



Article

# Does Emotional Intelligence Have an Impact on Linguistic Competences? A Primary Education Study

Georgina Perpiñà Martí \* , Francesc Sidera Caballero and Elisabet Serrat Sellabona 

Department of Psychology, University of Girona, 17004 Girona, Spain; francesc.sidera@udg.edu (F.S.C.); elisabet.serrat@udg.edu (E.S.S.)

\* Correspondence: georgina.perpinya@udg.edu

Received: 11 November 2020; Accepted: 10 December 2020; Published: 15 December 2020



**Abstract:** The relationship between emotional intelligence (EI) and academic achievement has received a lot of attention in the school environment. The objective of this study is to identify which EI components are more related to linguistic competences in primary education. One hundred eighty students between 8 and 11 years of age participated in the study. We administered the BarOn EI Inventory, the intellectual skills test (EFAI) to determine the intellectual abilities, and a test of basic linguistic competences. The results showed that the EI factors of adaptability and interpersonal had the strongest impact on linguistic competences. Specifically, adaptability was the EI component more related to reading comprehension, explaining 13.2% of the reading score's variance, while adaptability and stress management were the best predictors of writing skills, accounting for 15.4% of the variance of the writing score. These results point to the need to consider emotional competences to help students reach academic success and personal well-being.

**Keywords:** emotional intelligence; primary education; academic achievement; reading comprehension; writing

## 1. Introduction

In the last decades, the study of emotional intelligence (EI) has expanded exponentially and has received much attention, especially in the educational field. Since the early 2000s there has been a general acceptance of the existence of two distinct constructs of EI [1,2]: a practitioner (e.g., Bar-On [3]) and a scientific (e.g., Mayer and Salovey [4]) EI. This conceptualization is consistent with the suggestion that EI can be divided into trait and ability EI [5]. The practitioner and trait conceptualizations of EI rely on self-report measurements of perceived EI whereas the scientific and ability conceptualizations use performance-based measurements. Notwithstanding, a consensus has begun to emerge over the last few years that the two EI constructs are not antagonistic but complementary to one another, each reflecting a unique aspect of the individual's emotional functioning [6,7].

The present study puts the focus on children's trait EI. Trait emotional intelligence (Trait EI) theory was introduced by Petrides in 2001 and "describes our perceptions of our emotional world: what our emotional dispositions are and how good we believe we are in terms of perceiving, understanding, managing, and utilizing our own and other people's emotions" [8] (p. 50). Trait EI is conceived as a personality trait and might be interpreted as the non-cognitive or automatic component of emotional competence [9]. It is also the construct that empirical and meta-analytical evidence has consistently demonstrated to have greater criterion validity [10], and there is a consensus in considering it the most reliable indicator of human beings' emotional competences [11].

A recent published special issue about the foundations and assessment of Trait EI [12] shows the great interest of the scientific community about this specific construct and its influence to moderate different psychosocial aspects in children, from adaptation levels to life satisfaction or academic

achievement. For example, Dave et al. [13] found that high levels of Trait EI are associated with a greater likelihood of pursuit of post-secondary education, or Piqueras et al. [14] tested the validity of Trait EI in the prediction of child psychosocial adjustment, finding a positive association between Trait EI and well-being.

Thus, possessing good emotional competences is related to a good psychological adjustment and personal well-being, satisfactory personal relationships, and good academic achievement [15]. Students who do not have an adequate control of their emotional competences are more susceptible to experience developmental delays, disruptive behavior, or social functioning problems [16,17]. A recent study with Spanish students aged 8–18 showed that EI predicts subjective well-being [18]. In the same line, Cejudo et al. [19] supported the existence of a negative association between EI and stress, and between EI and social anxiety. Henceforth, research shows that emotional intelligence abilities imply a skill that allows students to guide their thoughts and ponder over their emotions, helping them to improve their well-being levels.

### *1.1. Emotional Intelligence and Language*

An important factor in learning a language is the ability of being emotionally intelligent, that is, having the ability to recognize, use, comprehend, and manage emotions. However, most of the studies that have explored the relationship between EI and linguistic performance have focused on the acquisition of a second language [20].

In the developmental field, it is clear that there is a bidirectional relationship between language and emotion. Lindquist [21] assured that the implications of this relationship are much deeper than they initially seem. Broadly speaking, there are three main views to explain the close relationship between these two components. The first one claims that language promotes emotional competence by the process of lexico-semantic conceptualization [22–24]; the second one argues that the emotional and linguistic competences are based on a joint mechanism of conceptualization [25]; and finally, the last one holds that emotions have an impact on language, in the sense that the first language learnings are the result of the children's intentions for sharing their feelings and thoughts [26]. Likewise, Tomasello [27] assured that, to acquire the language, children do not need linguistic inputs, but flexible and strong sociocognitive abilities that enable them to understand the communicative intentions of others in a wide variety of interactive situations.

At the same time, language has a strong impact on emotions. Nelson [28] found that verbal interaction between babies and their caregivers contributes to the emotional development, as the child learns about feelings, intentions, and desires from the linguistic representations that others make. In this way, the progressive learning of the language promotes emotional abilities. For example, the acquisition of mental verbs increases the comprehension of the mind from others [29] and learning new emotion-related words has been linked to a better recognition of facial emotions [30]. Children more advanced in language skills are not only more capable of predicting and explaining emotions [31,32] but also more competent in other aspects of emotional comprehension, such as understanding that emotions can be regulated or that people can remember past situations to relive past emotions (see Serrat and Sidera [33]). In this sense, language is considered a crucial aspect for emotional development, as it helps to acquire and use the conceptual knowledge to give meaning to experiences and perceptions [34].

So much so that it has been found that language explains the variance in emotional comprehension better than age or family environment [25]. In particular, Ruffman et al. [35] demonstrated that performance in syntax correlates positively with facial emotion recognition; and Sidera et al. [36] found that facial emotion recognition correlated with receptive vocabulary and linguistic and communicative abilities. On the other side, Pons et al. [31] found a high correlation between grammar abilities and emotion comprehension in children aged from 4 to 11 years, and Vilches [37] identified a positive influence between reading competence and EI, arguing that through reading students have access to roles played by different characters in various scenarios that enable them to respond emotionally

to their own thoughts and feelings. Hence, there is evidence that a good emotional intelligence development is related to better linguistic abilities [25,38].

### 1.2. Emotional Intelligence and Academic Achievement

It is obvious that emotional abilities are crucial for academic achievement, as suggested by studies that have found directly proportional relationships between scores of EI and academic achievement [39,40]. In one study, EI was found to be not only a key element for a good school development but the main predictor for academic achievement, even more than cognitive intelligence [41].

According to Petrides et al. [42] EI can directly influence academic achievement in different ways. The first one is by offering a stabilizing role in assessment situations, helping to control aspects that influence negatively in school performance, such as anxiety and stress [43]. The second comes from the idea that EI is involved differently in the performance of the different school subjects, offering a higher advantage in affect-related subjects, such as literature, arts or design. In this line, Petrides et al. [42] observed, in their research with adolescents, that EI had a stronger influence in the subject of English than in maths or science.

Furthermore, EI can also affect academic achievement in a more indirect way through, for example, family support, study habits, and levels of motivation or engagement [20]. From this perspective, it is understood that pupils with higher EI levels have certain characteristics, such as optimism, positivism, self-control, and self-motivation, that enable them to regulate their effort, persist against difficulties, and focus their attention toward achieving academic goals [44,45].

Focusing more concretely on the EI–linguistic relationship performance, Pulido-Acosta and Herrera-Clavero [40] found that EI was the strongest variable when predicting linguistic performance, even more than age or social skills. In the same line, Izard et al. [46] suggested that emotional knowledge acts as a mediator of the effects of verbal ability in academic competence, and Del Pilar-Jiménez et al. [47] showed a positive relationship between EI and reading competence. Finally, Brouzos et al. [48], investigating the relationship between EI and academic results with primary education students, found that the EI score predicted children's grades in maths and language in a group of students aged from 11 to 13 years.

The primary education stage is characterized by an accentuation in the children's developmental pace. It is a period of big changes, both academically and personally. For example, in the affective field, children experience significant changes in their emotional vocabulary [49], there is an increase in the ability to recognize facial emotions [50], and their conceptual comprehension of contradictory emotions is totally developed [51]. Moreover, their increasing capacity to comprehend themselves and others and the importance of peer relations facilitates a better control of the social situations of everyday life, developing in them emotional adaptability and flexibility [52].

In the same way, several aspects of linguistic competence broaden during the primary education stage, such as the lexical–semantic abilities, which increase in both quantity and depth [53], or the pragmatic abilities [25]. Specifically, it is not until this developmental stage when children can produce sophisticated stories with a complete narrative structure [54]. At the grammar level, the conversations are longer and more complex, including subordinations, relative clauses, and passives [55].

All these changes in the development of the linguistic and emotional competences suggest that it is worth considering the primary education stage in developmental studies that link emotion and language.

### 1.3. The Present Study

To date, the connection between EI and linguistic performance has not been examined deeply enough and, less still, the specific relationship between specific emotional and linguistic components. This can be explained by the fact that both constructs are complex and multifaceted, with a great number of components [56]. Moreover, most of the studies have been carried out with preschool children and adolescents. Very little is known about the relationship between linguistic competence

and EI in other stages, such as in the middle childhood. Results of recent studies confirmed a strong relationship between the different emotional and linguistic abilities in the primary school period. For example, Beck et al. [25] found that receptive vocabulary and narrative abilities are closely related to emotion knowledge and the comprehension of contradictory emotions. Moreover, they found a common general factor for the linguistic and emotional competences. Besides, Pulido-Acosta and Herrera-Clavero [40] suggested that children with higher levels of EI were academically better in all the curriculum subjects, compared to their peers with lower levels of EI.

The main objective of the present study is to examine in depth the IE–language connection and to identify the specific EI components that are more related to and predict the different components of the linguistic competence.

## 2. Materials and Methods

### 2.1. Participants

One hundred eighty primary education students aged between 8 and 11 years participated in the study ( $M = 9.67$ ). There was a balance of boys and girls. The sample was recruited from two schools in the province of Girona, in Catalonia, Spain. Schools had similar characteristics in terms of students and both had two groups per grade. The sociocultural environment was also very similar, as they belong to the same neighborhood. Table 1 shows the main characteristics of the sample.

**Table 1.** Main descriptive data of the participants.

Sample Characteristics	$N = 180$
Age, $M$ , years	9.67
Gender, female, %	47.2
Grade, %	
3rd	48.1
5th	51.9
General Intelligence, $M$ ( $DT$ )	18.5 (6.4)
Non-verbal Intelligence, $M$ ( $DT$ )	9.6 (3.4)

In order to ensure that our sample size was sufficient to detect an adequate effect, we computed post hoc power analyses using G\*Power 3.1 Software [57]. Results revealed that our total sample size of 180 participants was sufficient to detect with a 0.99 power a medium effect size ( $f^2 = 0.15$ ).

### 2.2. Procedure

The data collection was carried out during the first semester of 2019 (from January to June). Schools were informed about the objectives and procedures of the study, and families were asked to sign an informed consent.

The tasks were administered in three sessions, all of them during the school timetable and in the usual classroom. The first session, in which we explained the objectives to the students and administered the EI questionnaire (EQi:YV), lasted 45 min. The second one, which took place a week later, was dedicated to administering the intellectual skills test (EFAI) and lasted 90 min. Finally, the third session was devoted to the assessment of the basic competences in language and lasted about an hour.

### 2.3. Instruments

#### 2.3.1. BarOn Emotional Intelligence Inventory–EQi:YV (Bar-On and Parker, 2000)

The Spanish version of the EQi:YV [58] was used to study the emotional competence of the students. This is a self-report instrument that measures the level of emotional intelligence in children and adolescents. It consists of 60 items divided into four sub-scales: interpersonal, intrapersonal,

stress management, and adaptability. It includes questions such as: *It is easy for me to say how I feel* (intrapersonal), *I am good in understanding how people feel* (interpersonal), *I can be calmed when I am angry* (stress management), *I can understand difficult questions* (adaptability). Students have to score each item using a scale ranging from 1 (never true for me) to 4 (very often true for me). High scores in each dimension indicate an elevated EI.

### 2.3.2. Factorial Evaluation of the Intellectual Aptitudes–EFAI

The EFAI [59] is a test battery assessing the ability to solve efficiently different types of problems, maintain an adequate intellectual flexibility, and carry out logical processes of deduction and induction. It offers scores of general intelligence, non-verbal intelligence, and verbal intelligence, as well as scores of the different intellectual abilities (spatial, numeric, verbal, and abstract reasoning). In this study we used only the general direct scores (general intelligence, non-verbal intelligence, and verbal intelligence) as control variables.

### 2.3.3. Diagnostic Test of Linguistic Competence

Diagnostic tests in primary education are tests designed by the Education Department of the Catalan government that are administered to all enrolled students in Catalonia during the primary education stage. These tests serve as a guideline for the schools to determine if they are succeeding with the curricular contents and academic competences of each academic stage.

In the Catalan Department of Education there is an evaluation board that is responsible for elaborating these tests and defining the application and correction criteria to ensure that it is an objective and homogeneous assessment instrument. The tests used in this study were the version of the 2016–2017 academic year for 3th grade and the version of 2011–2012 for 5th grade. These versions were selected together with the teachers of the participants to ensure that the test had not been administered before to the students.

The 3th grade test consisted of a narrative text with eight reading comprehension questions. From those, five were multiple-choice questions with four possible answer options, and three were open questions, in which they needed to write down a short answer (between one and three words). The 5th grade test consisted of a text with 12 questions (11 multiple-choice and one open question) and a writing exercise in which students had to write a short text (about 50 words).

Students had an hour to do the test, and it was scored from 0 to 10 to obtain a global score of the linguistic competence. In the case of the 5th grade, the score was broken down into two scores: one of reading comprehension and one of writing, which were also marked from 0 to 10, and the average score was calculated. To ensure the maximum objectivity in the qualification of the writing exercise, the first author and another researcher not involved in the study evaluated this exercise, and the inter-rater agreement was calculated with the Cohen's kappa statistic. The obtained value was  $\kappa = 0.64$ , showing a considerable accordance level [60].

## 2.4. Data Analysis

Different analyses were conducted with the IBM SPSS Statistics 25 program. First, we calculated descriptive and correlational analysis with the EI scores and the scores of linguistic competence (from now on, LC). Then, to analyze the predictive capacity of EI for the LC, multiple linear regression analyses were performed. The score of the linguistic test was introduced as the dependent variable, and the different subscales of the BarOn (intrapersonal, interpersonal, adaptability, and stress management) as independent variables. In the case of the 5th grade, we performed two additional regressions, with the reading comprehension and the writing scores as dependent variables, to determine which emotional factors were better predictors for each one of these linguistic abilities.

### 3. Results

The mean and standard deviations of the EI and LC scores are summarized in Table 2.

**Table 2.** Emotional intelligence and linguistic competence: Means and standard deviations.

Measure	Boys		Girls	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Emotional Intelligence Total	102.19	12.82	102.02	15.13
1. Intrapersonal	102.65	14.53	102.17	14.20
2. Interpersonal	102.55	13.93	102.91	14.08
3. Adaptability	102.40	13.86	99.84	16.36
4. Stress Management	98.73	13.62	100.53	15.15
Non-Verbal Intelligence	10.15	3.59	9.07	3.03
Linguistic Competence	7.34	2.61	7.58	2.23
1. Reading Comprehension	7.33	2.78	7.36	2.27
2. Writing	6.92	3.26	7.25	2.52

To analyze possible differences between boys and girls, a one-factor ANOVA was performed. No gender differences existed in the scores of EI, non-verbal intelligence, and LC ( $p > 0.05$  in all cases).

Bivariate correlations between all the variables are presented in Table 3. The analysis revealed a statistically significant correlation between EI and the LC. Specifically, there was a close relationship between the interpersonal and adaptability subscales of EI and the final score of the LC ( $r = 0.22$  and  $r = 0.23$ , respectively).

**Table 3.** Correlations between scores of emotional and linguistic competence.

Measures	Linguistic Competence	Reading Comprehension	Writing Skills
Emotional Intelligence Total	0.198 *	0.207	0.349 **
E. Intrapersonal	0.000	−0.021	0.105
E. Interpersonal	0.223 **	0.256 *	0.224 *
E. Adaptability	0.231 **	0.378 **	0.329 **
E. Stress Management	0.122	0.010	0.307 **
Non-Verbal Intelligence	0.300 **	0.189	0.175

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

Examining the relationship between the different EI and linguistic components, we observed that the interpersonal and adaptability factors were the only EI factors significantly related to both reading comprehension ( $r = 0.26$  and  $r = 0.38$ , respectively) and writing ( $r = 0.22$  and  $r = 0.33$ , respectively). Likewise, all the EI factors, except for the intrapersonal one, significantly correlated with the writing score, especially the adaptability ( $r = 0.33$ ) and the stress management ( $r = 0.31$ ) scores.

To evaluate more deeply the relationship between EI and LC, stepwise regressions were performed with the different EI components as the independent variables and the total score of the linguistic competence as the dependent variable. Table 4 shows the results of these regression analyses. As can be seen, adaptability was the component more related to the LC, with a correlation coefficient of 0.231 and adjusted  $R^2$  of 0.48.

**Table 4.** Linear regression analysis between EI components and linguistic competence.

Variables in the Model	$\beta$	Std. Error	Beta	t	Sig	F	Adjusted $R^2$
Constant	3.852	1.218		3.163	0.002	9.281	0.048
Adaptability	0.036	0.012	0.231	3.047	0.003		

Also, regressions with the different EI factors as independent variables and the two components of LC (reading comprehension and writing) as dependent variables were carried out to determine

which emotional factors had a stronger impact on each of these linguistic abilities. Table 5 shows that adaptability was, again, the component most related to reading comprehension, with a correlation coefficient of 0.378 and an adjusted  $R^2$  of 0.132. This can be interpreted as 13.2% of the score of reading comprehension being explained by the adaptability factor of EI.

**Table 5.** Linear regression analysis between EI components and reading comprehension.

Variables in the Model	$\beta$	Std. Error	Beta	t	Sig	F	Adjusted $R^2$
Constant	0.969	1.733		0.559	0.578	13.978	0.132
Adaptability	0.063	0.017	0.378	3.739	0.000		

Finally, focusing on writing, the best model to explain the scores of this ability includes adaptability and stress management as the main predictors (see Table 6). The model had a correlation coefficient of 0.545 and an  $R$  adjusted squared of 0.154, indicating that 15.4% of the writing score can be explained by the EI factors of adaptability and stress management.

**Table 6.** Linear regression analysis between EI components and writing.

Variables in the Model	$\beta$	Std. Error	Beta	t	Sig	F	Adjusted $R^2$
<i>Model 1</i>							
Constant	0.625	2.050		0.305	0.761	10.169	0.097
Adaptability	0.063	0.020	0.329	3.189	0.002		
<i>Model 2</i>							
Constant	−3.646	2.592	0.286	2.822	0.006	8.709	0.154
Adaptability	0.055	0.019	0.286	2.822	0.006		
Stress Management	0.051	0.020	0.259	2.564	0.012		

#### 4. Discussion

Our results showed that about 5% of the score obtained in language can be explained by emotional competences. The EI factors of adaptability and the interpersonal component were shown to have the strongest impact on linguistic competences. Specifically, adaptability was the EI component more related to reading comprehension, while adaptability and stress management were the best predictors of writing skills.

These findings give evidence that EI is related to the LC, an idea that is in line with previous research, not only in the school setting [61,62], but also in the workplace [9]. They also mirror the findings from the domain of linguistic proficiency, where it has been shown that there is a strong relationship between linguistic proficiency and Trait EI [63].

The fact that adaptability and the interpersonal factor were the EI components more related to the linguistic competence in general should not surprise us. The interpersonal component is related to social awareness and, therefore, students that have higher scores in it are children who are good at listening and are able to understand and appreciate others' feelings [64]. On the other hand, the component of adaptability is defined by the ability to manage change. Thus, it can also be hypothesized that students with a high adaptability score are good at finding solutions for the problems they face. Contextualizing this with the present investigation, it is likely that, if they do not know the answer to one of the questions, these students try to find another nuance or point of view, or try to address it in a different way to avoid leaving the question unanswered.

In our sample the two EI factors that were more correlated with the language score were adaptability and the interpersonal component; however, in previous studies with older children and adolescents only the adaptability stood out as a predictor [65,66]. In consequence, we can hypothesize that the interpersonal processes related to EI and academic achievement are more prominent in the first stages of schooling, when teachers use more collaborative methodologies, whereas in later stages

(when the educational context is more individual and autonomous), other EI factors such as stress management become more important.

In the following we will go deeper and discuss which emotional components were more related to the different linguistic abilities, specifically with reading comprehension and writing skills.

Regarding reading comprehension, adaptability stood out as the emotional component more related to its execution. In practical terms, in the Bar-On and Parker model [64], adaptability is conceptualized as reality testing (objectively validating one's feelings and thinking in new situations), flexibility (adapting and adjusting one's feelings and thinking in relation to new situations), and problem-solving. Therefore, it makes sense that, during the reading exercise, students used mainly this component to follow successfully the passages of the story, using strategies to validate regularly if they understand or not what was happening in the story, and thus continue reading or go back to reread any of the paragraphs. Moreover, this component of adaptability and its associated flexibility might enable students to put themselves in the shoes of each character and empathize with them, thus being able to answer correctly questions about feelings and/or emotions (*What was the intention? Did Mr. Hopper feel satisfied?*) as well as more implicit questions, whose answers were not directly found in the text.

Regarding writing, apart from adaptability, stress management was the other emotional component more related to its score. According to Bar-On [67], stress management is the ability of handling stress, controlling emotional impulses, and using effective coping strategies. In this sense, having to start a text from scratch can lead to the well-known "blank page syndrome" characterized by anxiety and a sense of being blocked in front of the task that has to be done. Therefore, being able to manage and control stress can allow the student to calm down and use effective strategies to do the activity correctly: stop and read the question, organize the ideas, structure the text, make sure that the answer covers all aspects of the questions, etc. Conversely, a low stress management ability in this situation can lead to a greater blockage or to starting writing without organization or structure, or to doing it without checking if the questions are being properly answered.

In relation to the stress management ability, and taking into account the context of our study, we need to remind the reader that the diagnostic tests we used were external evaluation tests, different from the exams and assessment methodologies that students are used to in their everyday life. In this situation, the ability to regulate their own emotions and, specifically, nerves, could be especially helpful, and so it has been shown in our investigation.

Our results regarding the abilities of adaptability and stress management are consistent with the ones from Parker et al. [65], as they also made evident that students with better academic grades have significantly higher scores in adaptability and stress management compared to their peers who were not so brilliant academically. At the same time, our results are consistent with the data obtained by Hogan et al. [68], who found that the intrapersonal and interpersonal factors of EI were less stable predictors of the grade point average than adaptability and stress management. Finally, our results are also partially consistent with the ones of Brouzos et al. [48], who found that in children 8–10 years old adaptability was the only emotional factor that correlated positively with the language score, whereas in the group of older children (11–13 years old) stress management was also included.

On the other side, the results obtained can also be explained by an indirect effect of EI. In this sense, it can be hypothesized that what allows children to obtain better results in reading comprehension and writing are not only the abilities of adaptability and stress management during the execution of specific exercises, but also using these components of EI in their daily lives (using better study techniques, having stronger family support, displaying more commitment and effort toward the tasks, or feeling more ease to ask for help).

In any case, there are some methodological limitations that should be taken into account when interpreting our results. First, the emotional intelligence of the subjects was evaluated through self-report instruments. Some authors have made arguments against the use of self-report methods with children because they allow them to show themselves in a more socially desirable way [69].



Although, during the administration of the questionnaires we emphasized that the answers were anonymous and no one external to the investigation would have access to them, future research should evaluate EI using measures that are not affected by a social desirability bias. The best thing, in this case, would be to replicate the results using a multiple informant evaluation that brings together the opinion of the student and that of parents or teachers. Another study limitation is the use of the BarOn-EQ:YV to assess EI. The youth version of the BarOn questionnaire has demonstrated itself to be a robust and valid instrument to evaluate Trait EI, and it has been broadly used in children and adolescents to assess their EI levels. However, it is not an instrument based on the principles of developmental psychology, as it is an adaptation of the adult sample domain [14]. Despite this, we decided to use it because of the time-limited setting (our participants took other tests, and the BarOn questionnaire only takes around 15 minutes to complete) and the age of the participants (it has fewer items with fewer possible answers than other instruments). In future investigations it would be interesting to use an instrument more suitable for capturing the development characteristics of children, such as the child form of the Trait Emotional Intelligence Questionnaire (TEIQue-CF) [70].

Future research can also examine the stability of the emotional competence when predicting academic achievement at a longitudinal level, for example, throughout all compulsory schooling. At the same time, it would be interesting to observe how the relationship between EI and academic achievement changes, depending on the different subjects, and to investigate whether EI helps to improve the different competences each subject involves through different processes. Finally, when analyzing the EI-academic performance relationship, it would be also interesting to include other indicators such as the number of expulsions, absences, recognitions and awards, or grade repetitions in order to have a more global view of its influence in the school context.

Ultimately, this investigation contributes to the extent literature about EI in the school context in different ways. First, it is the first research that, to our knowledge, not only focuses its attention on the possible influence of EI on the performance of a subject, but also determines how each of the EI components is related to the different contents of a subject (reading comprehension and writing). Thus we found that, in tasks of reading comprehension, adaptability is the emotional factor more important, whereas in writing tasks, apart from adaptability, stress management is also crucial. In the second place, we observed that almost all the specific components of EI, to a greater or lesser extent, are related to language achievement, highlighting the importance of the emotional competence in the school context. Finally, our study has been one of the very few ones to test the relationship between EI and LC in primary education students, as most of the research is carried out with adolescents, and only the general grades are considered. Therefore, our results extend the relations found in most of the previous research between EI and linguistic performance to earlier years [62,66].

Some practical implications are suggested by the study contributions. First, schools represent an excellent setting to implement EI programs. Through adequate learning experiences, children can progressively acquire emotional competences that will enable them control their stress levels, feelings of frustration, and maladjustments. Research has shown that EI can increase and improve with deliberate practice and training [71], so this opens up a wide range of opportunities to work using the multiple interactions that take place in schools. In fact, implementation of programs that target emotional intelligence, and especially the adaptability and interpersonal factors of it, should become a priority in schools to improve not only the learning processes of their students, but also their present and future well-being. Many studies have shown the effectiveness of EI school interventions in improving a student's EI, either when learning a second language [72] or in the regular school setting [73]. These interventions boost more positive classroom emotions and alleviate negative ones, facilitating the learning process of the students. From this point of view, teachers and future educators have an important role in transmitting these skills; so improving emotional intelligence among teachers should also be a fundamental element. Therefore, teacher programs in higher education institutions should start instilling elements of emotional intelligence in their curricula as well as providing activities and continuous training to actual teachers to help them develop these competences.

Finally, school principals should encourage the whole community to participate in this type of program. There is evidence that emotional learning programs work best when parents and teachers work together [74]. That means schools need to offer information about emotional intelligence and training also to families. In conclusion, the data presented suggest that because we are confronted with a new vision of education by which to promote school success, it is important to consider not only academic competences but also emotional ones.

**Author Contributions:** Conceptualization, G.P.M., F.S.C. and E.S.S.; methodology, G.P.M., F.S.C. and E.S.S.; data curation, G.P.M.; investigation, G.P.M., F.S.C. and E.S.S.; writing—original draft preparation, G.P.M.; writing—review and editing, G.P.M., F.S.C. and E.S.S.; supervision, F.S.C. and E.S.S. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research was funded by the Ministerio de Educación y Cultura, grant number PSI2015-69419-R and by Generalitat de Catalunya, grant number 2019FI\_B1 00145.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Austin, E.J.; Saklofske, D.H.; Huang, S.H.; McKenney, D. Measurement of trait emotional intelligence: Testing and cross-validating a modified version of Schutte et al.'s (1998) measure. *Pers. Individ. Differ.* **2004**, *36*, 555–562. [\[CrossRef\]](#)
2. Livingstone, H.A.; Day, A.L. Comparing the construct and criterion-related validity of ability-based and mixed-model measures of emotional intelligence. *Educ. Psychol. Meas.* **2005**, *65*, 757–779. [\[CrossRef\]](#)
3. Bar-On, R. *BarOn Emotional Quotient Inventory*; Multi-Health Systems: Toronto, ON, Canada, 1997.
4. Mayer, J.D.; Salovey, P.; Salovey, P.; Sluyter, D. Emotional development and emotional intelligence: Implications for educators. In *What Is Emotional Intelligence*; Basic Books: New York, NY, USA, 1997.
5. Petrides, K.V.; Furnham, A. Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *Eur. J. Pers.* **2001**, *15*, 425–448. [\[CrossRef\]](#)
6. Agnoli, S.; Mancini, G.; Pozzoli, T.; Baldaro, B.; Russo, P.M.; Surcinelli, P. The interaction between emotional intelligence and cognitive ability in predicting scholastic performance in school-aged children. *Pers. Individ. Differ.* **2012**, *53*, 660–665. [\[CrossRef\]](#)
7. Schutte, N.S.; Malouff, J.M.; Hine, D.W. The association of ability and trait emotional intelligence with alcohol problems. *Addict. Res. Theory* **2010**, *19*, 260–265. [\[CrossRef\]](#)
8. Petrides, K.V.; Sanchez-Ruiz, M.J.; Siegling, A.B.; Saklofske, D.H.; Mavroveli, S. Emotional Intelligence as Personality: Measurement and Role of Trait Emotional Intelligence in Educational Contexts. In *Emotional Intelligence in Education*; Springer: Cham, Switzerland, 2018; pp. 49–81.
9. Alba-Juez, L.; Pérez-González, J.C. Emotion and Language “at work”: The relationship between Trait Emotional Intelligence and communicative competence as manifested at the workplace. In *Emotion in Discourse*; John Benjamins: Amsterdam, The Netherlands, 2019; pp. 247–278.
10. Pérez-González, J.C.; Qualter, P. Emotional intelligence and emotional education in school years. In *An Introduction to Emotional Intelligence*; Pool, L.D., Qualter, P., Eds.; Wiley: Chichester, UK, 2018; pp. 81–104.
11. Mikolajczak, M. Going Beyond the Ability-Trait Debate: The Three-Level Model of Emotional Intelligence. *E-J. Appl. Psychol.* **2010**, *5*, 25–31. [\[CrossRef\]](#)
12. Pérez-González, J.C.; Saklofske, D.H.; Mavroveli, S. Trait Emotional Intelligence: Foundations, Assessment, and Education. *Front. Psychol.* **2020**, *11*. [\[CrossRef\]](#)
13. Dave, H.P.; Keefer, K.V.; Snetsinger, S.W.; Holden, R.R.; Parker, J.D. Predicting the pursuit of post-secondary education: Role of trait emotional intelligence in a longitudinal study. *Front. Psychol.* **2019**, *10*, 1182. [\[CrossRef\]](#)
14. Piqueras, J.A.; Mateu-Martínez, O.; Cejudo, J.; Pérez-González, J.C. Pathways into psychosocial adjustment in children: Modeling the effects of trait emotional intelligence, social-emotional problems, and gender. *Front. Psychol.* **2019**, *10*, 507. [\[CrossRef\]](#)
15. Extremera Pacheco, N.; Fernández-Berrocal, P. El papel de la inteligencia emocional en el alumnado: Evidencias empíricas. *Rev. Electrón. Investig. Educ.* **2004**, *6*, 1–17.
16. Perera, H.N.; DiGiacomo, M. The relationship of trait emotional intelligence with academic performance: A meta-analytic review. *Learn. Individ. Differ.* **2013**, *28*, 20–33. [\[CrossRef\]](#)

17. Shields, A.; Dickstein, S.; Seifer, R.; Giusti, L.; Dodge Magee, K.; Spritz, B. Emotional competence and early school adjustment: A study of preschoolers at risk. *Early Educ. Dev.* **2001**, *12*, 73–96. [[CrossRef](#)]
18. Casino-García, A.M.; García-Pérez, J.; Llinares-Insa, L.I. Subjective emotional well-being, emotional intelligence, and mood of gifted vs. unidentified students: A relationship model. *Int. J. Environ. Res. Public Health* **2019**, *16*, 3266.
19. Cejudo, J.; Rodrigo-Ruiz, D.; López-Delgado, M.L.; Losada, L. Emotional intelligence and its relationship with levels of social anxiety and stress in adolescents. *Int. J. Environ. Res. Public Health* **2018**, *15*, 1073. [[CrossRef](#)] [[PubMed](#)]
20. Sucaromana, U. The Relationship between Emotional Intelligence and Achievement in English for Thai Students in the Lower Secondary School. In *Educating: Weaving Research into Practice*; School of Cognition, Language and Special Education: Griffith University: Nathan, QLD, Australia, 2004; Volume 3, p. 158.
21. Lindquist, K.A. The role of language in emotion: Existing evidence and future directions. *Curr. Opin. Psychol.* **2017**, *17*, 135–139. [[CrossRef](#)] [[PubMed](#)]
22. Fivush, R. Maternal reminiscing style and children's developing understanding of self and emotion. *Clin. Soc. Work. J.* **2006**, *35*, 37–46. [[CrossRef](#)]
23. Laible, D. Mother-child discourse in two contexts: Links with child temperament, attachment security, and socioemotional competence. *Dev. Psychol.* **2004**, *40*, 979–992. [[CrossRef](#)]
24. Ontai, L.L.; Thompson, R.A. Patterns of attachment and maternal discourse effects on children's emotion understanding from 3 to 5 years of age. *Soc. Dev.* **2002**, *11*, 433–450. [[CrossRef](#)]
25. Beck, L.; Kumschick, I.R.; Eid, M.; Klann-Delius, G. Relationship between language competence and emotional competence in middle childhood. *Emotion* **2012**, *12*, 503. [[CrossRef](#)]
26. Bloom, L.; Tinker, E. The intentionality model and Language acquisition: Engagement, effort, and the essential tension in development. *Monogr. Soc. Res. Child Dev.* **2001**, *66*, 1–8. [[CrossRef](#)]
27. Tomasello, M. The social-pragmatic theory of word learning. *Pragmatics* **2000**, *10*, 401–413. [[CrossRef](#)]
28. Nelson, K. *Language in Cognitive Development: The Emergence of the Mediated Mind*; Cambridge University Press: New York, NY, USA, 1996.
29. Astington, J.W.; Filippova, E. Language as the route into other minds. In *Other Minds: How Humans Bridge the Divide between Self and Others*; Malle, B.F., Ed.; Guilford Press: New York, NY, USA, 2005; pp. 209–222.
30. Widen, S.C.; Russell, J.A. Children acquire emotion categories gradually. *Cogn. Dev.* **2008**, *23*, 291–312. [[CrossRef](#)]
31. Pons, F.; Lawson, J.; Harris, P.L.; De Rosnay, M. Individual differences in children's emotion understanding: Effects of age and language. *Scand. J. Psychol.* **2003**, *44*, 347–353. [[CrossRef](#)] [[PubMed](#)]
32. Sidera, F.; Serrat, E.; Amadó, A. Children's understanding of pretend emotions: The role of the vocabulary and the syntax of complementation with cognitive and communicative verbs. *L'Année Psychol.* **2014**, *114*, 231–249. [[CrossRef](#)]
33. Serrat, E.; Sidera, F. Conocimiento emocional y lenguaje. In *Desarrollo Emocional en los Primeros Años de Vida: Debates Actuales y Retos Futuros*; de Giménez-Dasi, D., Quintanilla, M.Y., Eds.; Pirámide: Madrid, Spain, 2018.
34. Lindquist, K.A.; MacCormack, J.K.; Shablack, H. The role of language in emotion: Predictions from psychological constructionism. *Front. Psychol.* **2015**, *6*, 444. [[CrossRef](#)] [[PubMed](#)]
35. Ruffman, T.; Slade, L.; Rowlandson, K.; Rumsey, C.; Garnham, A. How language relates to belief, desire, and emotion understanding. *Cogn. Dev.* **2003**, *18*, 139–158. [[CrossRef](#)]
36. Sidera, F.; Amadó, A.; Martínez, L. Influences on facial emotion recognition in deaf children. *J. Deaf. Stud. Deaf. Educ.* **2016**, *22*, 164–177. [[CrossRef](#)]
37. Vilches, I. Inteligencia emocional en la asignatura de lenguaje y comunicación. *Contextos Estud. Humanid. Cienc. Soc.* **2004**, *12*, 77–86.
38. Wierzbicka, A. Language and metalanguage: Key issues in emotion research. *Emot. Rev.* **2009**, *1*, 3–14. [[CrossRef](#)]
39. Mestre, J.M.; Fernández-Berrocal, P. *Manual de Inteligencia Emocional*; Pirámide: Madrid, Spain, 2007.
40. Pulido-Acosta, F.; Herrera-Clavero, F. Prediciendo el Rendimiento Académico Infantil a través de la Inteligencia Emocional. *Educ. Psychol.* **2019**, *25*, 23–30. [[CrossRef](#)]
41. Sucaromana, U. Contribution to language teaching and learning: A review of emotional intelligence. *Engl. Lang. Teach.* **2012**, *5*, 54–58. [[CrossRef](#)]
42. Petrides, K.V.; Frederickson, N.; Furnham, A. The role of trait emotional intelligence in academic performance and deviant behavior at school. *Pers. Individ. Differ.* **2004**, *36*, 277–293. [[CrossRef](#)]

43. Roeser, R.W.; Eccles, J.S. Schooling and mental health. In *Handbook of Developmental Psychopathology*, 2nd ed.; Sameroff, A.J., Lewis, M., Miller, Y.S.M., Eds.; Kluwer Academic/Plenum: New York, NY, USA, 2000; pp. 135–156.
44. Perera, H.N. The role of trait emotional intelligence in academic performance: Theoretical overview and empirical update. *J. Psychol.* **2015**, *150*, 229–251. [[CrossRef](#)] [[PubMed](#)]
45. Serrano, C.; Andreu, Y. Inteligencia emocional percibida, bienestar subjetivo, estrés percibido, engagement y rendimiento académico en adolescentes. *Rev. Psicodidáctica* **2016**, *21*, 357–374. [[CrossRef](#)]
46. Izard, C.; Fine, S.; Schultz, D.; Mostow, A.; Ackerman, B.; Youngstrom, E. Emotion knowledge as a predictor of social behavior and academic competence in children at risk. *Psychol. Sci.* **2001**, *12*, 18–23. [[CrossRef](#)]
47. Del Pilar Jiménez, E.; Alarcón, R.; de Vicente-Yague, M.I. Intervención lectora: Correlación entre la inteligencia emocional y la competencia lectora en el alumnado de bachillerato. *Rev. Psicodidáctica* **2019**, *24*, 24–30.
48. Brouzos, A.; Misailidi, P.; Hadjimattheou, A. Associations between emotional intelligence, socio-emotional adjustment, and academic achievement in childhood: The influence of age. *Can. J. Sch. Psychol.* **2014**, *29*, 83–99. [[CrossRef](#)]
49. Baron-Cohen, S.; Golan, O.; Wheelwright, S.; Granader, Y. Emotion word comprehension from 4 to 16 years old: A developmental survey. *Front. Evol. Neurosci.* **2010**, *2*, 109. [[CrossRef](#)]
50. Durand, K.; Gallay, M.; Seigneuric, A.; Robichon, F.; Baudouin, J.Y. The development of facial emotion recognition: The role of configural information. *J. Exp. Child Psychol.* **2007**, *97*, 14–27. [[CrossRef](#)]
51. Larsen, J.T.; To, Y.M.; Fireman, G. Children's understanding and experience of mixed emotions. *Psychol. Sci.* **2007**, *18*, 186–191. [[CrossRef](#)]
52. McCoy, C.L.; Masters, J.C. The development of children's strategies for the social control of emotion. *Child Dev.* **1985**, *56*, 1214–1222. [[CrossRef](#)] [[PubMed](#)]
53. Nippold, M. *Later Language Development: Ages 9 Through 19*; Little Brown: Boston, MA, USA, 1988.
54. Scott, L.A.; Healey, E.C.; Norris, J.A. A comparison between children who stutter and their normally fluent peers on a story retelling task. *J. Fluency Disord.* **1995**, *20*, 279–292. [[CrossRef](#)]
55. Nippold, M.A. *Language Development in School-Age Children, Adolescents, and Adults*; Elsevier: Amsterdam, The Netherlands, 2006; pp. 368–373.
56. Tomblin, J.B.; Zhang, X. The dimensionality of language ability in school-age children. *J. Speech Lang. Hear. Res.* **2006**, *49*, 1193–1208. [[CrossRef](#)]
57. Faul, F.; Erdfelder, E.; Lang, A.; Buchner, A. G\*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behav. Res. Methods* **2007**, *39*, 175–191. [[CrossRef](#)]
58. Bermejo, R.; Ferrándiz, M.; Ferrando, M.; Prieto, D.; Sáinz, M. EQ-i:YV. In *Inventario de Inteligencia Emocional de BarOn: Versión Para Jóvenes*; TEA Ediciones: Madrid, Spain, 2018.
59. Santamaría, P.; Arribas, D.; Pereña, J.; Seisdedos, N. *EFAI: Evaluación Factorial de Las Aptitudes Intelectuales*; Tea: Madrid, Spain, 2005.
60. Landis, J.R.; Koch, G.G. The measurement of observer agreement for categorical data. *Biometrics* **1977**, *33*, 159–174. [[CrossRef](#)]
61. Mavroveli, S.; Sánchez-Ruiz, M.J. Trait emotional intelligence influences on academic achievement and school behaviour. *Br. J. Educ. Psychol.* **2011**, *81*, 112–134. [[CrossRef](#)]
62. Qualter, P.; Gardner, K.J.; Pope, D.J.; Hutchinson, J.M.; Whiteley, H.E. Ability emotional intelligence, trait emotional intelligence, and academic success in British secondary schools: A 5 year longitudinal study. *Learn. Individ. Differ.* **2012**, *22*, 83–91. [[CrossRef](#)]
63. Dewaele, J.M.; Lorette, P.; Petrides, K.V. The Effects of Linguistic Proficiency, Trait Emotional Intelligence and In-Group Advantage on Emotion Recognition by British and American English L1 Users. *Pragmat. Beyond New Ser.* **2019**, *302*, 279.
64. Bar-On, R.; Parker, J.D.A. *BarOn Emotional Quotient Inventory: Youth Version*; Multi-Health System, Incorporated: Toronto, ON, Canada, 2000.
65. Parker, J.D.; Summerfeldt, L.J.; Hogan, M.J.; Majeski, S.A. Emotional intelligence and academic success: Examining the transition from high school to university. *Pers. Individ. Differ.* **2004**, *36*, 163–172. [[CrossRef](#)]
66. Saklofske, D.H.; Austin, E.J.; Mastoras, S.M.; Beaton, L.; Osborne, S.E. Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learn. Individ. Differ.* **2012**, *22*, 251–257. [[CrossRef](#)]
67. Bar-On, R. *Educating People to be Emotionally Intelligent*; Praeger Publishers: Westport, CT, USA, 2007.

68. Hogan, M.J.; Parker, J.D.; Wiener, J.; Watters, C.; Wood, L.M.; Oke, A. Academic success in adolescence: Relationships among verbal IQ, social support and emotional intelligence. *Aust. J. Psychol.* **2010**, *62*, 30–41. [[CrossRef](#)]
69. Matthews, G.; Zeidner, M.; Roberts, R.D. *Emotional Intelligence: Science and Myth*; MIT Press: Cambridge, MA, USA, 2007.
70. Mavroveli, S.; Petrides, K.V.; Showve, C.; Whitehead, A. Investigation of the construct of trait emotional intelligence in children. *Eur. Child. Adolesc. Psychiatry* **2008**, *17*, 516–526. [[CrossRef](#)] [[PubMed](#)]
71. Viguier, P.; Cantero, M.J.; Bañuls, R. Enhancing emotional intelligence at school: Evaluation of the effectiveness of a two-year intervention program in Spanish pre-adolescents. *Pers. Individ. Differ.* **2017**, *113*, 193–200. [[CrossRef](#)]
72. Li, C.; Xu, J. Trait emotional intelligence and classroom emotions: A positive psychology investigation and intervention among Chinese EFL learners. *Front. Psychol.* **2019**, *10*, 2453. [[CrossRef](#)]
73. Rodríguez-Ledo, C.; Orejudo, S.; Cardoso, M.J.; Balaguer, Á.; Zarza-Alzugaray, J. Emotional intelligence and mindfulness: Relation and enhancement in the classroom with adolescents. *Front. Psychol.* **2018**, *9*, 21–62. [[CrossRef](#)] [[PubMed](#)]
74. Weissberg, R.P.; O'Brien, M.U. What works in school-based social and emotional learning programs for positive youth development. *Ann. Am. Acad. Politi. Soc. Sci.* **2004**, *591*, 86–97. [[CrossRef](#)]

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



© 2020 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).