



# Identifying emotions and feelings: exploratory study with elementary and high school students

Identificação de emoções e sentimentos: estudo exploratório com alunos do ensino básico  
 Identificación de emociones y sentimientos: estudio exploratorio con alumnos de educación primaria

Graça Aparício  <https://orcid.org/0000-0001-6149-062X><sup>1</sup>

Manuela Ferreira  <https://orcid.org/0000-0002-8452-2222><sup>1</sup>

Sofia Campos  <https://orcid.org/0000-0002-4696-3537><sup>1</sup>

Olivério Ribeiro  <https://orcid.org/0000-0001-7396-639X><sup>1</sup>

Odete Amaral  <https://orcid.org/0000-0002-3382-6074><sup>1</sup>

Carla Cruz  <https://orcid.org/0000-0002-7897-0424><sup>1</sup>

João Duarte  <https://orcid.org/0000-0001-7082-8012><sup>1</sup>

Rosa Martins  <https://orcid.org/0000-0001-9850-9822><sup>1</sup>

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## Corresponding author

Carla Cruz  
 E-mail: cruzcarla@hotmail.com

## Abstract

**Objective:** To assess the competence of students from Grade 5 to 10 of elementary and high school to identify and differentiate emotions and feelings.

**Methods:** This was cross-sectional, exploratory study, carried out during the Project “MaiSaúdeMental” (More Mental Health), at the referall CENTRO-01-0145-FEDER-023293, and developed in Escola Superior de Saúde de Instituto Politécnico de Viseu, Portugal. This was a convenience sample including 101 children/adolescents. A questionnaire for sociodemographic characterization and an Inventory to Identify Emotions and Feelings were used. This self-reporting inventory evaluated the capacity of children/adolescents to identify and differentiate their emotions and feelings, based on everyday situations. The questionnaire was composed of 15 items that correspond to 15 situations. The questionnaire was applied in the classroom, after a short explanation on how it worked and clarification to questions of participants. Statistical Package for the Social Sciences® (SPSS version 24.0) was used for data process, and a descriptive and analytical assessment was performed. The 95% confidence interval for the tests analysis was considered significant ( $p < 0.05$ ).

**Results:** The students were aged between 9 and 15 years old, and the majority (27.7%) was attending grade 8. In general, students identified few emotions and feelings, a mean score of 13.36 points for a maximum score of 39 of emotion identification, whereas on average they identify more positive emotions and feelings (5.11 points) than negative (4.33 points) or neutral (3.91 points). In all dimensions, mean values were higher in female students and in 14-year-old students, but slightly significant for some emotion differentiations ( $p < 0.05$ ).

**Conclusion:** The results found corroborate with investigations in this area. Children and adolescents have poor capacity to identify and differentiate emotions, although they show greater capacity to differentiate positive emotions rather than negative or neutral emotions. We also observed that female students have more competence to differentiate and identify emotions, and these competences increase with age.

## Resumo

**Objetivo:** Avaliar a competência de alunos do 2º e 3º ciclo do Ensino Básico na identificação e diferenciação de emoções e sentimentos.

**Métodos:** Estudo exploratório de corte transversal, desenvolvido no âmbito do Projeto MaiSaúdeMental com referência CENTRO-01-0145-FEDER-023293, desenvolvido na Escola Superior de Saúde do Instituto Politécnico de Viseu, Portugal. Foi realizado com uma amostra de conveniência constituída por 101 crianças/adolescentes. Foi utilizado um questionário de caracterização sociodemográfica e o Inventário de Identificação de Emoções e Sentimentos. Este é um inventário de auto-relato que avalia a capacidade das crianças/

<sup>1</sup>Escola Superior de Saúde, Instituto Politécnico de Viseu, Viseu, Portugal.  
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adolescentes identificarem e diferenciarem emoções e sentimentos, partindo de situações quotidianas. É composto por 15 itens que correspondem a 15 situações. A aplicação do questionário decorreu em sala de aula, após uma breve explicação do seu funcionamento e esclarecimento de dúvidas. No tratamento dos dados foi utilizado o programa informático *Statistical Package for the Social Sciences*® (SPSS versão 24.0) e efetuada análise descritiva e analítica, considerando-se para análise dos testes o Intervalo de Confiança (IC) a 95% (significância  $p < 0,05$ ).

**Resultados:** Os alunos tinham entre 9 e 15 anos de idade e a maioria (27,7%) frequentava o 8º ano de escolaridade. Globalmente identificam poucas emoções e sentimentos, numa média de 13,36 pontos para um score máximo de identificação emocional de 39, sendo que em média identificam mais emoções e sentimentos positivos (5,11 pontos) do que negativos (4,33 pontos) e neutros (3,91 pontos). Para todas as dimensões os valores médios são mais elevados no sexo feminino e nos alunos de 14 anos, mas apenas significativos em algumas das diferenciações emocionais ( $p < 0,05$ ).

**Conclusão:** Os resultados encontrados vão ao encontro de investigações nesta área, concluindo-se que as crianças e adolescentes apresentaram fraca capacidade de identificação e diferenciação de emoções, evidenciando contudo maior capacidade de diferenciação emocional positiva do que negativa e/ou neutra. Verificou-se ainda que existem maiores competências de diferenciação e identificação emocional no género feminino e que essas competências aumentam com a idade.

## Resumen

**Objetivo:** Evaluar la competencia de alumnos de 5º a 9º año de primaria en la identificación y diferenciación de emociones y sentimientos.

**Métodos:** Estudio exploratorio de corte transversal, desarrollado en el ámbito del Proyecto “MaiSaúdeMental” (Más Salud Mental), referencia CENTRO-01-0145-FEDER-023293, llevado a cabo en la Escola Superior de Saúde del Instituto Politécnico de Viseu, Portugal. Se realizó con una muestra de conveniencia formada por 101 niños/adolescentes. Se utilizó un cuestionario de caracterización sociodemográfica y el Inventario de Identificación de Emociones y Sentimientos. Es un inventario de autorrelato que evalúa la capacidad de los niños/adolescentes de identificar y diferenciar emociones y sentimientos, a partir de situaciones cotidianas. Se compone de 15 ítems que corresponden a 15 situaciones. La aplicación del cuestionario se realizó en el aula, luego de una breve explicación de su funcionamiento y esclarecimiento de dudas. Para el tratamiento de datos, se utilizó el programa informático *Statistical Package for the Social Sciences*® (SPSS versión 24.0) y se realizó un análisis descriptivo y analítico, en el que se consideraron para el análisis de las pruebas el intervalo de confianza (IC) a 95% (significación  $p < 0,05$ ).

**Resultados:** Los alumnos tenían entre 9 y 15 años de edad y la mayoría (27,7%) estaba en 8º año de escuela. De forma global, identifican pocas emociones y sentimientos, un promedio de 13,36 puntos en una puntuación máxima de identificación emocional de 39, de modo que, en promedio, identifican más emociones y sentimientos positivos (5,11 puntos) que negativos (4,33 puntos) y neutros (3,91 puntos). En todas las dimensiones, los valores promedio son mayores en el sexo femenino y en alumnos de 14 años, pero poco significativos en algunas diferenciaciones emocionales ( $p < 0,05$ ).

**Conclusión:** Los resultados encontrados están en línea con las investigaciones de esta área, con lo que se concluye que los niños y adolescentes presentan poca capacidad de identificación y diferenciación de emociones, sin embargo se observa mayor capacidad de diferenciación emocional positiva que negativa o neutra. Además, se verificó que existen mayores competencias de diferenciación e identificación emocional en el género femenino y que esas competencias aumentan con la edad.

## Introduction

Emotional competence can be defined as a tool to respond to demands of the social context, to help children and adolescents to deal with the challenges faced in many environments where they interact, and also to allow them to acknowledge in what extent communication of emotions and feelings have an effect on their relationships.<sup>(1,2)</sup> This competence includes, among others, the ability of recognizing the emotional state or the possibility of experiencing multiple emotions, identifying and differentiating others' emotions, and using the vocabulary and expressions of emotions, and feelings, according to their level of development, which includes the capacity to adapt and manage less positive emotions. Some studies<sup>(2-4)</sup> have shown that people with high emotion differentiation are more likely accurate when recognizing others' facial emotion expressions, and this suggests that the knowledge we use

to understand our own emotional experience also helps us to understand the emotions of the people we interact with. For this reason, emotion differentiation can be understood as the capacity of using emotional words that are suitable for the specific emotional situations felt at a specific time and not in an undifferentiated way. However, emotion differentiation is not about the richness of the vocabulary that expresses the emotion itself, but about the correct and differentiated use of words, oriented towards specific emotional situations.<sup>(3,4)</sup> The importance of emotion differentiation in subjective well-being has been reported in many studies<sup>(4,5)</sup> that suggest a negative relationship between emotion differentiation and psychopathology. For example, a greater emotion differentiation is connected with better capacity of emotion regulation, better self-esteem, less intense negative emotions, less stress, less neuroticism and depression, and more empathy, which, according to some studies, is relat-

ed to more stable affective bonds.<sup>(4-7)</sup> On the other hand, the incapacity to differentiate emotions can contribute to an unreasonable behavior in response to an intense emotion, such as anger and other aggressive reactions related to behavior problems.<sup>(5,6)</sup>

In the field of emotion expression and learning, there is evidence that reveals differences related with gender, although they are not always consistent. In a systematic review with meta-analysis including children and adolescents, made up of 166 studies and 21,709 participants, significant little differences were found, girls had more positive and internalizing emotions (i.e. sadness, anxiety, and affection) than boys. These differences were more evident as age increased, in which boys reveal more externalizing emotions than girls in preschool age and less during adolescence.<sup>(8)</sup>

Based on this evidence, the importance of promoting emotional competences becomes clear, since it has an impact on the relational and social success of children and adolescents in many environments where they interact, especially with family and school, given the relevance as preventive interventions in mental health. These interventions must be addressed not only to the promotion of emotional competences for children, but also for parents and teachers in order to help them naming, differentiating and regulating their emotions and understanding others' emotions, in favor of a more balanced and accurate intra and interpersonal behavior. A study including a control group,<sup>(9)</sup> and a sample of 628 students at Grade 7 up to 9 showed that, after the intervention program "Positive Attitudes", children in the studied group showed significant improvement in three out the five emotional competences, specifically social consciousness and self-control, as well as they had reduction of the anxiety level. Results also revealed that female students achieved more social consciousness and greater reduction of isolation and social anxiety levels, compared with the male students. The students in the experimental group, who had lower rates in the pretest, obtained more benefits than those in the control group concerning the social consciousness field. These results allowed us to conclude that the intervention improved social and emotional competences of ele-

mentary and high school students, supporting by the transcultural generalization of the efficiency of socio-emotional learning programs. Developing these competences through the implementation of intervention programs also increase the awareness of the need to change traditional educational practices that tend to discourage children from school working and, at the same time, to interact closely and systematically with teachers.<sup>(10)</sup> Indeed, emotions have an important effect in students' learning and academic performance, and the teachers' emotional competences boost these effects. In a theoretical review of diverse programs for the development of social and emotional competences of students, it is explicitly mentioned that this kind of programs reduce behavioral problems and highlight the adaptive value of emotions, and the importance of emotional regulation both for teachers and students.<sup>(11)</sup>

When considering the future implementation of an intervention program in the mental health area, the question that arose was which would be the level of emotion identification and differentiation of a group of children and young students of elementary and high school. The objective of this study was to assess the competence of students from Grade 5 to 10 of elementary and high school, and to determine and differentiate emotions and feelings based on everyday situations.

## Methods

This was a cross-sectional, exploratory study, carried out in the context of the Project "MaiSaúdeMental" (More Mental Health), referral CENTRO-01-0145-FEDER-023293, developed in the Escola Superior de Saúde of Instituto Politécnico de Viseu, Portugal. The study included a convenience sample comprised of 101 children/adolescents, 58.4% girls aged between 9 and 15 years old (mean= 11.96 years old; SD= 1.73), students from a School Cluster of the area and partner with the project "MaiSaúdeMental". A questionnaire for sociodemographic characterization and the Inventory to Identify Emotions and Feelings (IIES) were used.<sup>(1)</sup> This self-reporting inventory evaluated the capacity of children/adolescents to identify

and differentiate their emotions and feelings, based on everyday situations. The questionnaire was composed of 15 items that correspond to 15 situations. In some situations, we could perceive easily what the children were feeling (for example, if they were feeling pleasant or unpleasant emotions or feelings), and in some situations we noticed what they were feeling because of signals they gave us (for example: *John found his dog that was lost. So, he held it on his lap, hugged and kissed it*). In other situations, we could not notice what the person was feeling, for example: *Paul was writing a story*.

Answers to the questionnaire were dichotomous and open (“Is there any feeling?” “Yes” or “No”; “Which one?”) and were distributed in 3 scales: a) Negative Valence: items that describe situations commonly related to the experience of negative emotions. The sum of the items we obtained the Negative Emotion Differentiation Index. b) Positive Valence: items that describe situations commonly related to the experience of positive emotions. With the sum of the items we obtained the Positive Emotion Differentiation Index. In the case of items in which the feelings of the students were explicit, due to the signals they showed (Positive Valence and Negative Valence Scales), the answers can have a value between 0 (zero) and 4 (four), scored as follows: 0 (zero) points when the child does not show any emotion/feeling, between 1 (one) and 4 (four) according to the answers that showed one, two, three or four emotions/feelings corresponding to the situation. With the sum of both scales, we obtained the Total Emotion Differentiation Index. c) Neutral Valence: items of situations that were not related to any kind of emotional experience. In the case of items in which the feelings of the students were not explicit, due to the signals they showed, the items were scored as follows: 0 when the child showed emotions/feelings, 1 when the child revealed that there were no emotions/feelings. Positive and negative valence scales and the total of the neutral valence scale enabled to assess the children’s Emotion Identification Index.

The questionnaire was applied in the classroom, after a short explanation on how it worked and clarification to questions of participant. The study was approved by Data Protection Commission (Ref<sup>a</sup> 03.01,

38790 of December 18, 2017), to the Directorate-General for Education (survey no. 0012100017). After the approval, the authorization to the Governing Board of the School Cluster was requested, and the informed consent of parents/legal responsible was obtained. The Statistical Package for the Social Sciences<sup>®</sup> (SPSS version 24.0) and a descriptive and analytical assessment was used to process data. A 95% confidence interval (CI) was considered significant ( $p < 0.05$ ).

## Results

Most of the children/adolescents (58.4% girls) were aged 10 and 11 years old (24.8 and 18.8% respectively), followed by 13-year-old students (15.8%). The majority of students were at Grade 8 and 5 of school (27.7 and 22.8%) (Table 1).

**Table 1.** Distribution of students of elementary and high school according to sociodemographic data and schooling

Variables		n(%)
Age	9	3(3.0)
	10	25(24.8)
	11	19(18.8)
	12	12(11.9)
	13	18(17.8)
	14	16(15.8)
	15	8(7.9)
Gender	Male	42(41.6)
	Female	59(58.4)
Total		101(100.0)
School Grade	4	13(12.9)
	5	23(22.8)
	6	16(15.8)
	7	12(11.9)
	8	28(27.7)
	9	9(8.9)

The analysis of mean values of the different scales showed that children/adolescents did little emotion differentiation, revealing, however, a greater capacity to differentiate positive emotions, a mean of 5.11 points (SD= 2.06) and a mean value of total emotion differentiation of 9.45 points (SD= 2.97), with high coefficients of variation (CV) around the mean. The mean of the Emotion Identification Index (13.6 points; SD= 3.95) showed a poor capacity of identifying emotions, considering the maximum scale score (maximum score= 39) (Table 2).

**Table 2.** Statistics of the items for the identification of emotions and feelings of elementary and high school students

Items	Mean	SD	Minimum	Maximum	CV (%)
Positive Emotion Differentiation	5.11	2.06	2.00	13.00	40.31
Negative Emotion Differentiation	4.33	1.36	3.00	9.00	31.40
Neutral Emotion Differentiation	3.91	2.17	0.00	7.00	55.49
Total Emotion Differentiation	9.45	2.97	6.00	20.00	31.42
Emotion Identification Index	13.36	3.95	7.00	26.00	29.56

CV – Coefficient of Variation; SD – Standard Deviation

By analyzing the values obtained in terms of gender, the Mann–Whitney U test was found that mean sorting was higher in female gender for all indexes, and significant in the Positive Emotion Differentiation ( $MS= 956,500$ ;  $p=0.031$ ), Neutral Emotion Differentiation ( $MS= 878,500$ ;  $p= 0.012$ ), Total Emotion Differentiation ( $MS= 934,000$ ;  $p= 0.030$ ) and in the Emotion Identification Index ( $MS= 692,500$ ;  $p= 0.000$ ). In the analysis of the relationship between emotions and feelings identification and age, as the Kruskal–Wallis test reveals, the values for all dimensions were higher in 14-year-old students, and significant in Positive Emotion Differentiation ( $X^2= 21.569$ ;  $p= 0.001$ ), Total Emotion Differentiation ( $X^2= 19.674$ ;  $p= 0.003$ ) and in the Emotion Identification Index ( $X^2= 17.904$ ;  $p= 0.006$ ). To verify the influence of schooling in the capacity to identify emotions and feelings, the Kruskal–Wallis test was performed. Results showed that the means were higher for all dimensions in Grade 8 students, namely in Positive Emotion Differentiation ( $X^2= 18.429$ ,  $p= 0.002$ ), in the Total Emotion Differentiation Index ( $X^2= 17.451$ ;  $p= 0.004$ ), except for the Negative Emotion Differentiation Index that showed higher mean values in Grade 7 students ( $X^2= 11.776$ ,  $p= 0.038$ ). The results obtained showed that the acknowledgment of emotions increased with age, and was higher in the girls and that positive emotions are easily identified than negative or neutral emotions.

## Discussion

The findings of this study showed that children/adolescents have a poor capacity of differentiating and identifying emotions and feelings, namely negative and neutral emotions, which may have a negative impact in the development of several tasks connect-

ed to their developmental transitions, and may have consequences for the relationship with their peers and for all their relational context, as demonstrated in several studies.<sup>(1,5-7)</sup> The capacity of recognizing the emotional state or the possibility of experiencing multiple emotions, of identifying others' emotions and using the vocabulary and expressions of emotions according to their level of development, mainly of negative emotions, has been related to better management of emotions and socio-emotional relationships in different contexts. Considering that mental health problems are one of the major public health problems of today's society worldwide,<sup>(12)</sup> by promoting health in this area is one of the most important challenges. In this regard, the World Health Organization<sup>(12)</sup> considers socio-emotional empowerment as one of the fundamental strategies to be developed in the family and at school, considering its largely verified and recognized cost-benefit relationship, particularly that this is evidenced by the intervention study "Positive Attitudes".<sup>(9)</sup> After this intervention program, the children in the studied group showed significant improvement in three of the five emotional competences, particularly in social consciousness and self-control, as well as reduction of the anxiety level. As this is acknowledged,<sup>(11)</sup> children who learn from an early age to manage effectively their emotions and to obtain a better educational performance compared with children with similar intellectual capacity, but who lacked the emotional education.

Furthermore, in our study we discovered that the female gender differs from its male peers regarding positive, negative and neutral emotions and also in the emotion identification index. Other authors<sup>(8,11,13)</sup> have suggest that the girls express their feelings easily and they are also better in using words instead of certain emotional reactions. On the other hand, boys are less culturally stimulated to express their feelings and emotions, they tend to become less aware of their own and others' emotional states. Following these results, and there are some disagreements stating that as long as a gender-differentiated education persist, it will be hard to prove the idea that the girls innately deal and

express better their emotions.<sup>(14)</sup> These findings connected to gender differences regarding the expression of emotions in specific contexts that have important consequences in the children's healthy and poorly adaptive development (even if differentiated according to gender).<sup>(8)</sup>

A study about emotional intelligence and disruptive behavior of elementary and high school students<sup>(15)</sup> also concluded that gender differences exist, revealing that boys presented a more disruptive behavior than girls and that there is a significant connection between disruptive behavior and the general index of emotional intelligence, and the ability closely related to socio-emotional competences.

In addition, considering the chronological evolution of age and, consequently, schooling, we observed that the identification of emotions and feelings was higher among older students, which gradually increased with age, but little significant was seen regarding positive emotion differentiation. Other studies<sup>(8)</sup> showed that emotional and social intelligence is different according to age and this difference persists in connection with gender, revealing that girls identify more positive and internalizing emotions (i.e. sadness, anxiety, affection) than boys, and these differences become stronger with increasing age, with a further distinction being made between the kind of emotions. In this case, boys revealed more externalizing emotions than girls in preschool age and less during adolescence.

Based on the results obtained and considering scientific evidence, we consider important that the identification of emotions and the emotional empowerment become a skill developed from an early age, following structured programs delivered at school throughout compulsory education. These education should follow a preventive training logic with focus on empathy and nonviolent communication that will surely impact the reduction of phenomena such as bullying and other kinds of externalizing or internalizing behavior that influence health and school results and jeopardize emotional and mental health.

Despite these results, our study has some limitations, especially related to its cross-sectional nature,

to the non-random characteristics of the sample and to the small number of participants.

## Conclusion

Main conclusions of our study show that children and adolescents have poor capacity to identify and differentiate emotions, although showing greater capacity in the differentiation of positive emotions. We also observed more competence to identify and differentiate emotions in female students, and that these competences increase with age.

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## Collaborations

Aparício G, Ferreira M, Campos S, Ribeiro O, Amaral O, Cruz C, Duarte J and Martins R contributed to the design of the study, analysis and interpretation of data, drafting the manuscript writing, critical review of the content and approval of the final version to be published.

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