

Measuring the attitudes from Spanish and Catalan people toward Spanish and Catalan Identity with the Implicit Relational Assessment Procedure

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ABSTRACT

This study analyses the validity of the Implicit Relational Assessment Procedure (IRAP) as an implicit measure on in-group and out-group bias in Spanish participants from Catalanian ($n= 17$) and from the Rest of Spain ($n= 16$). The IRAP required to respond relationally in alternating trial-blocks. In the pro-Catalan block, participants had to respond as if the word Catalan, with the Catalanian flag behind it, were related with positive attributes (e.g. polite) and the word Spanish, with the Spanish flag behind it, were related with negative attributes (e.g. rude). In contrast, in the pro-Spanish block participants had to respond as if the word Spanish, with the Spanish flag behind it, were related with positive attributes (e.g. innovative) and the word Catalan, with the Catalanian flag behind it, were related with negatives attributes (e.g. opportunist). Participants also completed a demographic questionnaire and an explicit measure with stimuli analogous to the IRAP ones. The results showed more a favourable bias toward the ingroup in both groups, but this favourable bias is more pronounced in the Catalan Group. These results highlight the validity of the IRAP to measure intergroup biases. *Key words:* social identity, intergroup bias, Implicit Relational Assessment Procedure.

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Novelty and Significance

What is already known about the topic?

- The social identity process is understood to be on the basis of our relations with people of different groups, being able to generate prejudice and conflicts.
- Many studies have tried to develop tools to know more about this topic.

What this paper adds?

- This paper provides a systematic review of neuroimaging research concerned on the effort.
- Explores the in-group and out-group bias using the Implicit Relational Assessment Procedure in Spanish population from Catalonia and from the rest of the Spain.
- Compare explicit measures of bias with the implicit on.

Social identity and its impact on intergroup bias have been historically connected and have generated considerable interest (Scandroglio, Martínez, & Sebastián, 2008). For example, it has been concluded that the more specific the identities are, the more favouritism or bias towards the own group is observed (Rodríguez *et alii*, 2005; Tajfel, 1981; Turner, 1990). That is, you can feel that you belong to your city (e.g., Barcelona), to your autonomous region (e.g., Cataluña), to your country (e.g., Spain), and all these identities could be included in a broader one (e.g., Europe). When the identity is more inclusive and broader (e.g., European), the boundaries are vaguer and with lesser defining attributes, which generates intergroup bias. On the contrary, more

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specific identities (e.g., only Cataluña), narrower and with a lower level of inclusion, have more concrete boundaries and more defining attributes, generating more in-group favouritism and intergroup bias (Rodríguez *et alii*, 2005).

Research on intergroup bias has been carried out both with explicit measures, such as questionnaires and self-report measures, and with implicit measures (Fiske & North, 2015). Although the explicit measures have been frequently used, the extent to which those measures are appropriate for the assessment of socially sensitive issues has been questioned (Oswald, Mitchell, Blanton, Jaccard, & Tetlock, 2013). For example, explicit attitudes are easy to conceal or fake in a socially desirable manner to avoid being criticised (Nisbett & Wilson, 1977). In contrast, implicit measures are hard to fake or conceal, so the development of instruments capable of measuring implicit bias could be a way to overcome these limitations.

From the contextual behaviour perspective, a procedure that is widely used by researchers to explore implicit attitudes or bias has been developed: The Implicit Relational Assessment Procedure (IRAP: Barnes-Holmes *et alii*, 2006). In an IRAP trial, a stimulus (e.g., Catholics or Protestants) is presented in the presence of a label (e.g., positive or negative) and with two specific relation terms as response options (e.g., YES or NO). The procedure consists of the presentation of various trials with a different stimulus, organized consistently (e.g., Catholic/positive YES) and inconsistently (e.g., Catholic/negative NO). The participants must respond as quickly and accurately as possible. In this context, response latencies are expected to be shorter in consistent blocks than in inconsistent blocks. In this context, response latencies are expected to be shorter in consistent blocks than in inconsistent blocks because consistent responding coordinates with the brief and immediate relational responding (BIRRs). Contrariwise, inconsistent responding involve elaborated relational responding (EERRs). The differential reaction time between consistent and inconsistent blocks is the IRAP effect (DIRAP). A more detailed explanation about the theoretical basis and the development of this procedure is beyond the scope of this study; for more information, consult Barnes-Holmes, Barnes-Holmes, Stewart, & Boles (2010).

One way to work with the validity of the IRAP in the domain of measuring implicit attitudes such as intergroup bias is the known-groups methodology where groups are defined because they clearly differ in some dimension as different opinions or attitudes (De Houwer, Teige-Mocigemba, Spruyt, & Moors, 2009). There are several types of research using the IRAP methodology that follow this approach (Golijani-Moghaddam, Hart, & Dawson, 2013). For example, Barnes-Holmes, Waldron, Barnes-Holmes, and Stewart (2009) conducted a study in which the IRAP distinguished between groups that differ in cultural preferences; Stockwell, Walker, and Eshleman, (2010) reported different performances in the IRAP between groups with different sexual preferences (Hussey & Barnes-Holmes, 2012; Parling, Cernvall, Stewart, Barnes-Holmes, & Ghaderi, 2012; Vahey, Barnes-Holmes, Barnes-Holmes, & Stewart, 2017). Despite the fact that there are studies on intergroup IRAP (Drake, 2016; Farrell, Cochrane, & McHugh, 2015; Timmins, Barnes-Holmes, & Cullen, 2016), there are few that take social identity as a base of this bias (Hughes, Barnes-Holmes, & Smyth, 2017). A specific example might be the national identity like that observed with Catalanian and Spanish identities which are assumed to be different by people from Catalonia and from people from the rest of Spain.

The aim of this study is to analyse the IRAP validity as an implicit measure to make explicit the attitudes about the Catalanian and the Spaniard population, using the

known-groups methodology. Specifically, this study aims to identify the attitudes of the Catalanian people towards the Spanish identity and the attitudes of the rest of Spanish populations towards the Catalan identity. The two specific goals of this study are the following: (1) to analyse the self-image of each group in comparison with the view they have of the other group, and (2) to examine the differences between the explicit and implicit measure of attitudes towards each group.

METHOD

Participants

There were 37 participants in this study (27 females). Age ranged from 14 to 79 years. Recruitment was done informally and none of the participants knew the object of the study. Participants were categorized as Catalanian or the Rest of Spain. The criterion to be categorized as Catalanian was to have lived at a minimum of 10 years in Catalonia, whereas the criterion to be categorized as the Rest of Spain was to have lived at a minimum of 10 years in the rest of Spain and less than 10 years in Catalonia. Of the 37 participants, 19 belonged to the Catalanian group and 18 to the Rest of Spain group. Four individuals, 2 per group, who did not meet the criteria of the practise block to complete the IRAP, were excluded. The final sample was made up of 33 individuals, 17 in the Catalanian group (12 females and 5 males, ages 14-66 years) and 16 individuals in the Rest of Spain group (13 females and 3 males, ages 29-79 years).

Instruments

Sociodemographic Questionnaire. This questionnaire collected the following information: a) gender, age, the autonomous community of birth and native language, and b) sense of belonging to their region and to Spain. Specifically, participants responded to the question 'How do I feel?' with the following 5-point Likert scale: 1 (only of my region), 2 (more than my region than Spanish), 3 (as much of my region as Spanish), 4 (more Spanish than my region) and 5 (Only Spanish).

The Explicit Questionnaire (EQ). A questionnaire based on the IRAP stimuli, with a 5-point Likert scale (-2= strongly disagree to +2= strongly agree), composed of 24 statements based on the IRAP trials (e.g., 'Catalans are innovative', 'Spaniards are polite', etc.).

Materials and Stimuli

The IRAP was used to measure implicit attitudes. This procedure required participants to emit a fast and accurate response in trials that are consistent or inconsistent with the previously presented verbal relations. The direct latencies were transformed to Dscores (for the procedure to obtain Dscores, see Hussey, Thompson, McEnteggart, Barnes-Holmes, & Barnes-Holmes, 2015). The task was available both in Catalan and Spanish languages. In this way, participants could choose the language in which they wanted to complete the task (all participants in the Catalanian group chose the Catalan version and all those in the Rest of Spain chose Spanish). The IRAP was composed of two stimulus labels, six target stimuli and two response options (Table 1). The labels were two words ('Catalán' and 'Español' -Catalan and Spanish) with an image of the corresponding flag behind it. Regarding the target stimuli, there were 12 adjectives of which six are considered positive (e.g., hard-working, polite, etc.) and six negatives (e.g., lazy, rude, etc.). Finally, the response options were 'SI' [YES] and 'NO'.

Procedure

Participants were informed that the study aim was to gain a better understanding of Catalan and Spanish people's attitudes towards each other, and that the data of the study were completely anonymous. Then, participants signed a statement of informed consent. Following a general description of the IRAP task, it was stressed that the goal was not to express the participant's opinion on the subject but to follow the exact instructions

Table 1. Samples and Targets of the IRAP.

Label 1*	Label 2*
 Catalan	 Spanish
(Catalán/Catalá)	(Español/Espanyol)
Positive targets	Negative targets
Polite (educado/educat)	Rude (maleducado/maleducad)
Hard-Worker (trabajador/treballador)	Lazy (vago/gandul)
Respectful (respetuoso/respectus)	Arrogant (prepotente/prepotent)
Modern (moderno/modern)	Antiquated (atrasado/atrasat)
Entrepreneur (emprendedor/emprededor)	Stagnant (inmovilista/immobilista)
Innovative (Innovador/innovador)	Opportunist (aprovechado/aprofitat)
Response options YES or NO (Sí o No)	Response options YES or NO (Sí o No)

Notes: * = flag in original colors (yellow and red); ** = flag in original colors (yellow and red); Depending on the response (YES or NO) required by the instruction the blocks are Pro-Catalan or Pro-Spanish, the samples, targets and the response options were shown to participants in Spanish and Catalan language (between parenthesis).

that would appear on the screen. The course of the task is as follows; in a sequence of trials, the participant must emit a correct response. In each trial, a stimulus label is shown at the top of the screen ('Catalan' or 'Spanish'), a stimulus target in the centre (one of the 12 that are shown in Table 1), and the two response options appear at the bottom (YES or NO) (Figure 1). In order to emit a response, the participant must press the 'd' key if the correct response is 'YES' and the 'k' key if the response is 'NO'. In case of wrong response, a red 'X' would appear on the screen. Once a correct response has been performed, participants could pass on to the next trial. If participants took a long time to respond, an exclamation mark (!) would appear on the screen.

Regarding the sequence of the task, there were 24 trials per block, with each of the four trial-types presented 6 times within each block. Each block was preceded by a rule that specified the correct performance. Specifically, Rule A was 'Respond as if Catalan were positive and Spanish were negative', and Rule B was 'Respond as if Spanish were positive and Catalan were negative'. There were four possible types of trials as a result of the combination of the two label stimuli and the two categories of target stimuli: 'Positive Catalan', 'Negative Catalan', 'Positive Spanish' and 'Negative Spanish'. For instance, in the 'Positive Spanish' trial-type, the label stimulus 'Spanish'

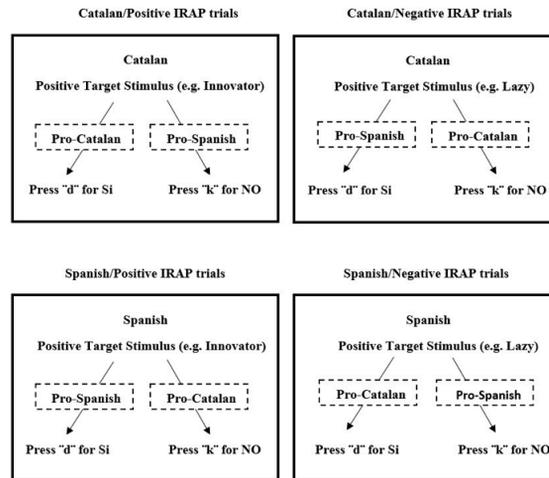


Figure 1. Examples of four trial-types showing the deemed Pro-Catalan and Pro-Spanish.

and one of the six positive target stimuli appeared. In the studies that use the IRAP, the blocks are commonly catalogued as consistent and inconsistent blocks (Barnes-Holmes *et alii*, 2010). However, in this study, it was considered that it is more correct to refer to 'Pro-Catalan' blocks (those that were preceded by Rule A) and 'Pro-Spanish' blocks (those that were preceded by Rule B) than to refer to 'consistent' and 'inconsistent' blocks inasmuch as what is consistent for some people may not be consistent for others. The software alternatively showed one block of each type.

The IRAP started with the practise blocks. Participants were required to reach 80% of correct responses in a time interval of 2000 ms or less in two blocks in order to continue the task. If after six practise blocks, the criterion was not met, the IRAP was ended, and the participants were thanked. The remaining participants started the six test blocks, in three of them following Rule A and in the rest Rule B. The odd blocks were 'Pro-Catalan' and the even blocks were 'Pro-Spanish'. Finally, participants completed the two explicit measures. This time, they were requested to express their opinion, taking all the time they wanted. The first measure was the Demographic Questionnaire, which included: a) sociodemographic variables (age, gender, native language, etc.) and b) the sense of belonging. The second measure was the Explicit Questionnaire (EQ) with homologous questions used in the IRAP. The entire procedure was completed individually. In those cases in which group application was used, the temporary order of the tasks was changed. In this way, while some participants performed the IRAP, others completed the explicit measures.

RESULTS

For the analysis of the socio-demographic differences between the groups, a one-way ANOVA was performed. One-way ANOVA analysis was performed to analyse age and gender differences between the groups. There were no significant differences either in age, $F(1, 31) = .128, p = .723$, or in gender, $F(1, 31) = .487, p = .491$ between groups. Both groups had a similar mean age; $M = 42.75, SD = 12.94$ in the 'Rest of Spain' group

and $M= 41$, $SD= 15.03$ in the ‘Catalan Group’. Regarding gender, there were 81% of females in the ‘Rest of Spain’ group and 71% in the ‘Catalan Group’.

Regarding the sense of belonging, Table 2 shows the distribution of the subjects per group. A one-way ANOVA was performed, finding significant inter-group differences, $F(1, 31)= 36.857$, $p= .000$, $M= 1.71$, $SD= .588$ in the ‘Catalan Group’ and $M= 3.25$, $SD= .856$ in the ‘Rest of Spain’ group. Specifically, the Catalan group showed a lower level of inclusion (e.g., only of my region or more of my region than Spanish) relative to the Spanish group, which showed a higher level of inclusion (e.g., As much as my region as Spanish).

Table 2. Subjects distribution in base of their responses to the feeling of belonging and Standard Deviation.

	Catalan Group	Rest of Spain Group
Only of my region	6	2
More of my region than Spanish	10	2
As much of my region as Spanish	1	10
More Spanish than my region	0	0
Only Spanish	0	2
<i>SD</i>	.588	.856

The participant’s response latency is the principal datum of interest of the IRAP. It is measured in milliseconds (ms) from the time the stimulus appears on the screen until a response is emitted. This datum is transformed into D_{IRAP} scores (Barnes-Holmes *et alii*, 2010) in order to minimize the contamination of individual differences between participants, such as age, motor ability, etc. (Greenwald, Nosek, & Banaji, 2003).

For the Rest of Spain group, the trial-type latencies and the D_{IRAP} global by each participant are presented in Figures 2A and 2B. Positive D_{IRAP} score indicated a Pro-Catalan bias, and negative D_{IRAP} score indicated a Pro-Spanish bias. Focusing on their own group’s trial types (Figure 2A, Spanish-Positive and Spanish-Negative), 11 out of 16 participants (68%) were faster responding Yes than No to ‘Spanish Positive’ trials, whereas 1 out of 16 participants (6%) were faster responding Yes than No to ‘Spanish Negative’ trials. Focusing on the out-group’s trial types (Figure 2A, Catalan-Positive and Catalan-Negative), the same response pattern is observed: 11 out of 16 participants (68%) were faster responding Yes than No to ‘Catalan Positive’ trials, whereas 4 out of 16 participants (25%) were faster responding Yes than No to ‘Catalan Negative’ trials. That is, there were more participants responding faster Yes than No to Spanish and Catalan as positive, relative to Spanish and Catalan as negative. Individual D_{IRAP} global scores (see Figure 2B), showed the same tendency, 10 out of 16 participants (63%) showed a favourable bias toward Spanish people, whereas 6 participants (37%) showed this bias towards Catalan people.

For the Catalan group, the trial-type latencies and the D_{IRAP} global by each participant are presented in Figures 3A and 3B. Focusing on their own group’s trial types (Figure 3A, Catalan-Positive and Catalan-Negative), 15 out of 17 participants (88%) were faster responding Yes than No to ‘Catalan-Positive’ trial type, whereas 0 out of 17 participants were faster responding Yes than No to ‘Catalan-Negative’ trial type. Focusing on the out-group’s trial types (Figure 3A, Spanish-Positive and Spanish-Negative), 10 out of 17 participants (59%) were faster responding Yes than No to ‘Spanish-Positive’ trial type, whereas 7 out of 17 participants (41%) were faster responding Yes than No to ‘Spanish-Negative’. That is, there were more participants

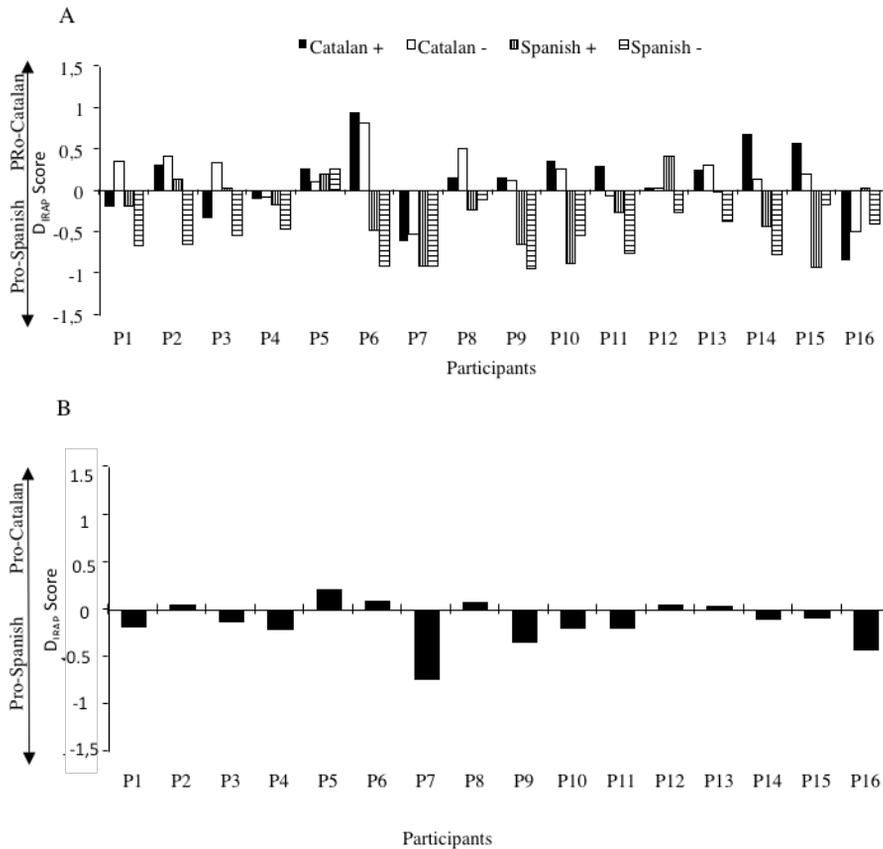


Figure 2. Individual participant data of Rest of Spain Group: (A) D_{IRAP} score by participant in each trial-type and (B) global D_{IRAP} scores.

responding faster Yes than No to Catalan-positive than to Spanish-Positive. Similarly, there more participants responding faster Yes than No to Spanish-Negative relative to Catalan-Negative. Individual D_{IRAP} scores showed the same tendency (Figure 3B), 14 participants (82%) had a favourable bias towards Catalan people, whereas 3 participants (18%) had a favourable bias towards Spanish people.

Group data from Catalonia and Rest of Spain Groups (D_{IRAP} score) are presented in Figure 4. Four one-sample t -tests were conducted for each trial type, showing that only the D_{IRAP} scores in the trials types that refer to the own group were significantly different from zero (see Figure 4).

Regarding Rest of Spain group, differences were significantly different from zero in Spanish Positive, $M = -0.27$, $SD = 0.41$, $t = -2.669$, $p < .02$, and Spanish Negative, $M = -0.51$, $SD = 0.33$, $t = -6.230$, $p < .000$ trials. Consequently, although there were the same number of participants who responded faster Yes than No to Spanish and Catalan as positive, relative to Spanish and Catalan as negative (see Figure 2A), only responses to the in-group were significantly faster (see Figure 4). Attending to the mean D_{IRAP} Score (averaging all the four trial types), participants responded significantly faster to

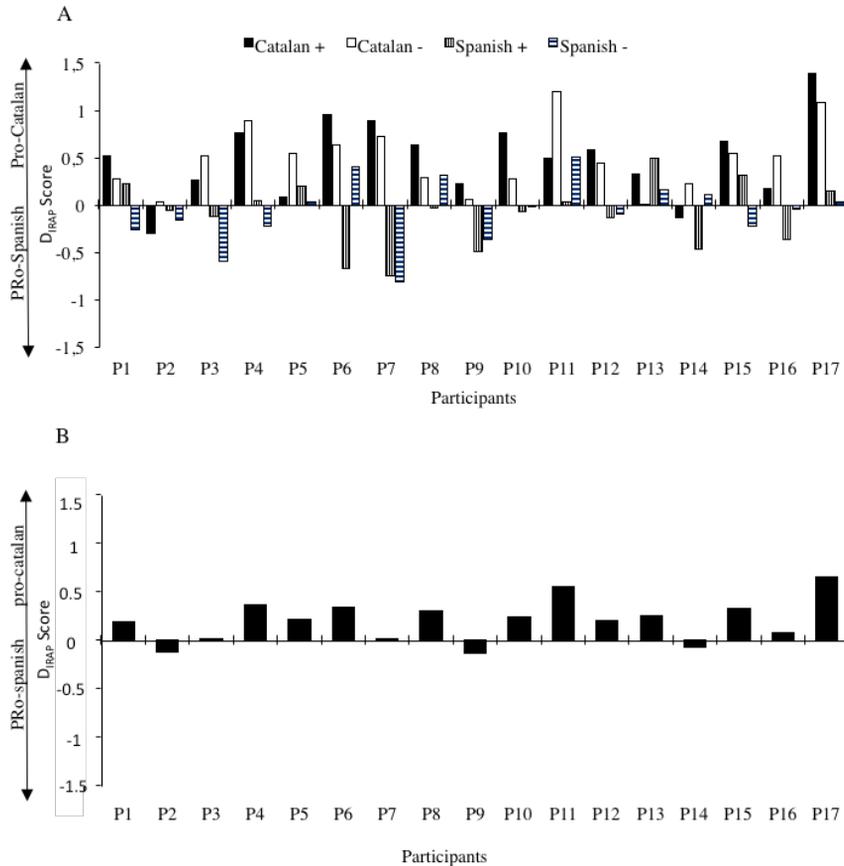


Figure 3. Individual participant data of Catalan Group: (A) D_{IRAP} score by participant in each trial-type and (B) global D_{IRAP} score.

the Pro-Spanish trials (Spanish-positive and Spanish-NO negative) compared to the Pro-Catalan trials (Catalan-positive and Catalan-NO negative) and this was statistically different from zero ($M = -0.13$, $SD = 0.23$; $t = -2.233$, $p < 0.5$.)

Regarding Catalan group, differences were significantly different from zero in Catalan Positive: $M = 0.49$, $SD = 0.42$; $t = 4.807$, $p < .000$ and Catalan Negative: $M = 0.48$, $SD = 0.34$, $t = 5.791$, $p < .000$ trials. Consequently, although there were a similar number of participants who responded faster Yes than No to Spanish and Catalan as positive, relative to Spanish and Catalan as negative (see Figure 3A), only responses to the in-group were significantly faster. Attending to the mean D_{IRAP} score (averaging all the four trial types), participants responded significantly faster to the Pro-Catalan trials (Catalan-positive and Catalan-NO negative) compared to the Pro-Spanish trials (Spanish-positive and Spanish-NO negative) and this was significantly different from zero $M = 0.20$, $SD = 0.22$; $t = 3.763$, $p < .01$.

Regarding the differences between Catalan and Rest of Spain groups among trials types and D_{IRAP} global, A one-way ANOVA was performed (see Figure 4). There were significant between groups differences between all trial types except for 'Spanish

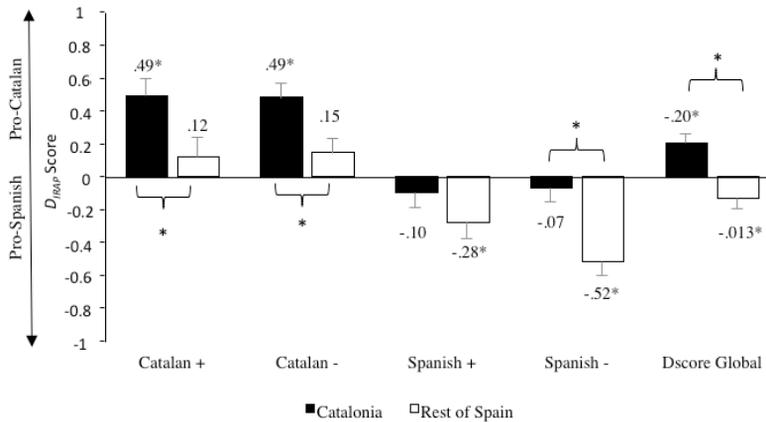


Figure 4. Group average D_{IRAP} scores per trial-type and D_{IRAP} Global. Asterisks indicate significant differences at $p < .05$ level. Error bars convey Standard Error.

Positive': 'Catalan Positive', $F(1, 31) = 5.788, p < .05$; 'Catalan Negative', $F(1, 31) = 7.972, p < .01$; 'Spanish Negative', $F(1, 31) = 14.674, p = .001$. In other words, the Catalan group responded significantly faster than the Rest of Spain group in the Pro-Catalan trials, while the Rest of Spain group responded significantly faster than Catalan group only in the Spanish-negative trial type and not in Spanish-positive trials. Focusing on the D_{IRAP} global, Catalan group responded faster to the Pro-Catalan trials and rest of Spain group responded faster to the Pro-Spanish trials (Spanish-positive and differences between groups were significant $F(1, 31) = 17.612, p = .000$). Consequently, both groups showed a significant bias towards their own group.

The relation between the Explicit Questionnaire (EQ) and D_{IRAP} score is presented in the Figure 5. The Rest of Spain group (see Figure 5) showed a tendency to score higher in the EQ in the trials about Catalan people (Strongly agree to Catalan-Positive and Catalan-No Negative) than in the trials concerning Spanish people (Strongly agree to Spanish-Positive and Spanish-No Negative). However, during the IRAP, they showed the opposite tendency: responded faster to pro-Spanish trials than pro-Catalan trials. These results are clearer comparing the EQ and D_{IRAP} global scores, where the opposite tendency was observed. There was only a significant relation between explicit and implicit measures in 'Spanish Positive' trial type in the Rest of Spain Group, $r(14) = .657, p < .01$.

The Catalan group (see Figure 5) showed a tendency to score higher in the EQ in the trials about Catalan people (Strongly agree to Catalan-Positive and Catalan-No Negative) than in the trials concerning Spanish people (Strongly agree to Spanish-Positive and Spanish-No Negative). This pattern was similar to the D_{IRAP} score. These results were observed also when comparing the EQ and IRAP global scores, where the same tendency was observed. Although, in the Catalan group the tendency between explicit and implicit measures was similar, there was no significant correlation between them.

One-way ANOVA was carried out to explore the possible differences between Catalan and Rest of Spain groups in the EQ. Results showed that there was only a significant difference between groups in the 'Catalan Negative' trial-type, $F(1,31) = 27.87, p = .00$, and marginally significant difference in the 'Catalan Positive' trial-type, $F(1,31) = 3.35, p = .07$. That is, participants from Catalan group exhibited a higher Pro-Catalan bias than Rest of Spain group in the explicit measures.

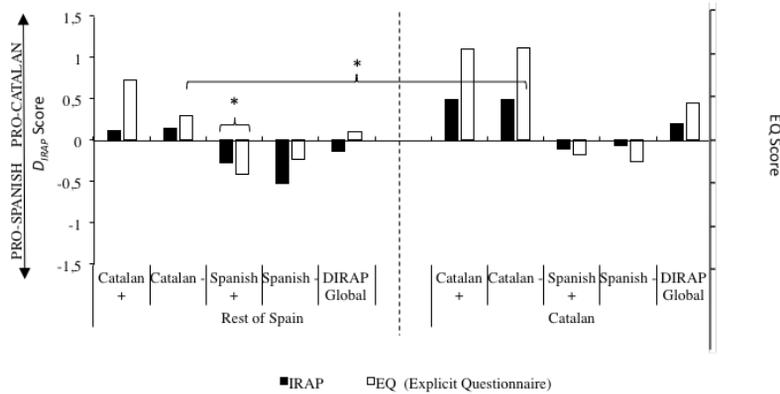


Figure 5. Comparisons between IRAP and Explicit questionnaire (EQ) means in both groups. Asterisks indicate significant differences at $p < .05$ level. Error bars convey Standard Error.

DISCUSSION

The purpose of this study was to examine the validity of the IRAP as an implicit measure of the attitude of Catalans toward the Spanish identity and the attitude of Spaniards toward the Catalan identity. The result shows that both groups exhibited a more favourable bias toward the in-group than toward the out-group. However, more participants in the Catalan group (lower level of inclusivity) showed a higher level of in-group favouritism than in the Spanish group. These results are in line with those of Rodríguez *et alii* (2005) in which people with a lower level of inclusive identity had a higher level of ethnocentric attitudes. Finally, it could be observed that participants presented substantial disparities between their explicit and implicit attitudes.

From an Relational Frame perspective, this observed in-group or out-group favouritism depends on patterns of relational responses with respect to oneself and to other group members (e.g., Roche, Barnes-Holmes, Barnes-Holmes, Stewart, & O'Hara, 2002). Specifically, for participants in the Catalanian group, the brief relational response was in coordination (a verbal relation of equivalence or similarity) with Catalans and positive attributes and in opposition to negative ones. In other words, for the Catalanian group, the Catalan identity was clearly equivalent to positive attributes and contrary to negative attributes. Similarly, but to a lesser degree, occurred in the Rest of Spain group. Specifically, participants of the Rest of Spain group Spanish identity faster in opposition to negative than in equivalence with positive. That is, for the rest of Spain group, the Spanish identity was clearly not negative, but not clearly positive.

Regarding the correlation between the explicit and implicit questionnaire, it could be observed that there is only a significant correlation in the 'Spanish Positive' trial-type in the Rest of Spain group. This absence of a correlation could be indicating a clear discrepancy between the participant's explicit and implicit attitudes. This result highlights the importance of using implicit measures to capture brief relational responses and the problems of those measures that involve more elaborated and extended responding, as occurs with explicit measures.

The following caveats should be taken into account. First, there was a small sample that limits the generalization of the results. Second, this study followed a non-

probabilistic sampling method which could have influenced the distribution of the sample. For example, the Catalan group showed a more homogenous sense of belongingness than the Spanish group. Future studies should solve those limitations to extrapolate the result to a general population.

All in all, this is the first study that used the IRAP for the assessment of intergroup bias in Catalonian and the Rest of Spain population. The IRAP has been shown to be a valid measure of intergroup bias, whereas the explicit measured used has not. These findings could contribute to the advance of the study of the relation between social identity and intergroup biases from a contextual perspective.

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