

## Infracomunización en niños: Una evaluación de 70 términos relacionados con la humanidad

Verónica Betancor Rodríguez, Alexandra Chas Villar, Armando Rodríguez-Pérez and Naira Delgado Rodríguez  
Universidad de La Laguna

### Abstract

**Background:** Research on infracomunización has revealed that individuals attribute more secondary emotions to the in-group than to the out-group, whose capacity to experience them is denied or restricted. When this bias has been examined in children, researchers have used the same taxonomy of affective terms as that used with adults. The aim of this research is to conduct a normative study that will equip researchers with a taxonomy of humanity attributed to emotional terms specifically for children. **Methods:** Three hundred and sixty-three children aged between 11 and 12 responded to several questionnaires containing a total of 70 emotional terms, evaluated in eight dimensions associated with the perception of humanity. **Results:** Principal component analysis shows that children categorize implicit dimensions associated with humanity differently to adults. **Conclusions:** This normative study enables the selection of graded emotional terms in humanity perceived by a child sample, in order to overcome current limitations in research on infracomunización in children.

**Keywords:** Infracomunización, in-group, normative study, out-group, emotional terms.

### Resumen

**Infracomunización en niños: evaluación de 70 términos relacionados con la humanidad.** **Antecedentes:** las investigaciones sobre la infracomunización han revelado que las personas atribuyen más sentimientos al endogrupo que al exogrupo, al que niegan o restringen la capacidad para experimentarlos. Cuando se ha investigado este sesgo en niños, los investigadores han utilizado la misma taxonomía de rasgos emocionales que con adultos. El objetivo de esta investigación es realizar un estudio normativo que permita a los investigadores tener una taxonomía de humanidad atribuida a los términos emocionales específica para niños. **Método:** 363 niños de entre 11 y 12 años respondieron diferentes cuestionarios relativos a un total de 70 términos emocionales, evaluados en ocho dimensiones relacionadas con la percepción de humanidad. **Resultados:** el análisis de componentes principales muestra que los niños agrupan las dimensiones implícitas asociadas a humanidad de modo diferente a los adultos. **Conclusiones:** este estudio normativo permite seleccionar términos emocionales graduados en humanidad percibida por una muestra infantil, con el fin de superar las limitaciones encontradas hasta el momento en la investigación sobre infracomunización en niños.

**Palabras clave:** infracomunización, endogrupo, estudio normativo, exogrupo, términos emocionales.

The dictionary of the Real Academia Española (Royal Spanish Academy) contains different terms for primary and secondary emotions. It is highly likely that Spanish language academicians chose to reflect Darwin's (1972) original contributions, in which he distinguished between both types of emotion. On the one hand, Darwin termed primary emotions as those expressed by most animals and which include anger, happiness and fear. And on the other, secondary emotions, which are also expressed by human beings and include suffering, guilt and love.

This distinction between primary and secondary emotions has been used in research in the infracomunización theory (Leyens et al., 2000; 2001; Demoulin, Leyens, Paladino, Rodríguez-Torres, Rodríguez-Pérez, & Dovidio, 2004; Rodríguez-Torres et al., 2005).

These authors use the term infracomunización to refer to one of the ways in which humans divest out-groups of their human essence. In particular, they suggest that individuals reserve for their own in-group the capacity of experiencing secondary emotions, that is, affective responses that are uniquely human, and deny this capacity to members of the out-group as a way of infracomunizando them. However, the emotions that are considered more primary, and are experienced by animals and humans alike, are attributed to members of both in- and out-groups. Research results of several out-groups, using various experimental procedures, have corroborated this hypothesis.

In order to distinguish which affective terms were secondary emotions and which were primary emotions, Demoulin et al. (2004) asked several national samples (Anglo-Saxon, French, Spanish and Dutch) to assess emotional terms on 17 dimensions that intuitively seemed important for differentiating between the two kind of emotions, for example, the intensity, duration or visibility of the emotional response. The authors constructed a matrix of dimensions and affective terms from the average scores of each term in all 17 dimensions. This matrix has enabled

researchers on infrahumanization to select emotional features that individuals deem to be unique to humans, as well as emotional features characteristic of animals and humans, in order to use them as study material.

Rodríguez-Pérez, Betancor, Ariño, Demoulin and Leyens (2014) recently presented updated normative findings for samples of Spanish speakers of 148 affective terms in seven dimensions that had obtained correlations most relevant to the humanity dimension in the study by Demoulin et al. (2004). Both the study by Demoulin et al. and that by Rodríguez-Pérez et al. concurred in considering secondary emotions as longer-lasting, less visible, more demanding of cognitive resources, more informative of the moral nature of those who experienced them, more internally caused and of late onset in the development of the individual.

Recently, several authors have attempted to corroborate the hypothesis of infrahumanization in children (Brown, Eller, Leeds, & Stace, 2007; Chas, Betancor, Rodríguez, & Delgado, 2015; Costello & Hodson, 2012; Martin, Bennett, & Murray, 2008; Vezzali, Capozza, Stathi, & Giovannini, 2011). Although these studies have pinpointed the existence of infrahumanization in childhood, their conclusions should be taken with caution. All these research studies included primary and secondary emotions extracted from the normative study by Demoulin et al. (2004). However, to date, we do not know whether the experimental material used in adult samples has the same meaning for child samples. Do they establish the same distinction between uniquely human emotions and emotions shared by animals and humans? Are the same emotional terms considered uniquely human by children and adults alike? Currently, there is no available classification of primary and secondary emotions that contains the evaluative perception of children, in terms of the characteristics that distinguish both types of emotional states, and which would enable the selection of material being studied in infrahumanization processes in childhood.

The general aim of this paper is to conduct a normative study that will equip researchers with a taxonomy of primary and secondary emotions specifically for children. A taxonomy of emotional terms specifically for children would contribute significantly to advancing the study of infrahumanization, in two directions.

First, given that children's knowledge of emotional terms is not the same as adults', the normative study proposed here would provide more guarantees of children's level of understanding. Moreover, the evaluative dimensions obtained would reduce the uncertainty of mistaken meaning associated with complex emotional terms. Accordingly, the number of emotional terms that can be used with adults is more likely to be much higher than with children.

Second, establishing the distribution of emotional terms in a set of dimensions that adults associate implicitly with humanity will contribute to pinpointing the similarities and differences between adult and child taxonomies. For instance, in both Demoulin et al. (2004) and Rodríguez Pérez et al.'s (2014) studies, the terms guilt, pride, shame and envy obtained high scores in dimensions of humanity, so that they were perceived as not highly visible, long-lasting, demanding of cognitive resource, etc. However, we do not know if those judgement coordinates coincide in the child population. The normative study proposed here will therefore help understand the implicit underlying dimensions that children use to distinguish humanity from the affective terms they use when attributing emotions to others.

In this research, we aim to obtain a taxonomy of affective terms specific to children and to establish mean values for a set of dimensions associated with humanity. Researchers who work with children and who use emotional terms will therefore have at their disposal a useful tool for selecting such terms.

More precisely, this general aim will have three specific objectives. First, to create a comprehensive list of children's average scores in order to establish normative values for each emotional term. Second, to understand the underlying structure of the six relevant implicit dimensions in order to assess the extent to which the affective responses are considered uniquely human. And finally, to check the predictive power of the six dimensions studied over the dimension of humanity.

## Method

### *Participants*

Participants were 363 primary-school children, of whom 200 were boys and 163 girls, aged 11 to 12 ( $M = 11.25$ ,  $SD = 0.53$ ). All participated on a voluntary basis.

### *Instruments*

Two questionnaires were drawn up based on these dimensions. First, 78 emotional terms were distributed over three questionnaires, each containing 26 terms. Each sample first responded to the question of humanity in the 26 terms and then did so for valence. The terms were kept in the same order in both questionnaires.

We then presented the second questionnaire, which included six implicit dimensions of humanity (duration, visibility, morality, cross-cultural applicability, age and cognition) and the 78 emotional terms distributed over 12 questionnaires.

### *Procedure*

This research was based on 78 emotional features selected from a pilot study with children of the same age and primary-school teachers, the aim of which was to check that the meaning was understood. Given the difficulties of understanding the affective terms, the number of terms available to create the taxonomy for children was much lower than for adults.

The children were asked to assess each emotional term in the judgement dimensions presented to them. The dimensions were similar to those used by Demoulin et al. (2004) and by Rodríguez-Pérez et al. (2014), but with adapted content in order to ensure the children's understanding of the task: duration, visibility, morality, cross-cultural applicability, age, cognition, humanity and valence.

The research was conducted in groups in the classroom and in the presence of the school teachers. No child replied to more than one questionnaire.

### *Data analysis*

Version 18.0 of the Statistical Package for Social Sciences (SPSS) was used for statistical analysis. The results were analysed according to the objectives of the study. First, a comprehensive list of the children's average scores was devised in order to establish normative values for each emotional term. Then, the structure

underlying the relevant six dimensions was analysed using an exploratory factor analysis with principal component method (orthogonal rotation). Finally, regression analysis was used to decide the predictive goodness-of-fit of the six dimensions studied in relation to the humanity score.

### Results

Before the normative values were determined, for each term we checked the score distribution, missing values and number of outliers (following the interquartile distance formula) in the samples of 23 children. Eight emotional terms had to be removed from the analysis: deceit, anguish, enthusiasm, honesty, nervousness, desperation, calm and humiliation. The remaining terms were used to create a database from the mean and standard deviation of each dimension studied (see Table 1). This database was used to determine the correlation between the six implicit dimensions of humanity. Table 2 shows the intercorrelations between the dimensions studied.

Table 2 shows close correlations between the six implicit dimensions of humanity. Specifically, children understand that the more strongly an emotion is expressed, the more visible it is, the more information is provided about the morality of the person experiencing it, the more universal and cross-cultural it is, the earlier it appears in development and the more cognitive resources it requires. Moreover, the more visible an emotion is, the more it informs us of an individual's morality, which is more associated with small children and more widespread in other cultures. Also the moral quality of the emotional expression correlates positively with cross-cultural applicability and the demand for cognitive resources. Finally, the table of intercorrelations shows a direct association between cognitive resources and age ( $r = .368$ ) and an inverse association between cross-cultural applicability and age ( $r = -.353$ ).

This matrix of intercorrelations shares similarities and contrasts with that recently obtained by Rodríguez-Pérez et al. (2014) with an adult sample. Thus, in relation to the duration of the emotion, both matrices coincide on the association with morality ( $r = .65$  child sample,  $r = .65$  adult sample) and with cognition ( $r = .28$  child sample,  $r = .62$  adult sample). However, they differ where age is concerned because there is an inverse relationship between duration and age ( $r = -.34$ ) in children. Furthermore, while in children, duration is associated with visibility ( $r = .32$ ) and the cross-cultural applicability of emotions ( $r = .56$ ), in adults this association is not statistically significant.

As for visibility, again the results coincide on the association of visibility and cross-cultural applicability ( $r = .34$  child sample,  $r = .46$  adult sample) and visibility and age ( $r = -.53$  child sample,  $r = -.62$  adult sample). However, they do not coincide on the association between visibility and moral quality, which is  $r = .40$  in the child sample, but not significant in the adult sample.

The morality dimension follows similar lines, since it associates positively with cognition ( $r = .26$ ) in the child sample, which is comparable to the adult sample ( $r = .63$ ), but diverges in the relationship with cross-cultural applicability, which is  $r = .30$  in children and  $r = -.19$  in adults. Moreover, the relation between morality and age was significant in the adult sample ( $r = .34$ ), but did not reach critical statistical values in the child sample.

In order to check that the valence of the emotional terms was not associated with humanity, we calculated the correlation

between the scores for humanity and those for valence. The result ( $r = -.034$ ,  $p = .78$ ) shows that both dimensions are independent.

The second aim of our analysis was to determine the factorial structure underlying the six relevant dimensions in order to evaluate humanity. For this, we undertook an exploratory factor analysis with principal component method (orthogonal rotation). The factorial solution of the mean scores of the 70 terms in the six dimensions gave a Kaiser-Meyer-Olkin (KMO) value of .64 and a Chi-square test in the Bartlett test of sphericity of  $\chi^2_{(15)} = 131$ ,  $p < .001$ , which shows the fitness of the matrix for undertaking PCA.

The result of the rotation gave rise to two components with an eigenvalue higher than 1, which together explained 68.8% of the variance. The first, with an eigenvalue of 2.62, explained 43.65% of the variance, while the second, with an eigenvalue of 1.51, explained 25.15% of the variance. Table 3 gives the weights of the dimensions in the two components.

As shown in Table 3, the dimensions are evenly distributed between both components. Thus, while the dimensions duration, cross-cultural applicability and moral quality are grouped together in the first, the dimensions age, cognition and visibility of the emotional expression are grouped together in the second. Affective terms could be distinguished, on the one hand, by considering whether they are more or less universal, more or less enduring and provide moral information or not, and on the other, whether they require cognitive resources, are more or less visible and inherent to adults, or whether children also experience them. These results contrast significantly with those obtained by Rodríguez-Pérez et al. (2014) and Demoulin et al. (2004). In the first study, the factorial analysis led to two factors that jointly explained 65.9% of the variance. The first reflected the cognitive demands of the affective terms (processes such as cognition, moral nature and duration). The second factor included dimensions relating to the expressive profile of the emotions (visibility, age when acquired, cross-cultural applicability and external causality).

Finally, in order to analyse the capacity of the factors obtained to predict the humanity of the emotional terms, we performed a multiple linear regression analysis, which showed that, taken together, the two factors explain 47% of variance, with a statistically significant  $F$ -value,  $F(2, 69) = 29.44$ , and a probability below .001. Moreover, standardized regression coefficients analysis shows that the second factor is more important ( $\beta = .66$ ,  $p = .001$ ) in the equation than the first factor ( $\beta = -.16$ ,  $p = .07$ ). Consequently, for the child sample, the age or appearance, cognitive needs and lower visibility of the emotional expression are the dimensions that add humanity to the emotional terms, while duration, morality and cross-cultural applicability have very little to do with it.

### Discussion

The objective of this work was to establish the degree of humanity of 70 affective terms, from the perspective of 11-12-year-old children. Specifically, we considered examining whether children are able to differentiate between emotional expressions in terms of humanity and, if so, which underlying dimensions contribute to this differentiation. We drew the following conclusions from the analyses undertaken.

Firstly, the data obtained show similarities and differences in the perception of emotional expressions in dimensions associated

Table 1  
Mean and standard deviation of each dimension studied

Terms	Humanity	Valence	Duration	Visibility	Morality	Cross-culture	Age	Cognition
Aburrimiento	3.27 (2.11)	2.77 (.51)	2.81 (.87)	3.05 (1.28)	2.14 (1.06)	2.95 (1.33)	3.50 (1.14)	2.30 (1.53)
Admiración	4.54 (2.14)	4.96 (.91)	3.75 (1.12)	4.00 (.93)	2.95 (1.32)	3.45 (1.71)	3.75 (1.21)	3.75 (1.62)
Agradecimiento	4.42 (2.04)	5.24 (.72)	4.41 (1.33)	3.36 (1.09)	3.68 (1.25)	2.95 (1.29)	3.65 (1.09)	3.36 (2.11)
Alegría	2.15 (1.78)	5.46 (.58)	4.68 (1.13)	1.86 (1.15)	4.27 (1.52)	2.05 (1.43)	2.14 (1.39)	3.50 (1.95)
Amargura	5.04 (1.49)	2.08 (.91)	3.40 (1.04)	3.67 (.92)	2.19 (1.17)	3.26 (1.53)	4.11 (1.25)	2.93 (1.78)
Amistad	3.59 (1.99)	5.85 (.37)	4.53 (1.50)	2.86 (1.71)	4.14 (1.35)	2.64 (1.47)	2.18 (1.33)	4.63 (1.61)
Amor	2.56 (2.08)	5.56 (.51)	4.57 (1.3)3	3.62 (1.12)	3.55 (1.57)	2.10 (1.30)	3.55 (1.50)	4.32 (1.78)
Ánimo	4.31 (1.67)	5.37 (.63)	3.91 (1.54)	3.50 (1.41)	3.64 (1.53)	2.55 (1.53)	2.73 (1.64)	3.27 (1.83)
Antipatía	5.00 (1.60)	1.88 (.86)	2.48 (1.31)	4.15 (1.41)	3.15 (1.41)	3.65 (1.50)	3.74 (1.16)	3.22 (1.50)
Aprecio	3.40 (1.83)	5.17 (.76)	4.48 (1.12)	3.22 (1.37)	3.44 (1.48)	3.00 (1.36)	2.19 (1.11)	3.12 (2.08)
Arrepentimiento	5.16 (1.21)	3.60 (.91)	4.19 (1.12)	4.36 (1.00)	3.18 (1.37)	2.57 (1.50)	4.09 (1.54)	4.20 (1.54)
Asco	3.42 (2.14)	1.77 (.76)	2.33 (1.15)	3.52 (1.25)	2.48 (1.03)	3.77 (1.77)	2.95 (1.47)	2.40 (1.14)
Asombro	3.22 (1.76)	4.22 (.97)	2.81 (.93)	2.86 (1.39)	2.68 (1.49)	2.50 (1.22)	2.29 (1.06)	1.81 (1.03)
Bienestar	2.23 (1.86)	5.00 (.87)	4.08 (1.26)	3.22 (1.09)	3.60 (1.35)	2.65 (1.35)	1.75 (.99)	2.15 (1.29)
Cariño	2.65 (1.98)	5.69 (.62)	5.14 (1.25)	2.45 (1.30)	4.14 (1.39)	2.48 (1.33)	1.57 (.87)	3.55 (2.18)
Celos	4.19 (2.02)	1.79 (.83)	2.14 (1.32)	4.14 (1.46)	2.95 (1.68)	3.77 (1.63)	4.18 (1.26)	3.95 (1.36)
Compasión	3.52 (2.05)	4.58 (.86)	3.76 (1.23)	4.08 (1.21)	3.61 (1.50)	2.32 (1.49)	4.09 (1.15)	2.96 (1.55)
Consuelo	3.73 (1.73)	4.23 (1.07)	3.20 (1.20)	4.33 (1.11)	2.59 (1.10)	3.05 (1.81)	1.81 (1.03)	2.73 (1.70)
Culpa	4.38 (1.96)	2.44 (.92)	3.47 (1.54)	4.32 (1.04)	2.50 (1.41)	3.27 (1.96)	3.71 (.96)	3.94 (1.35)
Decepción	4.87 (1.58)	1.96 (.95)	3.33 (.96)	2.81 (1.39)	2.62 (1.55)	2.72 (1.54)	3.42 (.83)	4.59 (1.76)
Desagrado	4.38 (1.94)	2.00 (.83)	2.70 (1.35)	4.00 (1.24)	2.85 (1.56)	3.31 (1.67)	3.67 (1.50)	3.96 (1.54)
Desconfianza	3.20 (1.83)	2.08 (.80)	2.68 (1.55)	4.09 (1.41)	2.95 (1.50)	3.36 (1.62)	4.09 (1.34)	4.05 (1.58)
Deseo	3.73 (2.03)	4.76 (.83)	3.25 (1.33)	4.18 (1.10)	2.80 (1.24)	3.14 (1.35)	3.45 (1.44)	3.67 (1.56)
Desilusión	3.83 (1.81)	2.04 (.77)	3.00 (.98)	3.41 (1.37)	2.88 (1.40)	3.44 (1.26)	3.04 (1.00)	2.89 (1.55)
Desprecio	4.00 (2.02)	1.42 (.76)	2.92 (1.35)	3.48 (1.28)	3.26 (1.46)	3.57 (1.64)	4.04 (1.18)	3.92 (1.69)
Disfrute	2.46 (1.73)	5.15 (.67)	4.55 (1.10)	2.24 (.83)	3.76 (1.48)	3.32 (1.46)	2.05 (.87)	3.71 (1.85)
Diversión	2.65 (1.87)	5.56 (.58)	4.14 (1.56)	2.68 (1.29)	3.77 (1.48)	2.55 (1.50)	2.14 (1.08)	2.40 (1.14)
Dolor	1.70 (1.14)	1.92 (.93)	3.18 (.80)	2.85 (1.27)	2.26 (1.39)	2.09 (1.38)	1.75 (1.37)	2.61 (1.80)
Empatía	4.88 (1.57)	4.42 (.97)	3.19 (1.33)	3.96 (1.22)	3.19 (1.57)	3.58 (1.50)	3.60 (.87)	2.96 (1.54)
Enfado	2.38 (1.53)	1.92 (.80)	2.86 (.71)	2.55 (1.41)	2.64 (1.29)	2.68 (1.39)	2.68 (1.43)	3.64 (1.65)
Entusiasmo	3.93 (1.86)	5.37 (.84)	4.10 (1.22)	3.18 (1.53)	3.32 (1.46)	3.27 (1.75)	2.59 (1.37)	3.55 (1.97)
Envidia	4.83 (1.55)	1.80 (.71)	2.05 (1.05)	4.38 (.87)	2.77 (1.38)	3.95 (1.76)	4.10 (1.09)	3.91 (1.34)
Esperanza	5.23 (1.34)	5.24 (.83)	4.54 (1.42)	4.08 (1.32)	3.77 (1.31)	2.80 (1.44)	3.26 (1.14)	4.52 (1.44)
Excitación	3.15 (2.14)	3.81 (1.08)	2.96 (1.20)	3.32 (1.13)	2.64 (1.41)	2.54 (1.59)	3.33 (1.52)	3.42 (1.64)
Fastidio	4.07 (2.02)	2.35 (.75)	3.09 (1.44)	3.59 (1.47)	3.05 (1.36)	3.68 (1.73)	4.09 (1.31)	2.59 (1.37)
Felicidad	2.46 (1.70)	5.65 (.56)	4.81 (1.25)	2.43 (.98)	4.05 (1.43)	2.64 (1.71)	2.14 (1.39)	3.09 (2.11)
Furia	1.96 (1.34)	1.80 (.76)	3.27 (1.20)	2.56 (1.26)	4.00 (1.35)	2.24 (1.39)	2.56 (1.29)	3.28 (1.95)
Gratitud	4.08 (2.02)	5.20 (.71)	3.85 (1.22)	2.92 (1.13)	3.74 (1.38)	2.70 (1.17)	3.04 (1.20)	3.68 (1.81)
Horror	3.46 (2.10)	2.04 (1.07)	2.50 (1.60)	3.55 (1.71)	2.82 (1.53)	3.65 (1.35)	2.45 (1.19)	2.50 (1.63)
Ilusión	3.33 (2.26)	5.43 (.73)	4.79 (1.14)	2.58 (1.39)	4.38 (1.58)	2.52 (1.31)	2.04 (.85)	3.41 (1.62)
Incomodidad	2.58 (1.79)	2.67 (.56)	2.73 (.92)	3.54 (1.14)	2.46 (1.17)	3.38 (1.55)	2.44 (1.29)	2.70 (1.59)
Inquietud	2.85 (1.91)	3.08 (.69)	3.54 (.99)	3.41 (1.60)	3.15 (1.41)	3.23 (1.39)	3.19 (1.59)	2.81 (1.69)
Ira	2.80 (2.00)	1.75 (1.19)	2.48 (1.05)	3.16 (1.25)	3.38 (1.53)	3.84 (1.70)	3.42 (1.69)	3.08 (1.81)
Lástima	4.52 (1.58)	2.26 (1.06)	3.32 (1.53)	4.14 (1.36)	2.50 (1.44)	3.18 (1.71)	4.00 (.97)	2.82 (1.44)
Malestar	2.62 (1.77)	2.04 (.84)	3.24 (1.41)	3.86 (1.08)	2.33 (1.15)	2.95 (1.36)	2.90 (1.45)	2.00 (1.41)
Malhumor	2.88 (1.69)	1.50 (.78)	2.68 (1.13)	2.59 (1.30)	2.90 (1.55)	3.33 (1.56)	3.73 (1.20)	3.32 (1.84)
Miedo	2.35 (1.44)	2.25 (1.11)	2.71 (1.49)	3.00 (1.51)	2.23 (.87)	3.14 (1.67)	2.00 (1.11)	3.09 (1.80)
Nervios	2.74 (1.65)	3.04 (.92)	2.87 (1.14)	3.00 (1.13)	2.48 (1.31)	2.87 (1.42)	3.39 (1.37)	3.26 (1.76)
Odio	3.42 (2.08)	1.32 (.56)	2.55 (1.30)	3.45 (1.41)	3.62 (.67)	3.33 (1.32)	3.86 (1.17)	2.77 (1.80)
Optimismo	4.81 (1.73)	4.78 (.64)	3.72 (1.10)	3.80 (1.12)	3.00 (1.22)	2.52 (1.66)	3.50 (.96)	3.67 (1.68)
Orgullo	3.50 (2.16)	4.77 (.99)	3.44 (1.34)	3.46 (1.07)	3.00 (1.07)	3.00 (1.39)	3.60 (1.15)	3.64 (1.60)
Pánico	2.63 (1.71)	1.96 (1.00)	2.59 (1.50)	3.47 (1.43)	3.14 (1.35)	2.70 (1.45)	2.55 (1.36)	3.05 (1.91)
Pasión	4.27 (1.85)	5.15 (.83)	3.77 (1.14)	3.96 (.90)	2.78 (1.09)	3.15 (1.29)	3.07 (1.44)	3.74 (1.70)
Pena	4.16 (1.82)	2.92 (1.14)	3.77 (1.48)	3.33 (1.39)	2.85 (1.18)	2.36 (1.53)	3.38 (1.16)	4.10 (1.33)
Pesimismo	5.33 (1.27)	1.78 (.95)	2.96 (1.06)	3.81 (1.24)	2.52 (1.22)	3.81 (1.55)	4.19 (.88)	3.48 (1.67)
Placer	3.31 (2.17)	5.00 (.75)	3.19 (.96)	3.65 (1.26)	2.48 (1.19)	2.80 (1.44)	2.08 (1.19)	2.70 (1.84)
Preocupación	4.41 (1.85)	2.67 (.82)	3.26 (1.19)	3.73 (1.12)	2.57 (1.08)	2.59 (1.37)	3.71 (.85)	4.10 (1.45)
Rabia	1.62 (.98)	2.04 (.93)	3.14 (1.21)	2.95 (1.28)	3.38 (1.72)	2.71 (1.42)	3.45 (1.47)	3.18 (1.68)
Remordimiento	4.44 (1.61)	2.74 (.75)	3.52 (1.27)	4.39 (1.34)	2.60 (1.08)	2.56 (1.64)	3.75 (1.03)	3.91 (1.59)
Rencor	4.48 (1.34)	2.25 (1.07)	3.87 (1.46)	4.38 (1.21)	3.04 (1.33)	2.60 (1.61)	3.80 (1.19)	3.60 (1.68)
Satisfacción	2.37 (1.76)	5.00 (.78)	4.17 (1.07)	3.55 (1.22)	3.16 (1.57)	2.20 (1.63)	2.76 (1.48)	3.00 (1.63)
Sorpresa	3.93 (1.82)	4.52 (.85)	3.05 (1.28)	3.55 (1.06)	2.64 (.95)	3.00 (1.45)	1.91 (.75)	2.64 (1.87)
Sufrimiento	1.78 (.93)	1.69 (.74)	3.45 (1.74)	2.86 (1.32)	3.23 (1.51)	3.45 (1.71)	4.05 (1.84)	3.41 (1.62)
Temor	2.88 (1.80)	2.67 (.87)	2.40 (1.32)	4.04 (1.25)	2.69 (1.12)	3.16 (1.46)	2.54 (1.03)	2.69 (1.98)
Ternura	3.23 (2.05)	5.23 (.59)	3.96 (1.34)	3.62 (.98)	3.81 (1.06)	3.04 (1.25)	2.54 (1.36)	3.00 (1.77)
Terror	3.00 (1.84)	1.84 (.85)	3.05 (1.99)	4.23 (1.48)	2.41 (1.71)	3.14 (1.71)	3.00 (1.15)	2.65 (1.31)
Tranquilidad	1.79 (1.25)	4.88 (.85)	3.59 (1.40)	2.68 (1.17)	3.67 (.91)	3.14 (1.39)	2.41 (1.56)	3.05 (1.70)
Tristeza	2.28 (1.37)	2.04 (.91)	3.45 (1.37)	2.64 (1.43)	2.95 (1.56)	2.14 (1.36)	3.05 (1.28)	3.55 (1.41)
Venganza	3.81 (1.94)	1.67 (.83)	3.61 (1.50)	4.04 (1.33)	4.17 (1.37)	2.64 (1.80)	3.75 (1.07)	4.24 (1.79)
Vergüenza	5.17 (1.31)	2.71 (.86)	3.11 (1.45)	3.50 (1.30)	3.18 (1.59)	2.82 (1.56)	3.95 (1.05)	3.00 (1.84)

*Table 2*  
Correlations between the implicit dimensions studied

	1	2	3	4	5
1. Duration					
2. Visibility	.319**				
3. Morality	.650**	.395**			
4. Cross-cultural	.560**	.342**	.299*		
5. Age	-.335**	-.527**	-.224	-.353**	
6. Cognition	.277*	-.117	.256*	.114	.368**

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

*Table 3*  
Matrix of rotated components

	Component	
	1	2
Duration	.883	
Morality	.805	
Cross-cultural applicability	.668	
Age		.834
Cognition		.746
Visibility		-.625

with humanity when compared with Rodríguez-Pérez et al.'s (2014) results for adults. One such result is the relation between duration and age. Children experience more stable and long-lasting affective responses compared with adults, whose experiences are more unpredictable and fleeting. A second significant contrast was obtained in the correlation between morality and cross-cultural applicability, which is positive in children and negative in adults. For children, the more basic and universal the emotions, the more clues they derive about how good or bad people are. For adults, however, emotional responses most associated with cultural peculiarities provide the most information about the moral quality of individuals. These associations between the evaluative dimensions of emotional terms indicate important differences in perceived meaning for the child and adult samples.

Secondly, children group the six dimensions associated with humanity differently to adults. Thus, in Demoulin et al.'s (2004) work, the dimensions used in the child sample were incorporated into one factor, while in Rodríguez-Pérez et al.'s (2014) work, they were grouped into two components. Specifically, they found that duration, morality and cognitive resources constituted a factor relating to the cognitive demands of emotion, while visibility, age, cross-cultural applicability and external causality were classified in another factor more closely associated with the expressive function of emotions. The child sample of this study groups together the dimensions duration, morality and cross-cultural applicability, on the one hand, and age, cognition and visibility, on the other. In order to establish the meaning of this categorization, we performed a regression analysis with the humanity dimension as a criterion. The results showed that, for children, duration, morality and cross-cultural applicability have very little to do with the humanity of an emotional expression. It is, however, associated with the age at which these emotions are experienced, the cognitive resources needed to feel them and their invisibility.

In this study, we observed that the dimension of valence does not correlate with the human quality of the affective terms. In other words, irrespective of whether they are uniquely human or are shared with animals, emotional terms can be positive or negative.

The peculiarities found in this normative study advise of the importance of exercising caution with the results in studies on infraculturalization in children obtained to date. It may be that the features used in some of these studies are not associated with humanity in the same way for children as for adults, that their meaning has not been understood by children and that the differential attribution by members of the in-group and out-group may abide by reasons other than those postulated by the infraculturalization theory. The main contribution of this normative study is therefore to facilitate the selection of graded emotional terms in humanity perceived by a child sample, in order to overcome the limitations found to date in research on infraculturalization in children (Brown et al., 2007; Costello & Hodson, 2012; Chas et al., 2015; Martin et al., 2008; Vezzali et al., 2011).

A possible explanation for the divergences from other normative studies with adult samples could be related to moral development. Specifically, the way children understand morality could display a lot of important differences respect to adults. Research on prosocial behaviour has found that prosocial tendencies, closely related with moral development, increase significantly from early childhood to early adolescence (for a review, see Eisenberg & Fabes, 1998). Brain regions that are implicated in social cognition, like prefrontal, parietal and superior temporal cortex, suffer very important changes during adolescence. Choudhury, Blakemore and Charman (2006) suggest that perspective taking develop in parallel with brain maturation and psychosocial development during adolescence. These changes could explain the fact that morality has different meanings for adults and children. Future studies may further clarify these issues.

In short, the results suggest that children, like adults, are capable of differentiating between emotional terms that are uniquely human and those we share with animals. Furthermore, the discrepancies observed in the dimensions studied are an indication that researchers have exercised caution when using adult normative values in studies with children and that, as with adults, there is no explicit or systematic distinction, which is an advantage as an indicator of intergroup bias and a subtle and unconscious way of infraculturalizing others.

#### Acknowledgements

This research was supported by research projects PSI2009-09777 and PSI2012-34227 - Office of Scientific and Technical Research (DGICYT). The authors want to acknowledge funding granted to the ULL by the Canarian Agency for Research, Innovation and Information Society, financed 85% by the European Social Fund.

We would like to show our gratitude for the data collection to: Colegio Cisneros Alter, Colegio Luther King (La Laguna), CEIP San Benito, CEIP Emeterio Gutiérrez Albelo, CEIP Nuestra Señora de la Concepción, CEIP Ramón y Cajal, CEIP Aguamansa, CEIP Leoncio Estévez Luis, CEIP La Luz, CEIP San Agustín, CEIP Inocencio Sosa Hernández, CEIP La Verdellada and CEIP Montaña Pacho.



## References

- Brown, R., Eller, A., Leeds, S., & Stace, K. (2007). Intergroup contact and intergroup attitudes: A longitudinal study. *European Journal of Social Psychology, 37*, 692-703.
- Costello, K., & Hodson, G. (2012). Explaining dehumanization among children: The interspecies model of prejudice. *British Journal of Social Psychology, 53*, 175-197.
- Chas, A., Betancor, V., Rodríguez-Pérez, A., & Delgado, N. (2015). Differential attribution of secondary emotions to members of the ingroup and the outgroup: Infrahumanization bias in children. *Estudios de Psicología, 36*, 366-388.
- Choudhury, S., Blakemore, S.J., & Charman, T. (2006). Social cognitive development during adolescence. *Social Cognitive and Affective Neuroscience, 1*(3), 165-174.
- Darwin, C. (1972). *The expression of emotions in man and animals*, Londres, J. Murray. Traducción castellana: *La expresión de las emociones en los animales y en el hombre*, Madrid, Alianza, 1984.
- Demoulin, S., Leyens, J. Ph., Paladino, M. P., Rodríguez-Torres, R., Rodríguez-Pérez, A., & Dovidio, J. F. (2004). Dimensions of 'uniquely' and 'non-uniquely' human emotions. *Cognition and Emotion, 18*, 71-96.
- Eisenberg, N., & Fabes, R. (1998). Prosocial development. In W. Damon & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional and personality development* (5<sup>th</sup> ed., pp.701-778). New York: Wiley.
- Leyens, J. Ph., Paladino, P., Rodríguez-Torres, R., Vaes, J., Demoulin, S., Rodríguez-Pérez, A., & Gaunts, R. (2000). The emotional side of prejudice: The attribution of secondary emotions to ingroup and outgroups. *Personality and Social Psychology Review, 4*(2), 186-197.
- Leyens, J. Ph., Rodríguez-Pérez, A., Rodríguez-Torres, R., Gaunt, R., Paladino, M., Vaes, J., & Demoulin, S. (2001). Psychological essentialism and the differential attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology, 31*, 395-411.
- Martin, J., Bennett, M., & Murray, W. S. (2008). A developmental study of the infrahumanization hypothesis. *British Journal of Developmental Psychology, 26*, 153-161.
- Real Academia Española (1992). *Diccionario de la Lengua Española [Spanish Dictionary]* (21a. ed.). Madrid: Espasa-Calpe.
- Rodríguez-Pérez, Betancor-Rodríguez, Ariño-Mateo, Demoulin & Leyens (2014). Normative data for 148 Spanish emotional words in terms of attributions of humanity. *Anales de Psicología, 3*, 1137-1145.
- Rodríguez-Torres, R., Leyens, J.P., Rodríguez-Pérez, A., Betancor Rodríguez, V., Quiles del Castillo, M.N., Demoulin, S., & Cortés, B. (2005). The lay distinction between primary and secondary emotions: A spontaneous categorization? *International Journal of Psychology, 40*(2), 100-107.
- Seidner, L. B., Stipek, D. J., & Feshbach, N. D. (1988). A developmental analysis of elementary school-aged children's concepts of pride and embarrassment. *Child Development, 59*(2), 367-377.
- Tangney, J. P. (1999). The self-conscious emotions: Shame, guilt, embarrassment and pride. In T. Dalglish & M. Power (Eds.), *Handbook of cognition and emotion* (pp. 541-568). Chichester: Wiley.
- Vezzali, L., Capozza, D., Stathi, S., & Giovannini, D. (2011). Increasing outgroup trust, reducing infrahumanization, and enhancing future contact intentions via imagined intergroup contact. *Journal of Experimental Social Psychology, 48*, 437-440.