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ORIGINAL RESEARCH PAPER

POSITIVE AND NEGATIVE EMOTIONS: A DIDACTIC INTERVENTION IN PHYSICAL EDUCATION

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Abstract

The aim of this study was to measure the impact of two emotions (positive/negative) on emotional experience in a sample of 44 primary level students. A total of 440 questionnaires were collected, using Porter and Cattell's (1982) CPQ (Children's Personality Questionnaire) and the POMS questionnaire (Profile of Mood States) devised by Fuentes, Balaguer, Meliá and García-Merita (1995). The results in the CPQ suggest that there are significant differences between gender in the subdued/enthusiastic, carefree/conscious and hard/soft sensitivity traits. The intervention work on both emotions maintained the intensities of emotional traits, although the mean for vigour was significantly higher in the happiness sessions than in the anger sessions, and between the pre-test and final sessions of both emotions. The conclusions point to the need for emotional work in Primary Education as an instrument for reinforcing students' level of engagement in the classroom, and their emotional resilience in their daily lives.

Keywords: *Physical education, emotions, behaviour, social climate.*

Introduction

Studies indicate that emotions reflect psychophysiological modes, which in turn track and redirect them, modulating behaviour (Critchley & Garfinkel, 2017), revealing the close relationship between emotions and behaviour.

According to models such as the circumplex model (Feldman & Russell, 1998), achievement emotions could be categorised according to two dimensions: valence (positive emotions versus negative emotions) and activation (activation versus de-activation of emotions). The wide range of emotions could be the result of combining both dimensions, finding emotions such as enjoyment (positive-activating), relaxation (positive-deactivating), anxiety (negative-activating) or boredom (negative-deactivating).

Other models establish four different dimensions, adding to valence and activation, the object-focus, these being emotions relating to the activity, learning process or test, and the reference to time, referring to whether an emotion is experienced before, during or after a given event (anticipated, concurrent or retrospective emotions) (Pekrun and Perry, 2014).

In recent empirical studies, enjoyment (positive-activating) has been positively linked to engagement behaviours, while anxiety (negative-activating) and boredom (negative-deactivating) have been negatively linked to engagement behaviours (Kahu, Stephens, Leach & Zepke, 2014; Skinner, Furrer, Marchand & Kindermann, 2008). It would therefore be interesting to apply this in a school context, with the aim of strengthening students' engagement in teaching and learning processes.

On the other hand, feelings and emotions are fundamental factors that influence social coexistence, to the point of becoming consolidated as a foundation for the potential emergence of conflict situations (Pearce and Littlejohn, 1997). These situations usually occur when negative emotions emerge that people have not been able to control and are directly related to aggressive behaviours. In this sense, we could conclude that if we teach our students to better manage their negative emotions, we could help them to reinforce behaviours aimed at improving co-existence in the classroom (Sáez de Ocáriz, Lavega, Mateu & Rovira, 2014).

Different theories reinforce the importance of emotional work in the classroom, such as:

- The Dynamic Model of Affect (DMA), which posits that people who are better able to distinguish between positive and negative emotions, and who experience more positive emotions during distressing

- experiences are more resilient and can recover more quickly in these situations (Pitzer & Bergeman, 2013).
- The theory of dynamic integration, which argues that recognition of the positive and negative aspects of a situation, reflects the ability to see issues from multiple perspectives, and having the ability to tolerate complex and conflicting feelings (Labouvie-Vief, 2015).

Given the significance and omnipresence of emotions in educational settings (Pekrun et al., 2004), many studies have investigated the relationship between achievement goals and positive and negative emotions (Biddle, Wang, Kavussanu and Spray, 2003; Ntoumanis & Biddle, 1999).

Therefore, the idea of teaching as an emotional practice involving cognitive and emotional processes is accepted by many researchers and educators (Hargreaves, 1998; Shapiro, 2010) and entails significant challenges when the emotions of children are involved, whose perspective-taking and meta-knowledge skills, particularly in the emotional sphere, are more limited than those of adults (Denham, 1998).

Pyschoeducational interventions conducted in recent years at different educational stages have proved useful in improving emotional function and in interpersonal relationships between students, including between their activity proposals, such as dramatisation, expression activities, cooperative activities, music and dance (Cruz, Caballero & Ruiz, 2013; De Rueda & López, 2013; Green y Rechis, 2006; Sáez de Ocáriz et al., 2014; Torrents, Mateu, Planas & Dinusôva, 2011), or inclusion within physical education sessions, posing the question of the experience of positive or negative emotions in motor situations, which have a direct relationship with interpersonal relationship education (Lavega, Filella, Agulló, Soldevila & March, 2011; Mouratidis, Vansteenkiste, Lens & Auweele, 2009; Sáez de Ocáriz et al., 2014).

According to this perspective, in our study a psychoeducational intervention has been carried out where expression and dramatisation activities have been included, through which emotions have been worked on in a different valence (positive-negative) and at different intensities, with the intention of improving abilities to cope with both types of emotions in the social climate of the classroom, and reinforcing the importance of including negative emotion work in the school context.

Material and Methods

Participants. The sample technique chosen was cluster sampling, comprised of Primary students from a school in the region of Murcia (Spain) between the ages of 11 and 12. There were a total of 46 subjects (2 were not included), so that in the end there were 44 participants (20 boys

and 24 girls) in the sample. School approvals were obtained and school children and their legal guardians were fully informed about all the features of the study [i.e. a thorough description of the methods, potential risks, expected benefits, etc.; based on Thomas, Nelson & Silverman (2015) guidelines] and were required to sign an informed consent document.

Procedure. The measurement instruments used were the CPQ (Children´s Personality Questionnaire) by Porter and Cattell (1982) and the POMS questionnaire (Profile of Mood States) by Fuentes and cols. (1995).

The participants´ personality characteristics were obtained from the Children´s Personality Questionnaire (CPQ). Students completed the questionnaire POMS (Profile of Mood States) in a state of relaxation (pre-test) and also in each one of the 8 sessions carried out (4 for happiness and 4 for rage), which means that each individual completed 9 POMS questionnaires, generating a total of 414 POMS questionnaires. After the intervention, the data was processed by means of SPSS, 15.0., and ANOVA systems.

Two emotions were chosen, happiness and rage, which would be worked though in 4 sessions for each, and the same pattern of activities would be followed for both emotions.

The first 4 sessions conducted were those related to the positive emotion (happiness). Happiness enhances enjoyment, reduces tensions generated in environments where there is interpersonal contact, increases the threshold for the elicitation of aggressive behaviour, and improves interpersonal relationships, etc. We thought that by working with positive emotions first, our research with the following 4 negative emotion sessions would be more straightforward.

Data are reported as mean (standard deviation) in the text and the table, and displayed as mean (standard error) in the figures. Two-way analyses of variance (ANOVA) were used to examine the sex differences. Subsequently, the post-hoc with the Bonferroni adjustment was used for pairwise comparisons. All statistical analyses were performed using the SPSS Version 21.0 for Windows (IBM® SPSS® Statistics).

Results

Table 1 shows the results of the Children's Personality Questionnaire (CPQ), in which significant differences between gender are observed within first tier emotional factors, with girls being more subdued (subdued/enthusiastic trait), more conscious (carefree/conscious trait) and with moderately hard/soft sensitivity (hard/soft sensitivity trait). Meanwhile, boys are more enthusiastic (subdued/enthusiastic trait) and have hard sensitivity (hard/soft sensitivity trait).

The results did not find significant differences between gender in the other first and second tier emotional factors.

Table 1

First and second tier emotional factor results corresponding to the children's personality questionnaire (CPQ)

1ST TIER TRAITS									
Trait	Level	Boys	Girls	Total	Trait	Level	Boys	Girls	Total
Reserved	Reserved	22.7%	29.5%	52.3%	Confident	Confident	9.1%	13.6%	22.7%
Open	Moderately R-O	13.6%	11.4%	25.0%	Uncertain	Moderately C-U	34.1%	29.5%	63.6%
	Open	9.1%	13.6%	22.7%		Uncertain	2.3%	11.4%	13.6%
Intelligence	Low	22.7%	22.7%	45.5%	Trusting	Trusting	22.7%	34.1%	56.8%
	Moderate	13.6%	15.9%	29.5%	Astute	Moderately A-T	22.7%	18.2%	40.9%
	High	9.1%	15.9%	25.0%		Astute	.0%	2.3%	2.3%
Emotionally	E. Affected	18.2%	18.2%	36.4%	Calm	Calm	22.7%	36.4%	59.1%
Affected	E. Neutral	15.9%	20.5%	36.4%	Apprehensive	Moderately A-T	18.2%	15.9%	34.1%
Stable	E. Stable	11.4%	15.9%	27.3%		Apprehensive	4.5%	2.3%	6.8%
Submissive	Submissive	9.1%	13.6%	22.7%	More/Less	Less Integrated	.0%	2.3%	2.3%
Dominant	Moderately S-D	22.7%	31.8%	54.5%	Integrated	Moderately I.	29.5%	13.6%	43.2%
	Dominant	13.6%	9.1%	22.7%		More Integrated	15.9%	38.6%	54.5%
(*) Subdued	Subdued	.0%	18.2%	18.2%	Relaxed	Relaxed	22.7%	29.5%	52.3%
Enthusiastic	Moderately S-E	29.5%	36.4%	65.9%	Tense	Moderately R-T	13.6%	22.7%	36.4%
χ^2=15.71; p<0.005	Enthusiastic	15.9%	.0%	15.9%		Tense	9.1%	2.3%	11.4%
(*) Carefree	Carefree	4.5%	.0%	4.5%	(*) Sensitivity	Hard	31.8%	6.8%	38.6%
Conscious	Moderately C-C	18.2%	9.1%	27.3%	hard/soft	Moderately HS	9.1%	38.6%	47.7%
χ^2=6.35; p<0.05	Conscious	22.7%	45.5%	68.2%	χ^2=15.59;p<0.0005	Soft	4.5%	9.1%	13.6%
Shy	Shy	11.4%	11.4%	22.8%					
Self-starter	Moderately S-S	20.5%	29.5%	50%					
	Self-starter	13.6%	13.6%	27.2%					
2ND TIER TRAITS									
Adjustment	Adjusted	25.0%	27.3%	52.3%	Listless	Listless	4.5%	13.6%	18.2%
Anxiety	Moderately A-A	15.9%	22.7%	38.6	Excitability	Moderately S-E	31.8%	38.6%	70.5%
	Anxious	4.5%	4.5%	9.1%		Excitable	9.1%	2.3%	11.4%
Introversion	Introverted	.0%	.0%	.0%					
Extroversion	Moderately I-E	19.5%	12.2%	31.7%					
	Extroverted	26.8%	41.5%	68.3%					

The results obtained from the mean of the mood state profiles in the happiness and anger sessions, and performing the x^2 test with residual analysis corresponding to the different states according to gender, found no significant differences between boys and girls (Figure 1).

As can be seen in Figure 1, in the happiness and anger sessions, both boys and girls have a state of low tension, low depression and low fatigue and conversely a highly vigorous state.

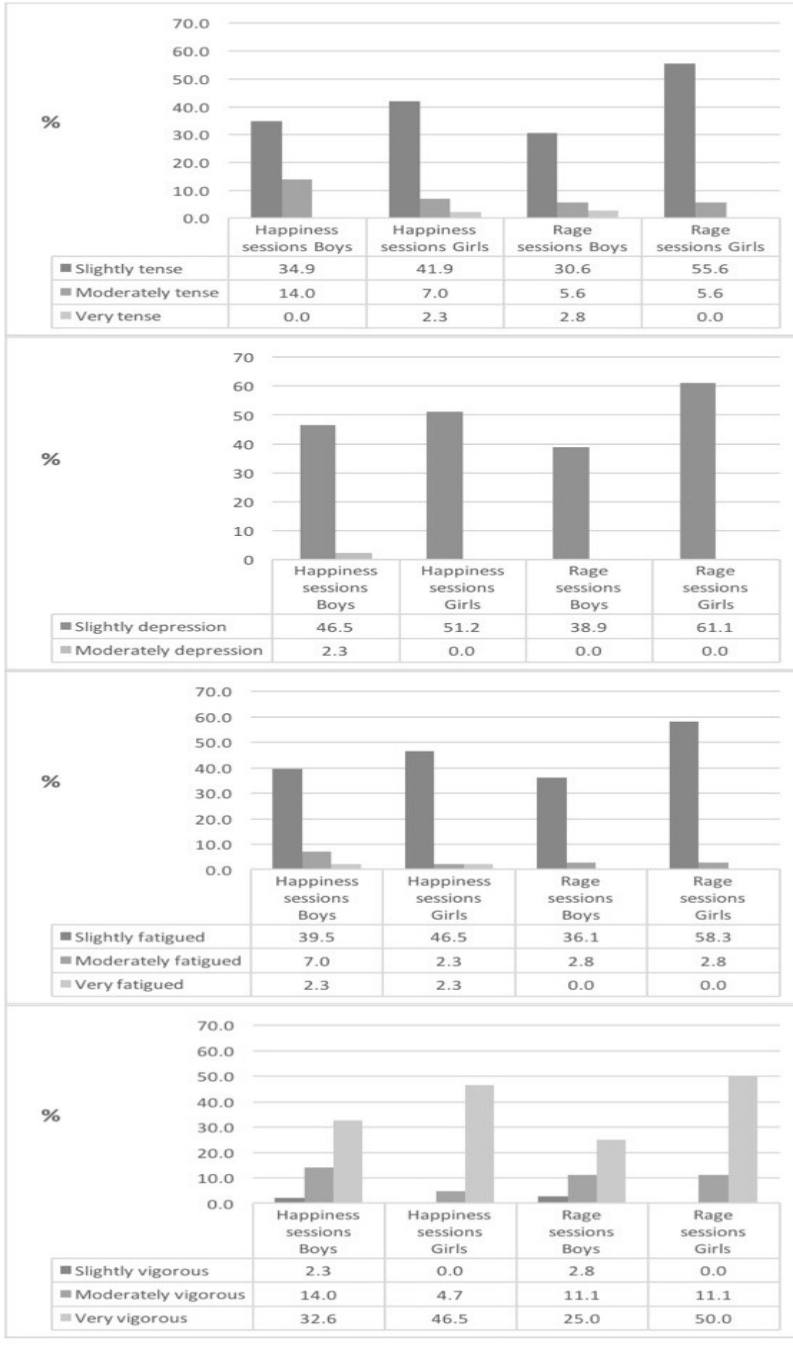
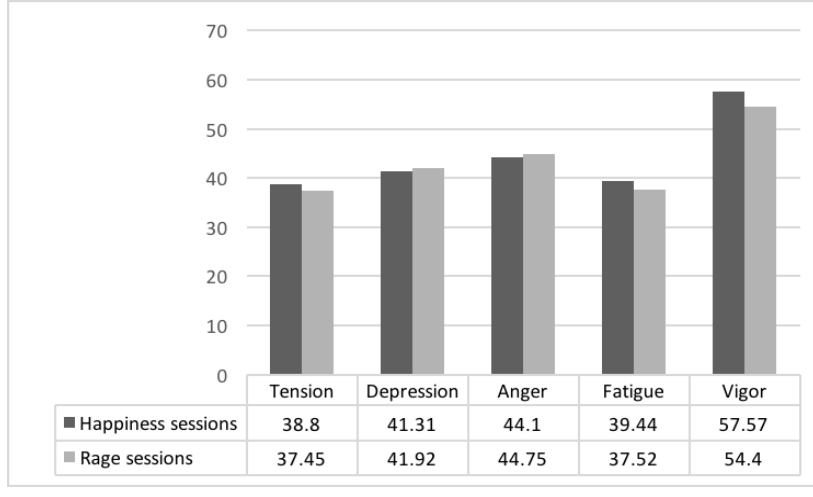


Figure 1. Mean of the tension, depression, fatigue and vigour state profiles in the happiness and anger sessions according to gender

In the T-test for related samples of mood states between the happiness and anger sessions (Figure 2), it can be observed that there are no

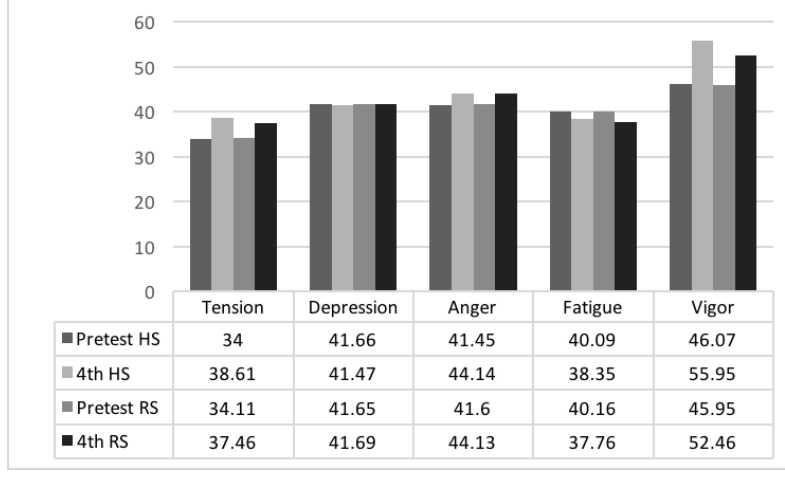
significant differences between the mean for tension, depression, anger and fatigue corresponding to the happiness sessions when compared to the anger sessions. However, the mean for vigour is significantly higher during the happiness sessions than those of anger ($t=3.32$; $p<0.005$).



	Tension	Depression	Anger	Fatigue	Vigor
Happiness sessions	38.8	41.31	44.1	39.44	57.57
Rage sessions	37.45	41.92	44.75	37.52	54.4

Figure 2. T-test for related samples of the mean tension between happiness sessions and anger sessions

Likewise, significant differences can also be observed in the state of vigour between the pre-test and the fourth session means, both in the anger and happiness sessions (Figure 3).



	Tension	Depression	Anger	Fatigue	Vigor
Pretest HS	34	41.66	41.45	40.09	46.07
4th HS	38.61	41.47	44.14	38.35	55.95
Pretest RS	34.11	41.65	41.6	40.16	45.95
4th RS	37.46	41.69	44.13	37.76	52.46

Figure 3. Means of the mood state profiles between the pre-test and fourth session (happiness/anger). (HS: Happiness sessions; RS: Anger sessions)

Conclusions

According to the results, obtained with the Children's Personality Questionnaire (CPQ), significant differences have appeared between genders in the subdued/enthusiastic, carefree/conscious and hard/soft sensitivity traits.

The means of the mood state profiles in the happiness and anger sessions lead us to believe that work on an emotion referred to as 'negative' (anger) can be managed just like another referred to as 'positive' (happiness), since the emotional traits were maintained in all sessions. In this sense, one might conclude that a negative emotional task, such as anger, managed through educational activities, could have a positive impact among participants, minimising the impact of this emotion on social development in our students.

Within the comparison of the T-test mood state profiles between the happiness and anger sessions, the mood state traits were maintained without differences, except for the mean vigour, which was significantly higher in the happiness sessions compared to those of anger. This result could lead us to conclude that vigour may be a trait considered a positive emotion (happiness).

In the same vein, significant differences can also be observed in the state of vigour between the pre-test and the fourth session means, both in the happiness sessions and the anger sessions, suggesting that this type of activity could help to reinforce students' level of engagement in the classroom.

It therefore seems positive that there are no significant changes in the states of fatigue and depression in the different sessions (positive – happiness, and negative – anger), and that in the increase in the state of vigour in the students, results point to the possibility of working on both types of emotions as a positive intervention measure, and for coping with emotions known as 'negative' as a form of work for adapting to experiences and to socio-interpersonal environments, promoting an improvement in social skills, a basic facet of success in personal and social life.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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