Psicothema

An exploratory sequential design to validate measures of moral emotions

Margarita G. Márquez and Ana R. Delgado
Universidad de Salamanca

Abstract

Background: This paper presents an exploratory and sequential mixed methods approach in validating measures of knowledge of the moral emotions of contempt, anger and disgust. **Method:** The sample comprised 60 participants in the qualitative phase when a measurement instrument was designed. Item stems, response options and correction keys were planned following the results obtained in a descriptive phenomenological analysis of the interviews. In the quantitative phase, the scale was used with a sample of 102 Spanish participants, and the results were analysed with the Rasch model. **Results:** In the qualitative phase, salient themes included reasons, objects and action tendencies. In the quantitative phase, good psychometric properties were obtained. The model fit was adequate. However, some changes had to be made to the scale in order to improve the proportion of variance explained. **Conclusions:** Substantive and methodological im-plications of this mixed-methods study are discussed. Had the study used a single re-search method in isolation, aspects of the global understanding of contempt, anger and disgust would have been lost.

Keywords: action tendencies, descriptive phenomenology, emotion regulation, moral emotions, Rasch model.

Resumen

Un diseño secuencial exploratorio para validar medidas de emociones morales. **Antecedentes:** esta investigación presenta una investigación mixta exploratoria y secuencial para validar medidas de conocimiento de las emociones morales de desprecio, rabia y asco. **Método:** la muestra se compuso de 60 participantes en la fase cualitativa, en la que se diseñó un instrumento de medida. Los ítems, las opciones de respuesta y las claves de corrección se diseñaron considerando los resultados obtenidos en el análisis fenomenológico descriptivo de las entrevistas. En la fase cuantitativa, la escala se aplicó a una muestra de 102 participantes españoles y los resultados se analizaron con el modelo de Rasch. **Resultados:** en la fase cualitativa, los temas más notables incluyeron las razones, los objetos y las tendencias de acción asociadas a las emociones. En la fase cuantitativa se obtuvieron propiedades psicométricas satisfactorias. El ajuste al modelo fue adecuado. No obstante, se tuvieron que realizar cambios en la escala con la finalidad de mejorar la proporción de varianza explicada. **Conclusiones:** se discuten las implicaciones sustantivas y metodológicas de esta investigación. Si en este estudio se hubiera empleado un único método de investigación se habría perdido información referida al entendimiento global de las emociones de desprecio, rabia y asco.

Palabras clave: tendencias de acción, fenomenología descriptiva, regulación emocional, emociones morales, modelo de Rasch.

The role of emotions in human morality is currently an important research topic, although it was not until the 1980s that it garnered increased attention (Rozin, Lowery, Imada, & Haidt, 1999). According to Rozin et al. (1999) contempt, anger and disgust (CAD) can appear because of moral transgressions by other people. Within any culture, contempt is the result of actions that are violations of the ethics of the community; anger is triggered after violations of the ethics of autonomy, and disgust will be elicited after violations of the ethics of divinity/purity.

Even though the amount of literature on CAD has increased (Hutcherson & Gross, 2011; Royzman, Atanasov, Landy, Parks, & Gepty, 2014), there are no instruments devoted exclusively to evaluating how people process these emotions. Moreover, it seems that information is even scarcer regarding how people make distinctions

between their related action tendencies. Mixed methods are very useful to clarify these points. Using qualitative methods before quantitative can help us understand personal meanings (Delgado, 2010). In this way, items become easier to understand for the participants. In addition, qualitative studies provide quantitative methodology with an enriched understanding of item context, which is usually an important limitation of quantitative approaches (Moghaddam, Walker, & Harre, 2003). Descriptive phenomenology was chosen as the qualitative method here because we wanted to analyse the subjective experience related to personal meanings for the three emotions. The Rasch model (RM) was chosen as the quantitative method because it uses invariant measurement (Engelhard, 2013).

The main objective of this study was to develop and test a measurement instrument of people's knowledge about the action tendencies of contempt, anger and disgust by means of an exploratory and sequential design.

Method

Participants

In the qualitative phase, 60 (44 women and 16 men) students of psychology at the University of Salamanca were enrolled for

the study. All the participants (M_{age} = 19.43 years, SD = 1.47, age range: 18-25 years) were Spanish.

In the quantitative phase, a sample of 102 Spanish third-year students of psychology (83 female, 19 male, M_{age} = 20.65 years, SD = 1.51, age range: 19-28 years) from the University of Salamanca participated in the study. None of the students from the qualitative phase were included in the quantitative phase.

Instruments

A test was designed at the end of the qualitative phase to measure, in the quantitative phase, the level of knowledge of the action tendencies for different scenarios in which key elements of CAD emotions were manipulated. The test was computerised on a previously programmed LiveCode application (Delgado, 2016a). In the beginning, participants had to enter their gender and age in the system. Afterwards, the instructions appeared. Participants were told that different situations experienced by two fictional characters were going to appear. Their task was to choose the most typical reaction. They were reminded that there were no correct or incorrect responses. All 54 items were designed taking into consideration two facets of the emotional experience that had been the most frequently endorsed in the qualitative phase. The first one was the reason why the emotion could appear (prejudice, lack of reciprocity and lack of altruism); the second one was the type of receiver, which could change depending on personal proximity to the subject (receivers could be close, social or abstract). For each item, only one of the eight response options was correct. There were 24 items evoking contempt (they contained abstract receivers, and indifference was the correct response), 18 items evoking disgust (they contained social receivers, and rejection was the correct response) and 12 items evoking anger (they contained close receivers, and confrontation was the correct response). In each item, a scenario was described in which a fictional character (male half of the time and female the other half of the time) witnessed an immoral act (see Table 1). For instance, item 37 was *Carmen finds out that her sister has scammed her. How does Carmen react*? There were 8 response options for all 54 items: *rejecting her sister, expressing her feelings, thinking a lot about the situation, reappraising the situation, fighting, keeping it to herself, showing indifference, seeking to solve the situation*. Because item 37 was designed to evoke anger, the predicted response was *fighting*.

Even though the items had been designed on the basis of the previous qualitative work in order to reflect typical contexts of contempt, anger and disgust, none of these emotional labels were mentioned in any item. The procedure of *imaginative variation* within the phenomenological framework used in the first stage provided information about what was essential to create items that differentiated contempt, anger and disgust and what was accessory and could be varied without altering the meaning. Thus, six different contexts were built as equivalent thematic variations for each of the nine combinations of receiver and reason, producing the 54 items. The contexts were linked to aggression, littering, gossiping, bodily fluids, inappropriate sexual conduct and scamming. Table 1 shows the specific characteristics of the items (note that the original task was written in Spanish, so the translation is an approximation).

Procedure

At the beginning of the qualitative phase, each participant received an individual explanation of the study and was informed of the fact that answers were going to be video-recorded. The interview consisted of asking them about what they did, felt and thought every time they experienced contempt for something or someone. The same question was repeated for disgust and anger. At the end of every individual interview, participants were asked to give their informed consent to use their data for research and teaching. The first author was the interviewer in all the cases.

In the second part of the study, participants volunteered to complete the emotional instrument. Before responding to the items, participants gave informed consent. Identification, gender, age, response option and right/wrong answers were automatically stored.

Data analysis

The data obtained in the qualitative phase were analysed by means of descriptive phenomenology (Delgado, 2013; Giorgi & Giorgi, 2003).

The quantitative data were analysed with Winsteps 3.80.1. (Linacre, 2013). Item and person measures and item and person fit were calculated. Wright maps were developed to represent the latent variable. Reliability was evaluated individually (*standard errors*) and globally (*Person Separation Reliability, PSR,* and *Item Separation Reliability, ISR*). Unidimensionality was tested by means of PCA of the residuals.

Results

A list of the most salient themes found in the phenomenological analysis is provided in Table 2, together with excerpts from interviews illustrating the different themes.

There was a common pattern of responses for contempt, anger and disgust in which different themes were interrelated. Figure 1 shows the processes used in the emotional episode. The different colours in the diagram show the types of receivers and the responses associated with each of the emotions. Black boxes are associated with contempt (they refer to abstract receivers and to a typical response of indifference), dark grey boxes are linked to disgust (concrete receivers but distant to the person who experiences the emotion and also a response of rejection), and finally, light grey boxes are associated with anger (close receivers and a confrontation action tendency). These elements were considered in the design of the item stems and the response options for the emotion scale.

The RM showed a good fit of the quantitative data. The mean item *Outfit* was .96 (SD= .16), and the mean item *Infit* was 1.00 (SD= .04). There were no items with *Outfit* above 1.5 or below .5 in the original instrument. However, for unidimensionality, only 20.4% of the variance was explained by the Rasch measures. A principal components analysis was performed to analyse the structure of the residuals. An exhaustive scrutiny of the content of the positive and negative loadings on the first contrast was carried out. The results of this analysis showed that there were differences in the content of the items with the largest and smallest loadings on the first contrast. There were ten items with positive and large loadings on that contrast, and all of them included social receivers. This finding might indicate that items with social receivers (the ones made to evoke disgust) belong to an independent dimension. These items were removed from the scale to check whether their removal produced an improvement in unidimensionality.

<table>
<tr><th colspan="6">Table 1
Conditions of the items</th></tr>
<tr><th>Item</th><th>Receiver</th><th>Reason</th><th>Context</th><th>Correct response</th><th>Item stems</th></tr>
<tr><td>1</td><td>Abstract</td><td>Prejudice</td><td>Littering</td><td>Indifference</td><td>Carlos thinks people in a neighbourhood throw a lot of rubbish in the street.</td></tr>
<tr><td>2</td><td>Close</td><td>Altruism</td><td>Scams</td><td>Confrontation</td><td>Carmen believes her sister has scammed disabled people.</td></tr>
<tr><td>3</td><td>Social</td><td>Altruism</td><td>Rumours</td><td>Rejection</td><td>One of Carmen's acquaintances is always criticizing immigrants.</td></tr>
<tr><td>4</td><td>Close</td><td>Altruism</td><td>Bodily fluids</td><td>Confrontation</td><td>Carlos sees his best friend spitting at a nursery school gate.</td></tr>
<tr><td>5</td><td>Abstract</td><td>Reciprocity</td><td>Rumours</td><td>Indifference</td><td>Carmen believes some journalists that appear on TV are always criticizing women.</td></tr>
<tr><td>6</td><td>Social</td><td>Reciprocity</td><td>Scams</td><td>Rejection</td><td>One of Carmen's acquaintances has scammed her.</td></tr>
<tr><td>7</td><td>Abstract</td><td>Altruism</td><td>Aggression</td><td>Indifference</td><td>Carlos believes some women behave very badly with children.</td></tr>
<tr><td>8</td><td>Social</td><td>Prejudice</td><td>Bodily fluids</td><td>Rejection</td><td>Carlos sees a classmate spitting on the floor.</td></tr>
<tr><td>9</td><td>Social</td><td>Reciprocity</td><td>Sex</td><td>Rejection</td><td>Carmen finds out people she usually dates often have sexual intercourse without taking precautions.</td></tr>
<tr><td>10</td><td>Abstract</td><td>Reciprocity</td><td>Scams</td><td>Indifference</td><td>Carmen believes some politicians have scammed her.</td></tr>
<tr><td>11</td><td>Abstract</td><td>Prejudice</td><td>Bodily fluids</td><td>Indifference</td><td>Carlos observes that some people in a neighbourhood are always spitting on the floor.</td></tr>
<tr><td>12</td><td>Social</td><td>Reciprocity</td><td>Aggression</td><td>Rejection</td><td>One of Carlos' acquaintances is always kicking him.</td></tr>
<tr><td>13</td><td>Abstract</td><td>Altruism</td><td>Scams</td><td>Indifference</td><td>Carmen believes some journalists that appear on TV are always criticizing immigrants.</td></tr>
<tr><td>14</td><td>Close</td><td>Reciprocity</td><td>Bodily fluids</td><td>Confrontation</td><td>Carlos enters into his bedroom and sees his best friend spitting on the floor.</td></tr>
<tr><td>15</td><td>Social</td><td>Reciprocity</td><td>Bodily fluids</td><td>Rejection</td><td>Carlos enters his classroom and finds out one of his classmates spitting on his desk.</td></tr>
<tr><td>16</td><td>Abstract</td><td>Reciprocity</td><td>Littering</td><td>Indifference</td><td>People in a neighbourhood leave a lot of rubbish at Carlos' house gate.</td></tr>
<tr><td>17</td><td>Social</td><td>Prejudice</td><td>Sex</td><td>Rejection</td><td>One of Carmen's acquaintances has sex with many partners without taking precautions.</td></tr>
<tr><td>18</td><td>Abstract</td><td>Altruism</td><td>Sex</td><td>Indifference</td><td>Carmen believes people of her age have sex with many people even when they have a partner.</td></tr>
<tr><td>19</td><td>Close</td><td>Prejudice</td><td>Aggression</td><td>Indifference</td><td>Carlos has a brother who is always kicking.</td></tr>
<tr><td>20</td><td>Abstract</td><td>Reciprocity</td><td>Aggression</td><td>Indifference</td><td>Carlos believes some women are always insulting men.</td></tr>
<tr><td>21</td><td>Close</td><td>Altruism</td><td>Rumours</td><td>Confrontation</td><td>Carmen's best female friend is always criticizing immigrants.</td></tr>
<tr><td>22</td><td>Social</td><td>Prejudice</td><td>Scams</td><td>Rejection</td><td>One of Carmen's acquaintances has taken part in some scams.</td></tr>
<tr><td>23</td><td>Close</td><td>Reciprocity</td><td>Sex</td><td>Confrontation</td><td>Carmen finds out her partner has sex with many other people without using condoms.</td></tr>
<tr><td>24</td><td>Close</td><td>Prejudice</td><td>Bodily fluids</td><td>Indifference</td><td>Carlos' best friend is always spitting in the street.</td></tr>
<tr><td>25</td><td>Abstract</td><td>Altruism</td><td>Littering</td><td>Indifference</td><td>Carlos observes people in a neighbourhood leaving a lot of garbage at the expense of the garbage collector's work.</td></tr>
<tr><td>26</td><td>Close</td><td>Altruism</td><td>Sex</td><td>Confrontation</td><td>Carmen finds out her best female friend often has sexual intercourse without taking precautions even when she has a partner.</td></tr>
<tr><td>27</td><td>Abstract</td><td>Altruism</td><td>Bodily fluids</td><td>Indifference</td><td>Carlos watches a documentary where some youngster spit on a nursery school gate.</td></tr>
<tr><td>28</td><td>Close</td><td>Reciprocity</td><td>Aggression</td><td>Confrontation</td><td>Carlos has a brother who is always beating him.</td></tr>
<tr><td>29</td><td>Close</td><td>Prejudice</td><td>Rumours</td><td>Indifference</td><td>Carmen's best friend is always gossiping.</td></tr>
<tr><td>30</td><td>Close</td><td>Prejudice</td><td>Scams</td><td>Indifference</td><td>Carmen has a sister who has scammed people.</td></tr>
<tr><td>31</td><td>Close</td><td>Altruism</td><td>Aggression</td><td>Confrontation</td><td>Carlos has a brother who is always insulting kids.</td></tr>
<tr><td>32</td><td>Abstract</td><td>Prejudice</td><td>Scams</td><td>Indifference</td><td>Carmen believes some politicians have participated in frauds.</td></tr>
<tr><td>33</td><td>Abstract</td><td>Altruism</td><td>Scams</td><td>Indifference</td><td>Carmen believes some politicians have cheated disabled people.</td></tr>
<tr><td>34</td><td>Close</td><td>Altruism</td><td>Littering</td><td>Confrontation</td><td>Carlos has a brother who is always littering the house, making the cleaning lady's work more difficult.</td></tr>
<tr><td>35</td><td>Abstract</td><td>Prejudice</td><td>Aggression</td><td>Indifference</td><td>Carlos believes many people are always looking for a fight.</td></tr>
<tr><td>36</td><td>Social</td><td>Prejudice</td><td>Scams</td><td>Rejection</td><td>One of Carmen's acquaintances is always spreading rumours.</td></tr>
<tr><td>37</td><td>Close</td><td>Reciprocity</td><td>Scams</td><td>Confrontation</td><td>Carmen finds out that her sister has scammed her.</td></tr>
<tr><td>38</td><td>Social</td><td>Altruism</td><td>Sex</td><td>Rejection</td><td>Carmen finds out that one of her acquaintances has sex with many people even when she has a partner.</td></tr>
<tr><td>39</td><td>Social</td><td>Prejudice</td><td>Littering</td><td>Rejection</td><td>Carlos has a classmate who always leaves everything very dirty.</td></tr>
<tr><td>40</td><td>Close</td><td>Reciprocity</td><td>Littering</td><td>Confrontation</td><td>Carlos' brother always leaves his dirty clothes in Carlos' room.</td></tr>
<tr><td>41</td><td>Social</td><td>Altruism</td><td>Aggression</td><td>Rejection</td><td>One of Carlos acquaintances is always making fun of children.</td></tr>
<tr><td>42</td><td>Close</td><td>Prejudice</td><td>Littering</td><td>Indifference</td><td>Carlos has a brother who always leaves a lot of garbage everywhere.</td></tr>
<tr><td>43</td><td>Social</td><td>Altruism</td><td>Bodily fluids</td><td>Rejection</td><td>Carlos watches an acquaintance spitting on a nursery school door.</td></tr>
<tr><td>44</td><td>Abstract</td><td>Reciprocity</td><td>Bodily fluids</td><td>Indifference</td><td>Carlos watches some youngsters spitting at his vestibule gate.</td></tr>
<tr><td>45</td><td>Social</td><td>Altruism</td><td>Scams</td><td>Rejection</td><td>Carmen believes one of her acquaintances has scammed disabled people.</td></tr>
<tr><td>46</td><td>Social</td><td>Reciprocity</td><td>Rumours</td><td>Rejection</td><td>One of Carmen's acquaintances is always criticizing her.</td></tr>
<tr><td>47</td><td>Close</td><td>Reciprocity</td><td>Rumours</td><td>Confrontation</td><td>Carmen's best friend is always criticizing Carmen for everything she does.</td></tr>
<tr><td>48</td><td>Close</td><td>Prejudice</td><td>Sex</td><td>Indifference</td><td>Carmen's best friend has sex with many people without taking precautions.</td></tr>
<tr><td>49</td><td>Abstract</td><td>Prejudice</td><td>Sex</td><td>Indifference</td><td>Carmen believes many people often have sexual intercourse without taking precautions.</td></tr>
<tr><td>50</td><td>Abstract</td><td>Prejudice</td><td>Rumours</td><td>Indifference</td><td>Carmen believes that many journalists appearing on TV are always criticizing something.</td></tr>
<tr><td>51</td><td>Social</td><td>Altruism</td><td>Littering</td><td>Rejection</td><td>Carlos has a classmate who always leaves many empty packages in the classroom without caring about the cleaning lady.</td></tr>
<tr><td>52</td><td>Social</td><td>Prejudice</td><td>Aggression</td><td>Rejection</td><td>Carlos has a classmate who is always insulting other people.</td></tr>
<tr><td>53</td><td>Abstract</td><td>Reciprocity</td><td>Sex</td><td>Indifference</td><td>Carmen believes many guys have sex with a lot of people without taking precautions.</td></tr>
<tr><td>54</td><td>Social</td><td>Reciprocity</td><td>Littering</td><td>Rejection</td><td>One of Carlos' acquaintances leaves a lot of garbage on Carlos' desk.</td></tr>
</table>

Table 2
Themes found in the phenomenological analysis of contempt, anger and disgust

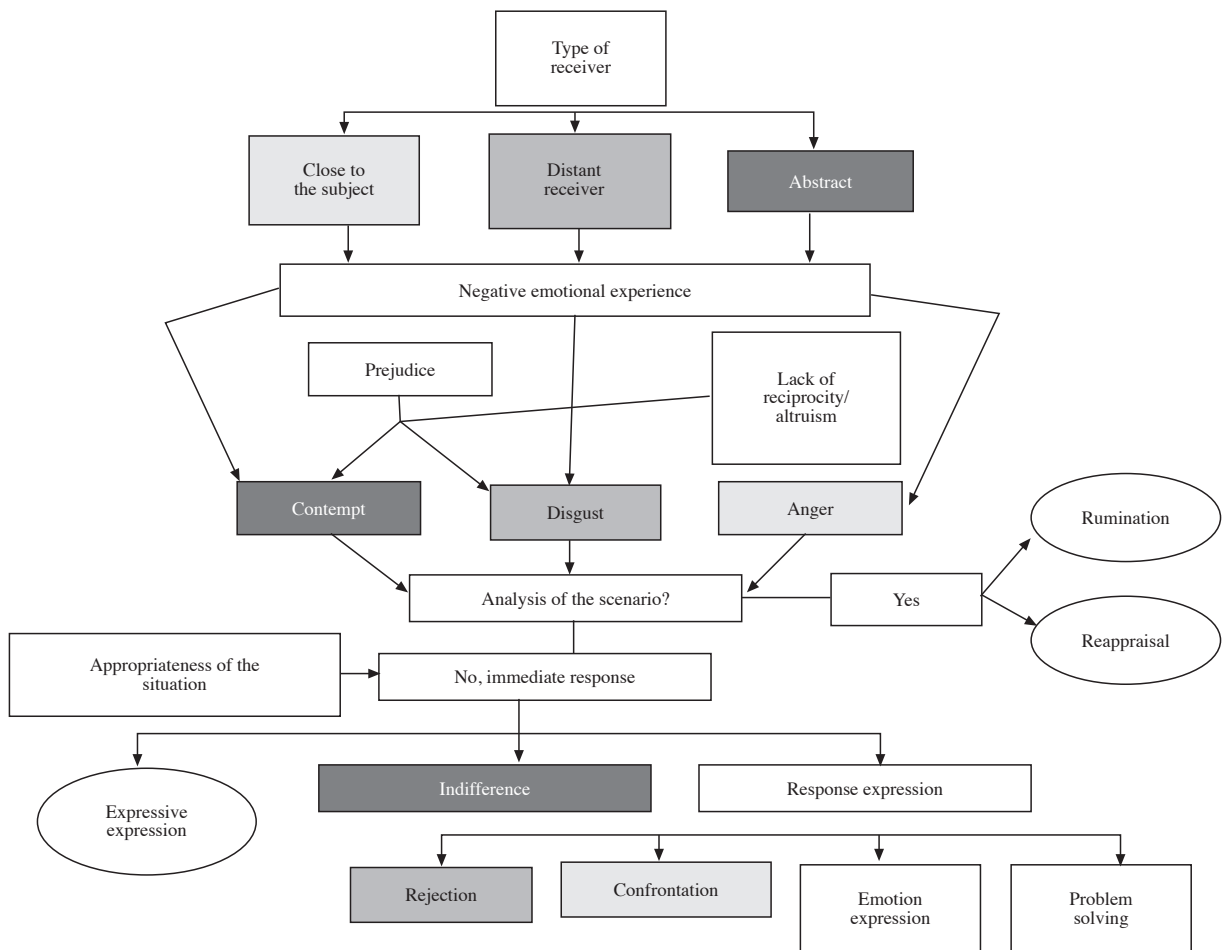|	**Contempt**	**Anger**	**Disgust**
Experienced emotions/feelings	*"I feel good, like…you feel you are superior, obviously"*.	*"I feel rage"*	*"I can feel some pity…yes, even disgust, but it´s not a problem in my life"*
Thoughts	*"I think all the bad things I can about that person"*	*"When I feel anger, I get blocked. I think that I won´t be able to solve it"*.	*"You think really bad things about it"*.
Actions	Passive reactions, (avoiding, indifference) rejection.	Overt and impulsive responses, aggressive reactions. Distancing.	Active rejection, expression of feelings.
	"Normally indifference…I try to move away from it".	*"I feel like…I want to hit things or hit the person who provoked the situation"*	*"You reject it; you keep the thing far from you. You do something to put it aside"*.
Elements of appraisal	Type of receiver: distinction between close and distant receivers. Prosocial actions for the close receivers.	Type of receiver: More intense feelings of anger for close receivers.	Type of receiver: Close receivers do not provoke this emotion.
	"It depends on the person. If they're close to you, you care about it. Otherwise you ignore it".	*"When you feel anger for someone close to you…it´s not the same. You care about it"*.	*"A person you know usually does not provoke disgust"*.
	Reasons: Lack of reciprocity, prejudice.	Reasons: Prejudice, lack of reciprocity.	Reasons: Prejudice, lack of reciprocity.
		"You feel anger for something they said… it´s difficult for you to trust again".	*"Usually, it´s because of something physical. You get away from it"*.

Figure 1. Diagram showing the principal themes extracted in the qualitative analysis of contempt, anger and disgust responses and their interrelations

By removing the items with social receivers, the percentage of variance explained by the Rasch measures increased from 20.4% to 29.1%. Nevertheless, the unexplained variance in the first contrast was above 5% (6.3%).

A new analysis of the psychometric properties of the remaining 36 items was performed (see Table 3). Mean item *Outfit* was .93 (*SD*= .23), and mean item *Infit* was 1.00 (*SD*= .08). Only one item (number 4) showed misfit above 1.50 (*Outfit* = 1.63).

Item difficulty ranged between -2.72 and 2.37 *logits*, covering a wide range of the latent variable. The *ISR* was .93 even though there were eleven items with measurement error above .40. The disparity between participant and item location was still noticeable (Table 3). The participants' levels were below the overall items' difficulty.

The results from one participant were removed due to a perfect (zero) score. The mean *Outfit* was .83 (*SD*= .23), and the mean *Infit* was 1.00 (*SD*= .24). Overall reliability improved substantially after removing all the items with social receivers; the *PSR* went from .60 to .66. The average participant level was -1.85 *logits* and ranged between -.34 and -4.44 *logits*.

To check whether item difficulty changed as a function of context variation and/or manipulations, ANOVAs were carried out. Descriptive statistics appear in Table 4.

The assumption of normality (*SW* = .963, *p* = .260) and homoscedasticity (by means of the Levene test) were tested (*F* = .494, *p* = .494) for the different contexts. As expected, the results of the one-way ANOVA showed that item difficulties were not significantly different depending on the context, *F*(5, 30) = .558, *p* = .731.

Afterwards, we tested whether there were statistically significant differences in item difficulty from the combinations of causes and receivers designed to produce different scenarios for contempt, anger and disgust. Descriptive statistics appear in Table 5.
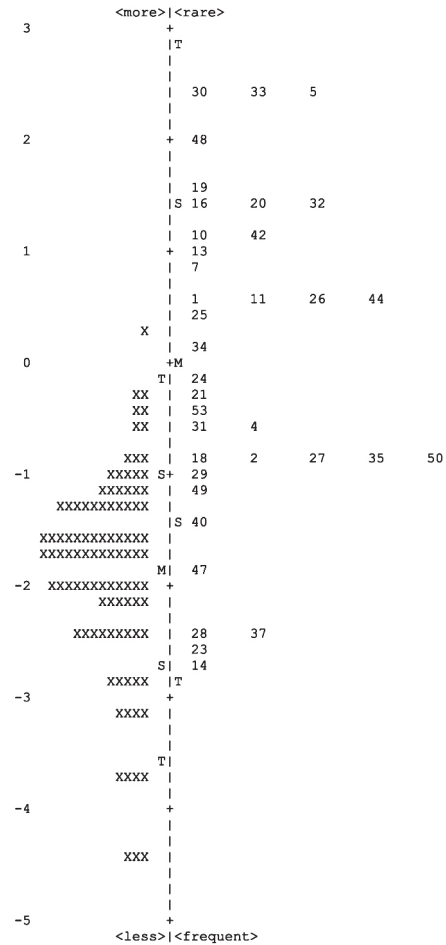
Table 3
Improved version: Item entry, Rasch item difficulty, standard deviation and emotion

Item	Difficulty	SD	Emotion
1	.51	.33	Contempt
2	-.89	.23	Anger
4	-.62	.24	Anger
5	2.37	.72	Contempt
7	.88	.38	Contempt
10	1.20	.43	Contempt
11	.62	.34	Contempt
13	1.03	.40	Contempt
14	-2.72	.23	Anger
16	1.40	.47	Contempt
18	-.89	.23	Contempt
19	1.64	.52	Anger
20	1.40	.47	Contempt
21	-.31	.26	Anger
23	-2.51	.22	Anger
24	-.18	.27	Anger
25	.40	.32	Contempt
26	.62	.34	Anger
27	-.84	.23	Contempt
28	-2.36	.22	Anger
29	-.95	.23	Anger
30	2.37	.72	Anger
31	-.56	.24	Anger
32	1.40	.47	Contempt
33	2.37	.72	Contempt
34	.13	.29	Anger
35	-.84	.23	Contempt
37	-2.46	.22	Anger
40	-1.48	.22	Anger
42	1.20	.43	Anger
44	.51	.33	Contempt
47	-1.85	.21	Anger
48	1.95	.59	Anger
49	-1.20	.22	Contempt
50	-.89	.23	Contempt
53	-.44	.25	Contempt
Mean	.00	.35	
SD	1.43	.15	

Figure 2. Distribution of the items and the subjects for the variables in the improved version. On the left side, the Wright Map shows the mean (M) and two standard deviation points (S = one SD and T = two SD) for measured participants. On the right side of the map, the mean difficulty of the items (M) and two standard deviation points (S = one SD and T = two SD) for the items are shown

Table 4
Descriptive statistics of difficulty and variability for the different contexts

Context	Difficulty	SD
Aggression	.03	1.55
Bodily fluids	-.54	1.07
Littering	.36	1.20
Rumours	-.10	1.15
Scams	.67	1.78
Sexual promiscuity	-.41	1.64

Table 5
Rasch item difficulty and standard deviations for the scenarios

Item specification	Difficulty	SD
Abstract receiver-Prejudice	-.07	1.05
Abstract receiver-Lack of reciprocity	1.07	.95
Abstract receiver-Lack of altruism	.49	1.24
Close receiver-Prejudice	1.01	1.30
Close receiver-Lack of reciprocity	-2.23	.47
Close receiver-Lack of altruism	-.27	.56

Normality ($SW = .963$, $p = .260$) and homoscedasticity were tested by means of the Levene test ($F = 1.971$, $p = .112$). A one-way ANOVA was calculated, and some statistically significant differences were found, $F(5, 30) = 9.333$, $p<.0005$. Post-hoc Tukey analysis showed that the only significant contrasts appeared after comparing a particular set of items with the rest; the six items containing close receivers and a lack of reciprocity were the easiest in the task. Effect sizes were calculated for all possible comparisons, and Cohen's *d* values were always large, above 0.8.

Discussion

This study contributes to the literature through its integration of results obtained both from qualitative and quantitative phases. From a qualitative point of view, the employment of *phenomenological imaginative variation* taken from descriptive phenomenology (Giorgi & Giorgi, 2003) helped to specify what is essential in distinguishing between contempt, anger and disgust and what is accessory. Receivers and reasons are the basic components of the emotional experience. *Indifference, rejection* and *confrontation* are the salient action tendencies for contempt, disgust and anger, respectively. The specific contexts where the CAD emotions might appear have been shown to be elements that we can modify without altering the essence of the emotional experience. These different themes that appeared in the qualitative phase of the study were employed to design item stems, response options and the correction key for the task designed in the quantitative phase. The RM allowed us to place items and participants on a conjoint map.

From a quantitative perspective, we were able to measure participants' emotion regulation knowledge and test the quality of the scale with an advanced model, the RM. The psychometric properties of the task were satisfactory, and participant and item fit to the

model were adequate. The percentage of variance explained by the Rasch measures was sufficient using the guidelines proposed by Reckase (1979), but it was not high. It is not uncommon to find a low proportion of variance explained when the attribute measured is complex.

Contempt items were the most difficult items. This finding was not unexpected given that contempt is the most complex emotion of the CAD triad. Contempt items are the most difficult items in emotion recognition tests (Delgado, 2012; Delgado, 2016b; Delgado & Márquez, 2012). They are also the least studied (Márquez & Delgado, 2012). Difficult items are important in order to develop useful measurement instruments based on the RM that can be applied whenever the potential practitioner's purpose is locating participants high on a latent attribute. In contrast, anger items are the easiest items. A particular subset of anger items, combining close receivers with lack of reciprocity, was significantly easier than the other subsets. The simplicity of these items might lie in the fact that they are the most prototypical examples of anger (Weiner, 2006). Confrontation is the predicted action tendency in those cases. Disgust items seemed to be working on an independent dimension. Removing them gave rise to an improved version of the task with a larger proportion of variance explained by the Rasch measures. Nevertheless, the social aspect involved in the CAD emotions (which seems to belong to another dimension) was lost with this removal.

No statistically significant differences in difficulty were found depending on the context or situation (aggression, sexual promiscuity…). As previously stated, all these variations, which are typical of contexts in which CAD emotions can be felt, were designed to be equivalent in difficulty. This similarity makes us think that these contexts can be fruitfully used in future measurement instruments of moral emotion regulation knowledge. Study of moral emotions is quite common in research, but few studies have focused on other-condemning emotions, and when they do (for instance, Fischer & Roseman, 2007), they do not study contempt, anger and disgust at the same time. Moreover, the action tendencies of these three emotions have not received enough attention in previous literature. In this piece of research, the antecedents and the consequences of CAD emotions were connected to make better distinctions among them.

As to methodological contributions, the use of phenomenological analysis has shown to be fruitful; the task was made understandable for the participants. As Moreno, Martínez and Muñiz (2006) recommended, items were designed taking into account the description of the domain and the particular context where the evaluation took place. Phenomenology is a flexible qualitative method and is very useful as a component of mixed methods research strategies. The use of the RM in the quantitative phase allowed invariant measurement of items and persons in the same latent variable (Engelhard, 2013; Rasch, 1960).

Mixed methods have allowed us to develop an emotional knowledge instrument and test it on a Spanish sample. This kind of task could be of use in various assessment contexts where emotional aptitudes are evaluated with simple emotion recognition tests or by means of unstandardized scales. In particular, it would be of great interest to test how people make distinctions between action tendencies and emotion regulation strategies in moral scenarios, a complex skill involved in the evaluation of ventromedial damage (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999).

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