
<td>Orienteering races</td>
<td>8.92</td>
<td>1.98</td>
<td>6.76</td>
<td>3.60</td>
</tr>
</tbody>
</table>

In general, it is important to note that the skills related to feelings, emotions, and opinions, and those related to making friends, obtained the highest scores in all of the sessions, with the highest score corresponding to the orienteering race for this particular skill. By contrast, the lowest score was obtained in the interpersonal problem-solving skill in traditional games. In general, we noted that
the scores were medium–high, since the lowest score recorded was 6.57, with the rest being above 7. Considering that a 10-point Likert scale was used, the scores were all above the median (Table 2).

Table 2. Descriptive statistics of the sessions carried out and the social skills resulting from them. Mean and standard deviation.

<table>
<thead>
<tr>
<th>Sessions</th>
<th>Conversational Skills</th>
<th>Interpersonal Problem Solving Skills</th>
<th>Basic Social Interaction Skills</th>
<th>Skills Related to Emotions and Making Friends</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Group cooperation games</td>
<td>7.86</td>
<td>2.17</td>
<td>8.00</td>
<td>2.28</td>
</tr>
<tr>
<td>Cooperation-opposition games</td>
<td>7.98</td>
<td>2.37</td>
<td>7.81</td>
<td>2.22</td>
</tr>
<tr>
<td>Traditional games</td>
<td>7.64</td>
<td>2.72</td>
<td>6.57</td>
<td>2.65</td>
</tr>
<tr>
<td>Strategy games</td>
<td>8.76</td>
<td>2.64</td>
<td>8.52</td>
<td>1.97</td>
</tr>
<tr>
<td>Cooperative games in small groups</td>
<td>9.74</td>
<td>0.98</td>
<td>9.57</td>
<td>1.02</td>
</tr>
<tr>
<td>Orienteering races</td>
<td>9.54</td>
<td>0.90</td>
<td>9.61</td>
<td>1.03</td>
</tr>
</tbody>
</table>

Emotions: Significant differences were observed between the different types of basic emotions ($p < 0.05$). The post-hoc analyses that were carried out revealed that positive emotions ($M = 8.71$) were felt with a significantly higher intensity than ambiguous ($M = 6.68; p < 0.05$) and negative ones ($M = 1.57; p < 0.05$). Significant differences were also observed between ambiguous and negative emotions ($p < 0.05$), with the latter being less intense in subjects (Table 1).

Social skills: No significant differences were observed between the four social skills described ($p > 0.05$): conversational skills ($M = 8.35$), interpersonal problem solving skills ($M = 8.57$), basic social interaction skills ($M = 9.11$), and skills related to feelings, opinions, and making friends ($M = 8.59$). The four social skills obtained high and similar scores in all of the sessions, with conversation skills obtaining the lowest mean score (Table 2).

4. Discussion

This study has identified that the six PE sessions carried out, in which students reflected on what had been worked on throughout the upper cycle of primary school, promoted mainly students’ high levels of assessment in relation to positive emotions, intermediate levels of ambiguous emotions, and low levels of negative emotions. These results reinforce the work carried out by other authors with similar studies on emotions and motor skills [16–18]. Furthermore, by becoming more aware of their emotions, students have taken the first step towards the development of the self-recognition of emotions, which is aimed at developing emotional competencies. The results also show the positive effect on the promotion of personal well-being [1,2,4] and on strengthening relations between peers [5,6,10]. The same has occurred with regard to the intensity of social skills, given that a level of intensity has been found for all of the social skills described that was above the median, with notable means in all of the skills. These results suggest that the social and personal values had been developed in the primary years, namely: the participation of everyone, respect for others, friendship, teamwork, expression of feelings, and the struggle for equality [29]. Across all of the skills that were scored by the participants in this study, activities from one to six were scored as follows: (1) 8.4, (2) 8.0, (3) 7.6, (4) 8.7, (5) 9.6, and (6) 9.6. Although the mean was quite high for all of the sessions, there was a tendency to increase the perception of social skills on strategy games, cooperative games in small groups, and orienteering races. This might be attributed to the activities themselves, since these three activities were carried out in participatory groups, and motivation was augmented since they shared common goals. It could be argued that regular motor practice through physical activity throughout a six-year period with the same peers could be a key contributor to improve the psychosocial factors among students [26,27].

Regarding the limitations of this study, we should point out the small size of the sample ($n = 21$) and the specific context in which it was conducted mean that the results cannot be extrapolated to the
general population. Given that this study encompassed two questionnaires—the GES on emotions and PTSIS on social skills—a larger population analysis could be useful to correlate the results between both dimensions. This correlation could be attained by a factor analysis and an analysis of clusters, that is, to determine if the students who had high scores on emotions correlated with the students who had high scores on social skills, and vice versa. In addition, it would be interesting to carry out similar studies in different populations and different social and geographical contexts to confirm the results found.

As a final reflection, and given the results obtained in this study, it would be interesting to assess students’ emotions and social skills in different curricular areas. This would help teachers improve their interventions, and remedy many of the current problems affecting children in our education systems, including some of the most pressing problems such as bullying and the social exclusion of some children, by enabling all of the children to acquire and develop a better understanding of the needs of each individual. A focus on individual longitudinal trajectories, based on the trajectory information on emotions and social skills, would provide very valuable information for each student when facing physical education activities.

5. Conclusions

Knowing which emotions and social skills are generated in students is an important way for teachers to assess their own practice, become more aware of how students distinguish between emotions, and understand which areas of physical education need to be developed in order to support them. This study has helped to verify that the six PE sessions carried out fall within the framework of a participatory methodology, considering the assessment of the emotions and social skills experienced by all of the participants in the study. It is also important to note that these results provide valuable information that demonstrates when physical education classes are developed appropriately, students show high levels of positive emotions and social skills. This in turn indicates good relations among peers, clear evidence of cooperation, and human relations that promote pro-social coexistence.

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References

2. Bisquerra, R.; Pérez, N. Las competencias emocionales. Educación XXI. Revista de Educación 2007, 10, 61–82. (In Spanish) [CrossRef]
5. Ortega, M.C. La educación emocional y sus implicaciones en la salud. Revista Española de Orientación Psicopedagógica 2010, 21, 462–470. (In Spanish) [CrossRef]

8. Pellicer, I. Educación Física Emocional: De la teoría a la práctica; Ed. INDE: Barcelona, Spain, 2011. (In Spanish)


23. Sastre, G.; Moreno, M. Resolución de conflictos y aprendizaje emocional; Ed. Gedisa: Barcelona, Spain, 2002. (In Spanish)


25. Villanueva, L.; Clemente, R.A.; García, F.J. La comprensión infantil de la mente y su relación con el problema del rechazo entre iguales. Infancia y Aprendizaje 2002, 25, 85–100. (In Spanish) [CrossRef]


36. Lagardera, F. Ejercicio físico y bienestar: las prácticas motrices introyectivas en el INEFC de la Universidad de Lleida; University of Lleida: Lleida, Spain, 2007. (In Spanish)
40. Rovira, G.; López-Ros, V.; Lavega, P.; Mateu, M. Las emociones en las prácticas de atención plena. REOP 2014, 25, 111–126. (In Spanish) [CrossRef]
41. Lazarus, R.S. How emotions influence performance in competitive sports. Sport Psychol. 2000, 14, 229–252. [CrossRef]

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