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## Emotional intelligence and creativity in first- and second-year primary school children

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### Abstract

The objective of this study was to describe emotional intelligence and creativity in Primary Education schoolchildren. These two constructs were evaluated in first- and second-year Primary Education schoolchildren who went to different schools in the Spanish Autonomous Community of Aragón. The study sample was formed by 631 schoolchildren (313 boys and 318 girls) aged 6-7 years. The results showed differences in emotional intelligence for gender, but the differences obtained for creativity were not significant. Finally, a cluster analysis was done to analyse how the different variables were grouped according to clusters, where differences were found for creativity levels, but not for emotional intelligence levels.

This research indicated how emotional intelligence did not influence our pupils' creativity as the cluster with the highest creativity level had the lowest level of elaboration (quantity of details in responses). This indicated that, despite being creative, these pupils were concise and pragmatic when responding. This situation should make schools reflect on what type of students we are training. As future research lines, work should be done with programmes that include creativity and emotional intelligence, and that investigate the way positive emotions and creativity can be combined.

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## 1. Introduction

In his book “Emotional Intelligence” (1995), Goleman pointed out that as people, we have two minds, one that thinks and one that feels, and they interact to construct our mental life. The rational mind is the mode of comprehension with which we are aware, more awake, more thoughtful, and better able to consider and reflect. The emotional mind is another kind of more impulsive and powerful knowledge that can sometimes be illogical. Emotional skills are considered predictive of better facing daily life events, and higher levels of well-being and psychological adjustment (Salovey, Bedell, Detweiler & Mayer, 1999; Salovey, Stroud, Woolery, & Epel, 2002). There is some evidence that Emotional Intelligence, defined as the skill to perceive, assimilate, understand and regulate our own emotions and those of others (Mayer & Salovey, 1997), plays a key role as a person’s own resource.

This term emotional intelligence (EI) has been introduced into psychology and schools according to two perspectives: one is skill (Mayer & Salovey, 1997) and the other is a mixed approach that combines cognitive dimensions and personality (Antoñanzas, Salavera, Teruel, Sisamón, Ginto, Anaya et al., 2014; Bisquerra, Martínez, Obiols & Pérez, 2006; Salavera, Antoñanzas, Noé & Teruel, 2014).

We all know creativity as some people’s capacity to make original and novel things. We also believe that it is a faculty that all people possess to a greater or lesser extent, but can be developed with training and can be seen as being artistic, literary, scientific, etc.

Along these lines, Guilford’s Structure of Intellect (1967) roused an interest in studying creativity by considering it an intellectual activity that forms part of the so-called “divergent thinking”, which is defined as this type of thinking, when faced with a given problem, can elicit alternative responses as opposed to what would be “convergent thinking”, which occurs when only one possible solution is available.

Basically, convergent thinking is the process used to solve problems by conventional and predetermined procedures; divergent thinking would be the operation that implies the production of various responses or solutions for one same problem.

Divergent production includes four creativity characteristics or factors that Guilford proposed (1950): fluency, flexibility, originality and elaboration. Torrance (1974) spoke about creativity as the process of discovering problems or gaps in information, of forming ideas or hypotheses, of testing them, amending them and communicating the results by assigning creativity a global skill nature.

Creativity, however, is a relevant quality of children’s personality and during their maturity process given its relation with flexible thinking and problem-solving skills, as indicated by Guilford (1950) and Torrance (1982), and is extremely important in children’s functioning. In fact, studying these two aspects in children in the first years of Primary Education is important for working on their development in classrooms.

The objective of this study was to describe EI and creativity in primary education schoolchildren. For this purpose, we evaluated these two constructs in first- and second-year pupils who went to different schools in the Spanish Autonomous Community of Aragón.

## 2. Method

### 2.1. Participants

The study sample was formed by 631 first- and second-year Primary Education schoolchildren, 313 boys (49.6%) and 318 girls (50.40%), who voluntarily participated in this study, of whom 311 (49.3%) were first-year and 320 (50.7%) were second-year Primary Education pupils (see Table 1). All their parents or legal guardians signed an informed consent and the ethical considerations of the Declaration of Helsinki were observed.

Table 1. Sample distribution according to age (n=631)

	Boys	Girls	Total
First year	149	162	311 (49.3%)
Second year	164	156	320 (50.7%)
Total	313 (49.6%)	318 (50.4%)	

## 2.2. Instruments

The *Torrance Test of Creative Thinking* (figurative expression) (Torrance, 1974): three subtests were run: We compose a drawing, where subjects were asked to draw quite an unfamiliar illustration based on a curved figure; We finish a drawing, where subjects had to design drawings using incomplete drawings and put forward ideas that no-one else has thought of; Lines, similar to the previous task, but this time the subjects had to work with much more similar stimuli to create as many different ideas as possible. For this evaluation, the four criteria proposed initially by Torrance were considered: fluency (quantity of ideas), flexibility (production of very different ideas), originality (production of unfamiliar ideas) and elaboration (enrichment of ideas).

*Bar-On Emotional Quotient Inventory Youth Version (EQ-i:YV)* (Bar-On & Parker, 2001): this is a self-report psychometric instrument designed to measure EI in children and adolescents. It is based on the Bar-On conceptual model of social-emotional intelligence. The shortened version was used, which contains 60 Likert-type items and five scales: General Mood, Adaptability, Stress Management, Intrapersonal and Interpersonal.

## 2.3. Procedure

An evaluator applied the questionnaires with small groups of pupils. The instructions in the manual were taken into account, as were the times needed to do each test. The fact that collected information was anonymous and confidential was informed at all times. The data collected in this study were obtained in April and May 2015.

The statistical data analyses were done using the SPSS 22.0. statistical programme, and a descriptive analysis was done for each variable. In all cases work was done at the lowest level of significance possible, and those differences with a value of  $p < 0.05$  were considered significant. Contrasts were bilaterally considered. Finally, a cluster analysis was done in an attempt to group pupils according to their levels of EI and creativity.

## 3. Results:

Table 2 provides the scores obtained by the participants in the emotional intelligence (EQi-YV) and creativity (TTCT) tests.

Table 2. Descriptive results of Creativity and Emotional Intelligence Tests.

		Minimum	Maximum	<i>x</i>	<i>d.s.</i>
Creativity	Originality	0	174	55.10	26.149
	Fluency	0	39	14.35	6.373
	Elaboration	0	30	9.97	6.832
	Flexibility	0	24	11.81	4.703
Emotional intelligence	General Mood	28	84	48.82	5.166
	Adaptability	11	40	30.82	4.866
	Stress Management	19	43	29.39	5.086
	Interpersonal	13	36	27.50	4.214
	Intrapersonal	6	24	15.96	3.154

We also studied whether EI was determined by age or gender (Table 3). This section indicated differences in the dependent variables compared to the independent variable, Age and Gender in this case; that is, both boys and girls presented different levels of EI. When we analysed by age, significant differences were observed for *adaptability*, *stress management* and *intrapersonal* EI. When we analysed by gender, four of the five EI sections were significant: *general mood*, *adaptability*, *stress management* and *interpersonal* EI.

Table 3. Comparison of emotional intelligence and creativity means for age and gender

		Age		Gender	
		F	Sig	F	Sig
Emotional Intelligence	General Mood	.325	.861	10.145	.002
	Adaptability	2.881	.022	3.885	.049
	Stress Management	35.517	.000	9.631	.002
	Interpersonal	1.431	.222	20.893	.000
	Intrapersonal	5.061	.001	1.150	.284
Creativity	Originality	7.784	.000	2.208	.138
	Fluency	7.370	.000	8.333	.004
	Elaboration	5.360	.000	5.685	.017
	Flexibility	9.442	.000	8.024	.005

Finally, a cluster analysis was done (Table 4) in an attempt to classify the participants in this research according to the creativity and emotional intelligence variables. This allowed us to obtain three groups, which showed differences for the creativity level, but not for the EI levels. These three groups were: 1) formed by 345 subjects (54.67%) with a low creativity level; 2) 232 subjects (36.76%) with higher creativity levels; and 3) 54 participants (8.55%) with very high creativity levels, except for the elaboration section, where they obtained lower scores than the other two groups.

Table 4. Centre of the final conglomerates of the variables creativity and emotional intelligence

	Final conglomerates			F	Sig.
	1	2	3		
Originality	36	71	109	1242.429	.000
Fluency	10	18	26	620.705	.000
Elaboration	10	11	8	5.675	.004
Flexibility	9	15	20	535.279	.000
General Mood	48	50	48	4.846	.008
Adaptability	31	31	31	.769	.464
Stress Management	29	30	30	4.492	.012
Interpersonal	27	28	28	.262	.770
Intrapersonal	16	16	16	.688	.503
	345 (54.67%)	232 (36.76%)	54 (8.55%)		

#### 4. Discussion

This research revealed that whereas creativity was influenced by age and gender, aspects of EI, such as general mood and interpersonal EI, did not show differences for age. Therefore, we concluded that while creativity was generally related with age and gender, EI did not depend so much on age as on gender.

This research also indicated that EI did not influence our pupils' creativity, even when former research works had found a relation for it (Carmeli, McKay & Kaufman, 2014). However, this study was conducted in a context with adults and an occupational setting, which might affect the results, just as the research work of Pavlova and Kornilova suggested (2013). In this Primary Education pupils context, EI was stable in all three groups. This section stressed the fact that the group with the highest creativity level showed the lowest elaboration level (quantity of details in responses), which would indicate that despite being creative, they were concise and pragmatic when responding. This should lead schools to reflect what type of pupils they are training as intrinsic motivation has been demonstrated to be a crucial component in the creative process (Hennessey, 2015). These results led us to another reflection, which is in

line with that Stenberg considered (2016): if there are hundreds of books and thousands of articles about how to teach children creative thinking, the problem is not that books or articles on such teaching are lacking, but how we actually apply this creative work to classrooms.

The limitations of this study included sample size which, despite being relevant for a first approach to these constructs, should be enlarged in both number of participants and ages to conduct longitudinal studies. This would allow us to make a more accurate diagnosis of the relation between IE and creativity.

As the main conclusions of the study and as future research lines, and in line with what Stenberg proposed (2016), we point out the need to work on programs from classrooms that develop Emotional Intelligence, Creativity, early in infancy, if possible, by including two constructs at the same time. For these programs, work must be done from a specific perspective, and also cross-sectionally in absolutely every subject that forms part of our students' curriculum. Only in this way will we be able to work Emotional Intelligence and Creativity to help improve the personal, social and cultural processes of today's pupils and tomorrow's adults.

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