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The Effect of Empathy in Environmental Moral Reasoning

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Based on Batson's Model of Altruism, in the present work it is argued that moral reasoning about the environment (number of moral reasons given for pro-environmental behaviors) can be improved by manipulating the emotion of empathy. It is also argued that the argument of moral reasoning will be different depending on whether the object of empathy is a natural object (vulture) or a human being (young man). The present work reports a study using a factorial design (2x2) with control group on the relationship between empathy level (high or low), empathy object (vulture or young man) and moral reasoning about ecological dilemmas. The reasoning was evaluated using four different ecological moral dilemmas, with responses coded in three categories (anthropocentric, ecocentric and nonvenvironmental). The results of the study indicate that participants who showed a high empathy level provided more arguments of moral reasoning than those in the low empathy group. When the object of empathy was a vulture the number of moral arguments of an ecocentric nature increased; when it was a young man the number of moral arguments of an anthropocentric nature increased.

Keywords: *empathy; perspective taking; environmental moral reasoning; anthropocentrism; ecocentrism*

In today's world, the very act of getting up and going through our morning routines has become a continuous and complex process of environment-related decision-making. To leave the tap on or off while we shave or brush our teeth, to take a quick shower or a long, relaxing bath, to use ordinary or low-energy bulbs, to

Author's Note: I dedicate this article to Rocio Martin, environmental psychologist, colleague, and friend. I would like to acknowledge the help of David Weston in correcting the English in this article. Address correspondence to Jaime Berenguer, Universidad Autónoma de Madrid, Facultad de Psicología, Ctra. de Colmenar km. 12,500, 28049-Madrid, Spain; e-mail: jaime.berenguer@uam.es.

go to work on public transport or in our own car—these are some of the everyday decisions millions of us, throughout the world, have to make. It is on the aggregate of these and other decisions directly related to environmental behavior that the achievement of a sustainable society depends. Thus, the idea of achieving a sustainable society, and indeed the need for such a society, would appear to involve individuals behaving in a responsible way in relation to the environment.

In relation to the notion of a responsible society, a variety of theoretical approaches and explanatory models have been applied within the tradition of environmental psychology, with varying degrees of success. Of all these, perhaps the most significant approach is the one that explains environmental behavior as the result of altruistic behavior. In this tradition, the most influential model is the norm-activation model of altruism (Schwartz, 1977), on which a great deal of work is based, especially the most important theoretical model for explaining environmental behavior, which is the value-belief-norm theory (Stern, Dietz, & Guagnano, 1995). Nevertheless, within the tradition of altruism, other work has emerged (Berenguer, 2007; Shelton & Rogers, 1981; Schultz, 2000) that has successfully tested other theories related to altruism and empathy, such as the model of altruistic and prosocial behavior (Batson, 1991). At the same time, other authors (Thøgersen, 2006) have shown the importance of different theoretical models based on altruism and the empathetic capacity of the human being for explaining the taxonomy of environmental norms. Specifically, Thøgersen (2006) used cognitive moral development theory (Kohlberg, 1984) and moral socialization theory (Hoffman, 2000) to explain the features of personal norms and their influence on environmental behavior. In sum, research has shown the growing importance of altruism and empathetic processes in the explanation of behavior, attitudes, and personal norms in relation to the environment. However, these models differ in some important respects, which should not be overlooked.

As already mentioned, within the altruism tradition (indeed, possibly throughout the field), the most influential theoretical model in the explanation of environmental attitudes and values is the norm-activation model of altruism (Schwartz, 1977). According to this model, helping behavior toward other human beings is the result of social and personal norms as well as of the observer's awareness of the consequences of his or her behavior (or nonbehavior) for the target and the degree of responsibility the observer ascribes to himself or herself. Schwartz proposed that rather than thinking about broad social norms, we should consider more personal norms (internalized rules of conduct that are socially learned vary among individuals within the same society and direct behavior in particular situations).

For Schwartz (1977), a personal norm is a self-expectation of a specific action in a particular situation that is experienced as a feeling of moral obligation. According to this definition, personal norms are complied with for internal reasons, consistent with internalized values and norms.

From the perspective of Schwartz's model, environmental behavior would begin with the perception of a valued-other in need, and the instigating situations would be (self-administered) expectations of reward for helping and punishment for not helping in that situation (feeling of guilt, self-depreciation, loss of self-esteem, in case of violations; pride, enhanced self-esteem, and other favorable self-evaluations in case of compliance; cf. Reykowski, 1982; Thøgersen, 2006). In this case, the internal response is related to complying (or not) with internal personal norms and personal motives. Thus, in Schwartz's model, the appearance of the helping behavior depends on assessment of the welfare of valued others, the previous existence of certain personal norms, and the degree to which the person takes responsibility for that welfare. In this form of explaining altruistic motivation, the term used has been egoistic motivation (Batson, 1991).

Researchers using Schwartz's norm-activation theory for studying environmental (helping) behavior have expanded the assumption in Schwarz's model that people have general altruistic value orientation, to include value orientations that are egoistic and biospheric (Schultz, 2000; Schultz & Zelezny, 1998; Snelgar, 2006; Stern, Dietz, & Kalof, 1993; Stern et al., 1995). These authors have distinguished empirically between egoistic, socioaltruistic, and biospheric value orientations and beliefs about the consequences of environmental deterioration for oneself, for human beings in general, and for nonhuman elements of the planet. Specifically, Stern and his colleagues proposed an extended norm-activation model known as the value-belief-norm theory, in which any individual may have all three of the value orientations to a greater or a lesser extent. According to this theory (value-belief-norm), behaviors are more likely to occur if individuals believe that environmental attributes that are important for them can be harmed and their behavior will prevent this happening. At least two aspects of this model are worth highlighting. On one hand, as occurs in Schwartz's model, a valued-other-in-need is necessary, that is, the resulting behavior is altruistic after the assessment of the valued other in need. On the other hand, a novel aspect of the value-belief-norm model with respect to previous approaches is that it proposes three different objects or general categories of value orientation, namely, those corresponding to the perceiver himself or herself (egoistic), to other human beings or groups of human beings (altruistic), and to the environment as an entity in itself (biospheric).

This distinction between different types of value orientation has also been proposed by several studies that have categorized environmental values in similar ways—for example, homocentric, ecocentric, and egocentric values (Merchant, 1992), or anthropocentric versus ecocentric values (Eckersley, 1992; Thompson & Barton, 1994). Some authors (Kortenkamp & Moore, 2001) argue that the distinction between anthropocentrism and ecocentrism is perhaps the most important one for understanding the moral consideration of nature because this is what determines the focus of the environmental ethic: humans or nature.

The distinction between anthropocentrism and ecocentrism made by Thompson and Barton (1994) rests on the claim that beliefs about environmental issues and the way in which people understand the relationship with the environment can be simplified by distinguishing between two kinds of motives or values that underlie support for environmental issues. First, anthropocentric motives, based on the idea that nature should be protected because of its value in maintaining or enhancing quality of life for human beings. On this view, the environment would have no intrinsic moral value. Second, ecocentric motives, based on the notion that nature should be protected because it deserves protection for its own sake. Thus, the moral consideration of nature from the ecocentric perspective would be related to its intrinsic value, independently of its usefulness to humans. In contrast to the approaches previously cited, according to this view, the egoistic and socioaltruistic dimensions would form a part of a single dimension focused on the individual (anthropocentric), whereas the biospheric dimension would refer to a focus on the value of nature itself (ecocentric).

From a theoretical point of view, the distinction between anthropocentrism and ecocentrism implies different behavioral results. Thus, Nordlund and Garvill (2003) pointed out that there are theoretical reasons to expect that an anthropocentric value orientation does not lead to a perceived moral obligation to act to protect the environment to the same extent as an ecocentric value orientation, because anthropocentric beliefs affect perceptions and actions regarding the environment and our relationship with it (Thompson & Barton, 1994). Those who hold anthropocentric beliefs will not always act in a proenvironmental manner (Thompson & Barton, 1994), insofar as they would and thus be less likely to want to protect the environment if other, human-centered values were involved (Nordlund & Garvill, 2003).

In an interesting study, Kortenkamp and Moore (2001) used four different environmental dilemmas to study the constructs of anthropocentrism and ecocentrism in relation to ethical reasoning about nature, carrying out

two experiments to assess the effect of two situational variables on moral reasoning about the environment. In the first experiment, with a 2 × 2 factorial design, the authors manipulated the information (awareness of the consequences in the Schwartz model) that participants received about an environmental problem (additional information on how environmental damage would affect the environment or humans). The results of this first experiment showed that moral reasoning about the environment was influenced by the kind of information received. Thus, providing information on the environmental impact of actions did induce participants to think more about the environment. However, when the authors provided information on how environmental damage would affect humans, no effects were found on moral considerations about the environment. In the second experiment, Kortenkamp and Moore manipulated the presence of social and land-use information in the environmental dilemmas. The results of the second experiment showed that the presence (or absence) of information related to land use and social conflict influenced the use of ecocentric reasoning. When one of them was present (and the other absent) in the moral dilemma, the participants used more ecocentric (and less ecocentric) moral reasoning. In the discussion of their research, these authors pointed out that the results showed a very strong influence of situational (information) variables on environmental ethical reasoning (Kortenkamp & Moore, 2001). According to the results of this study, environmental ethical reasoning is affected both by the information the person has (of a cognitive type in the first case) and on the aspect of an environmental problem on which the person's attention is focused, that is, on land use or social conflict. In their explanation of these results, Kortenkamp and Moore referred to the possibility that agricultural land may not be viewed as a part of nature because ecocentric reasoning requires a focus on the intrinsic value of nature, and if agricultural land is not considered as nature there can be no ecocentric reasoning. Thus, the presence of social conflict issues elicits less ecocentric and more nonenvironmental reasoning. Salient social issues seem to attract people's focus away from thinking about land issues.

Apart from the research already mentioned, other works based on the altruistic approach (Berenguer, 2007; Shelton & Rogers, 1981; Schultz, 2000) have also emerged as extremely useful in explaining environmental behaviors and attitudes using the model of altruistic and prosocial behavior (Batson, 1991) as a theoretical framework. In this model, altruistic behavior would be explained by empathy, which refers to an emotional response congruent with the perceived welfare of another. Batson, Chang, Orr, and Rowland (2002) pointed out that taking the perspective of a person in need

and imagining how that person is affected by his or her plight would stimulate emotions of sympathy, compassion, and tenderness, improving attitudes toward different objects and groups, such as AIDS victims, the homeless and racial and ethnic minorities (Batson et al., 1997; Finlay & Stephan, 2000; Stephan & Finlay, 1999).

As is the case for the norm-activation model of altruism (Schwartz, 1977), the model of altruistic and prosocial behavior (Batson, 1991) corresponds to an altruistic conception of behavior and begins with the perception of another in need (not necessarily valued as in Schwartz's model). In Batson's model, the instigating situation is the adoption of the other's perspective (perspective taking), which involves more than simply focusing attention on the other. Adopting the needy person's perspective involves imagining how that person (or animal) is affected by the situation. In this case, perceiving another's need is claimed to lead to a unique internal response: a feeling of empathy. Dovidio, Allen, and Schroeder (1990) revealed that inducing empathy does not simply activate a general disposition to help, rather increases the motivation to help relieve the specific need for which empathy is felt. In contrast to Schwartz's model, the most important component in Batson's model is an emotional one, not requiring the presence of personal norms or valued others. Batson acknowledges that empathetic feelings can arise when a valued other is threatened (the case of Schwartz's model), but argues that on other occasions empathetic feelings are the result of emotions such as sympathy, compassion, and the like.

Two theories from developmental psychology offer additional suggestions about the effect of empathy in environmental (helping) behavior. The cognitive moral development theory (Kohlberg, 1984) proposes that morality depends on cognitive development and reasoning ability in relation to considerations about the context and the results of the behavior, that is, the ability to focus attention on below the surface aspects of a situation (Thøgersen, 2006). Hence, taking somebody else's perspective—a crucial aspect of moral judgment–means going beyond the superficial. On the other hand, the moral socialization theory (Hoffman, 2000) focuses on the importance of empathetic feelings for moral development. This theory proposes that human beings are born with a predisposition to experience empathy. This psychological resource is activated and cultivated by socialization agents (parents and others) pointing out the consequences of a transgression for the one being hurt and how it makes the hurt one feel. Kohlberg and Hoffman's theories can be viewed as complementary accounts of the development of moral judgment and norms (Gibbs, 1991, 2003). Both emphasize the need for learning and perspective taking in moral development; whereas Kohlberg highlights the importance of abstract reasoning based on an

understanding of the consequences of one's behavior and the context, Hoffman assigns more weight to inductive learning, to the impact produced by specific perspective taking and to the person's capacity for empathy (Thøgersen, 2006). What emerges from these two theoretical contributions is the connection between empathy and moral reasoning.

Empirically, the effect of empathy has been shown to improve environmental attitudes and behaviors (Berenguer, 2007; Shelton & Rogers, 1981; Schultz, 2000). For example, Shelton and Rogers (1981) reported a positive relationship between participants receiving role-taking instructions to increase empathy toward whales and favorable attitudes to helping whales, compared to the case of those who did not receive such instructions. Likewise, Schultz (2000) found that participants who were instructed to take the perspective of an animal harmed by pollution (perspective taking) scored significantly higher in environmental motives (biospheric environmental concern) than those participants who received the instruction to remain objective. In another study, Berenguer (2007) showed the importance of empathy in environmental attitudes and behaviors. Using a factorial design (2×2), he manipulated empathy level (high or low) and harmed natural object viewed (bird or tree). The results showed that, compared to individuals not induced to feel empathy, those induced to do so recommended allocating more funds to an environmental protection association and showed stronger empathetic feelings and attitudes toward the natural object and nature as a whole. In the same article, using a path analysis technique, evidence was provided that increased helping behavior (funds) and more favorable attitudes toward nature as a whole were mediated by the effect of empathy on attitudes toward the natural object.

The Present Research

Previous models and studies have shown that environmental behavior and attitudes and empathetic feelings can emerge when a valued other is threatened, or the perspective of a person or animal in plight is adopted. It has also been shown that moral reasoning about the environment (anthropocentric or ecocentric reasoning) is influenced by the kind of information received (awareness of consequences and information related to land use and social conflict). Likewise, previous work shows the close relationship between taking someone else's perspective, empathetic feelings, and moral judgment.

Based on such research, and from the perspective of the present work, we can expect at least two effects. First, taking the perspective of another in need will improve attitudes and behaviors toward different objects and

groups; perspective taking and empathetic feelings will be related to moral judgment. Thus, it is to be expected that manipulating empathy toward an object of attitude will have an effect on the number of moral arguments on which behavior is based. Second, an individual's moral reasoning (anthropocentric or ecocentric) will depend on situational variables, such as the kind of information received, although ecocentric reasoning will be less likely to induce a desire to protect the environment if other, human-centered values are affected or the intrinsic value of nature is not focused upon. This leads us to expect that the type of moral argument expressed by participants in an environmental decision task will depend on the object focused upon (human being –anthropomorphic– or vulture –ecomorphic) and for which empathy is previously manipulated.

With this aim, a factorial experiment (2 high/low empathy × 2 object of empathy young man/vulture) was designed along with a control group. Two objects of empathy were selected, a young man and a vulture. These were shown to participants by means of a computer presentation simulating a newspaper item about something that had happened to the object in question and a picture (young man or vulture). In either case, the story was exactly the same, the only difference being that in one case it referred to a young man (as the object of empathy) and in the other to a vulture. Prior to presentation of the newspaper item, participants received instructions on the point of view they should adopt (perspective taking). In the high empathy condition, they received instructions to take the perspective of the object about which they would read in the news item. In this condition, participants were to think about the consequences and try to imagine how the object (vulture or young man) felt in relation to what had happened to it or him, and how this had affected its or his life. In the low empathy condition, participants received instructions to try and adopt an objective point of view and not to become trapped by the consequences of what had occurred or how the object of empathy felt.

Once they had read the story, participants were asked to resolve four types of environmental dilemma taken from the work of Kortenkamp and Moore (2001). The control group did not receive any instructions about the perspective to adopt and were not given a news story to read, but they were required to resolve the environmental dilemmas.

Research Issues

Taking into account the previous studies mentioned above, the first objective of the present study was to explore the effect of empathy on moral reasoning about the environment. In this regard, the following predictions were made:

Prediction 1: Individuals in the high empathy condition, compared to those in the low empathy condition, will show a greater number of moral arguments for resolving environmental dilemmas.

Prediction 2: Individuals in the high empathy condition, compared to those in the low empathy condition, will show a greater number of ecocentric moral arguments when the object of attitude is a vulture.

Prediction 3: Individuals in the high empathy condition, compared to those in the low empathy condition, will show a greater number of anthropocentric moral arguments when the object of attitude is a young man.

In sum, it is hypothesized that the aspects of empathy influence moral reasoning about environmental ethics. If empathy for the animal (vulture) were enhanced, participants would use more ecocentric reasoning. In turn, if empathy for humans (young man) were enhanced, participants would use more anthropocentric reasoning.

Method

Participants

The participants were 126 (71 women, 55 men, mean age of 20.19 years) students at the Autónoma University in Madrid (Spain). They received credits toward a course requirement for taking part in the experiment. Using a blocked assignment procedure, 25 participants were randomly assigned to each of the four experimental conditions: empathy (*low*/*high*) and object of empathy (young man /vulture). A control group of 26 participants was also included, but those in this group received no empathy instructions and did not read a story. All participants were treated in accordance with the Ethical Principles of Psychologists and Code of Conduct.

Procedure

The study was presented as a practical task within the social psychology course. It was explained to participants that the task was part of a research project being carried out by another teacher at the psychology faculty on literary style in the news media. Once the task had been explained and any doubts dealt with, the students listed down their names, setting a date and time to come to the laboratory. On arrival at the laboratory, the participants received instructions from the experimenter and were told that in each of the individual booths, they would find a computer already switched on

(with a blank screen) and a booklet with written material that included the instructions they were to follow throughout the experiment. It was explained to them that if they failed to understand any of the instructions, they could ask the experimenter at any point in the study. Finally, participants were required to sign a formal agreement to take part in the study (all of them agreed).

Manipulation of Empathy

Once participants had given their written consent to take part in the experiment they received the perspective-taking instructions. In the high empathy condition, the instructions were as follows:

> You will now read a text including a story about a young man or vulture, and you will see his or its image in a photograph. As you read the text and look at the photo, try to imagine how the young man or vulture feels about what has happened to him or it, and how it has affected his or its life. Try to feel the consequences of everything the young man or vulture has had to go through and how this has made him or it feel.

For the participants in the low empathy condition, the instructions were as follows:

> You will now read a text including a story about a young man or vulture and you will see his or its image in a photograph. As you read the text and look at the photo, try to adopt an objective point of view toward what is being described in the news story. Try not to dwell on how the young man or vulture might feel, but rather to remain objective and neutral.

Manipulation of the Object of Empathy

Once the participants had read the instructions, the experimenter asked them whether they had any questions and whether they had understood the instructions, dealing with any difficulties they might have. Next, participants pressed a key on the computer and the fictitious news item appeared, along with a photograph of the object of empathy (young man or vulture). The story in the news item is shown in Appendix A. The news item was formatted to look as though it were a story provided by an agency and printed in the newspaper. The presentation of the news story, using the Microsoft

PowerPoint 2000 program on a 15 inch SVGA monitor, lasted 70 s, after which the screen went blank.

Measuring Empathetic Feelings

Once participants had read the news story, they returned to the instruction booklet and responded to two measures for checking the validity of the experimental manipulation. They were presented with two questions about their objectivity and imagination on reading the news item, to check whether there had been correct manipulation of the empathetic condition. To the questions, "To what extent did you try to remain objective about the news item you read?" and "To what extent did you try to imagine the feelings of the young man or vulture in relation to what you read in the news item?," they responded on a 9-point scale (1 = *not at all*, 9 = *a lot*). Moreover, they responded to a questionnaire that listed 20 adjectives describing emotional states and were used to assess empathetic feelings toward the object of empathy (young man or vulture). On this scale, participants had to indicate the intensity of the emotion they had felt toward the object of empathy as they read the story (1 = *none at all*, 7 = *extreme intensity*). The questionnaire includes six adjectives employed in previous studies (see Batson, 1991, for a review) for evaluating empathy: sympathetic, compassionate, soft-hearted, warm, tender, and moved.

Measuring Moral Reasoning About Ecological Commons Dilemmas

In the next step, participants received a second booklet that included four environmental dilemmas used in previous studies (Kortenkamp & Moore, 2001), adapted and translated for Spanish samples. The dilemmas used referred to four environmental issues: overgrazing a common, logging old growth stands, cutting firewood in a protected forest, and building a new landfill (see Appendix B). The order of presentation of the dilemmas in the booklets was counterbalanced. Once the participants had been given the booklet with the four environmental dilemmas, they were asked to decide whether the main character should support or perform an environmentally harmful action. They then had to explain the reasons for their decision. They were required to give at least one reason and a maximum of 10. Following the same procedure as Kortenkamp and Moore (2001), the moral considerations given by the participants were coded in three categories: anthropocentric, ecocentric, and nonenvironmental. The response was coded as

anthropocentric if it proposed preserving nature to benefit humans or because humans cannot survive without nature. An example of an anthropocentric consideration is, "He should not graze more cattle on the common pasture because in the long term, it will lead to his own ruin and that of all the other herders." The response was coded as ecocentric if it referred to the rights or intrinsic value of nature or proposed protecting nature for nature's sake. An example of an ecocentric consideration is, "He should oppose cutting down the forest because it will destroy the natural habitat of many animals." Finally, the nonenvironmental category was used to code the responses referring to social contracts, guilt, or truthfulness. An example of a nonenvironmental consideration is, "He should not graze more cattle on the common pasture because he has an agreement with the other herders, even though it is unwritten." As in previous works (Kortenkamp & Moore, 2001), 20% of the questionnaires were coded by a second experimenter, independently and blindly (percentage agreement = 91.7). Disagreements were resolved by using the decisions of the primary coder.

Debriefing

Once the participants had completed all the tasks, the experimenter met each participant individually to check whether he or she had had any type of doubt or suspicion during the course of the experiment, or if he or she had misunderstood any part of it. Two participants were excluded as a result of these interviews. As soon as the experiment was over, the participants were informed about the aims and conditions of the study.

Results

Effectiveness of the Manipulation of Empathy

This was checked in two ways. First, through the questions about the degree to which participants, on reading the story, had remained objective or had imagined the feelings of the object of empathy (young man or vulture). In line with what was expected, the means in objectivity were significantly lower in the high empathy condition (M = 2.60) than in the low empathy condition (M = 7.28), $t(98) = 22.92$, $p < .000$. Likewise, the scores were in accordance with what was expected on assessing feelings toward the objects of attitude, being significantly higher in the high empathy condition (M = 7.66) than in that of low empathy (M = 2.80), $t(98) = -24.15$,

$p < .000$. There were no differences according to gender. However, differences were found in relation to the object of attitude, participants being more capable of imagining the feelings when the story referred to the young man ($M = 5.78$) than when it referred to the vulture ($M = 4.68$), $t(98) = 2.12$, $p < .05$. There were no interaction effects between gender and the object of attitude.

The second form of checking the effectiveness of the manipulation of empathy was through analysis of the questionnaire on empathetic feelings toward the objects of empathy. The instrument used was a questionnaire adapted for Spanish samples (Berenguer, 2007) that included the six empathy adjectives (sympathetic, compassionate, softhearted, warm, tender, and moved) employed by Batson (Cronbach's alpha = .909, $N = 100$). The results were in line with the predictions of the manipulation, because participants in the high empathy condition obtained significantly higher scores on the scale ($M = 5.32$) than those in the low empathy condition ($M = 4.11$), $t(98) = –5.30$, $p < .000$. There were no differences by gender, or in relation to the object of empathy. In view of these results, it was concluded that the manipulation of empathy was effective.

Preliminary Analyses

Next, we assessed participants' responses to the question about whether the main character should support or perform an environmentally harmful action. For this purpose, we calculated the percentages of responses for the ecological dilemmas (4 dilemmas × 100 participants). The results show that 86.25% (345) of the responses proposed supported responsible environmental behavior, whereas just 5.25% (21) supported an environmentally harmful action (8.5% or 34 participants failed to respond). We then checked whether there were any differences in participants' responses according to the empathy condition (high or low) and object of empathy condition (vulture, young man, and control). No significant differences were found.

We also calculated the relative frequency of the different types of moral reasoning in the set of environmental dilemmas studied. To carry out this analysis, an index was calculated for each type of reasoning (anthropocentric, ecocentric, and nonenvironmental). These indices were calculated based on the responses in each of the four dilemmas. Therefore, each index represents the sum of the responses in that category for the four environmental dilemmas employed. The results of this first analysis show significant differences in the total number of reasons given by the participants. Specifically, the results of the mixed one-way ANOVA indicate significant

differences, $F(2, 98) = 17.16$, $p < .000$. in the number of reasons from the three categories. More anthropocentric ($M = 3.21$, $SD = 1.61$) and ecocentric ($M = 3.03$, $SD = 1.55$) reasons are given than nonenvironmental reasons ($M = 2.17$, $SD = 1.28$), Bonferroni test, $p < .05$.

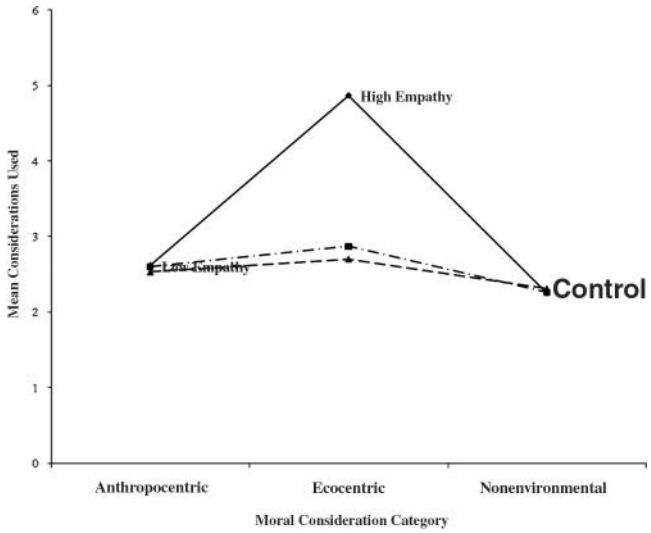
Effect of Empathy on Moral Reasoning

To evaluate the effects of the manipulation of empathy on moral reasoning about the environment we checked the effect of this manipulation on (a) the total number of moral arguments listed by the participants (Prediction 1) and (b) the relative number of moral arguments (by category) listed by the participants for each object of empathy—vulture (Prediction 2) and young man (Prediction 3).

To check the effect of empathy on the total number of moral arguments listed by the participants, we calculated a variable resulting from the total sum of arguments (anthropocentric, ecocentric, and nonenvironmental) in the four dilemmas. We then proceeded to calculate the difference of means for independent samples, empathy (high vs. low) being the grouping variable and number of moral arguments the dependent variable. As expected (Prediction 1), the number of moral arguments in the high empathy condition ($M = 9.48$) was significantly greater than in the low empathy condition ($M = 7.87$), $t(95) = –3.19$, $p < .005$.

Next, we examined the effect of empathy on the number of moral arguments when the object of empathy was manipulated (vulture vs. young man). First, we looked at the effect when the object of empathy was the natural object (vulture). To this end, we considered the data referring to the vulture story and carried out a mixed ANOVA, 3 (level of empathy) × 3 (categories of moral reasoning), with number of moral arguments listed by participants as the dependent variable. The results confirm significant between-subject differences for the high/low empathy and control conditions in type of moral reasoning used, $F(2, 71) = 6.16$, $p < .005$. There are also within-subject differences between the moral reasoning categories, $F(2,71) = 22.61$, $p < .000$, and in the interaction effect between moral reasoning and empathetic condition $F(4, 69) = 8.87$, $p < .000$. The comparison between these interaction conditions (moral reasoning and level of empathy) shows significant differences in the number of ecocentric reasons listed by participants between the high empathy condition ($M = 4.87$, $SD = .273$) and those of low empathy ($M = 2.87$, $SD = .278$) and control ($M = 2.69$, $SD = .262$), Bonferroni test $p < .05$ (see Figure 1). There were no significant differences in the rest of the moral reasoning categories. These results

Figure 1
Mean Number of Moral Arguments Used and Empathy Level When Object of Empathy Was a Stimulus From Nature (Vulture)



support the second prediction, confirming that in situations of high empathy toward an animal (vulture), there is an increase in the number of ecocentric reasons by comparison with the low empathy and control groups.

Next, we explored whether situations of high empathy with a human being (young man) generated a greater number of anthropocentric reasons than the conditions of low empathy and control. To this end, we proceeded in the same way as in the previous analysis. The result of the mixed ANOVA, 3 (level of empathy) × 3 (categories of moral reasoning), for the story about the human being (young man) showed a significant effect in the between-subject comparison in the high/low empathy and control conditions, $F(2, 74) = 3.44$, $p < .05$. The within-subject comparisons show significant differences between the moral reasoning categories, $F(2, 74) = 25.62$, $p < .000$, as well as in the interaction between moral reasoning and empathetic condition, $F(4, 71) = 7.63$, $p < .005$. Comparison between these interaction conditions (moral reasoning and level of empathy) reveals significant differences in the number of anthropocentric reasons, with a greater

number of anthropocentric arguments in the high empathy condition (M = 4.76, SD = .295) than in those of low empathy (M = 3.52, SD = .295) and control (M = 2.54, SD = .290), Bonferroni test $p < .05$. No differences were found in the rest of the comparisons. These results support the third prediction, which was that in situations of high empathy toward a human being, the number of anthropocentric arguments would be greater than in the low empathy condition (see Figure 2).

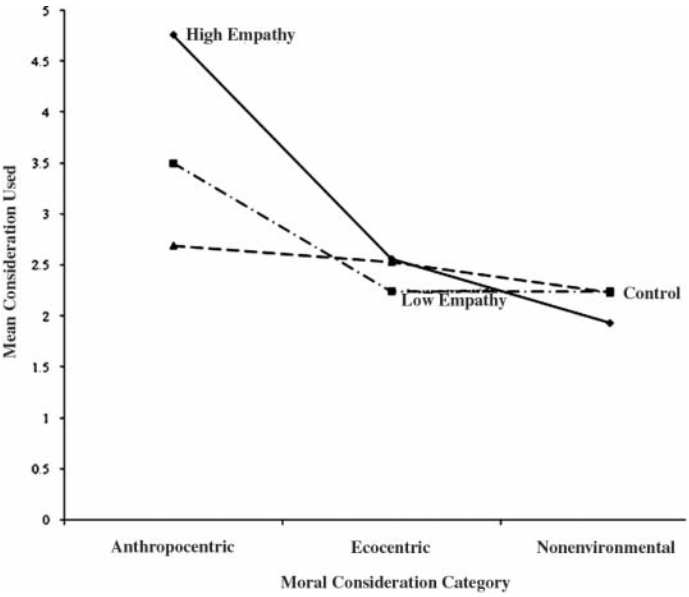
Discussion

A conceptual analysis of the informative function of empathetic emotion and moral reasoning about the environment led us to propose that moral reasoning about the environment could depend on situational variables such as valuing the welfare of others in need (level of empathy) and the empathy object focused on (young man or vulture). We carried out an experiment to test this idea, which was supported by the findings of the experiment.

More specifically, the results revealed that an increase in empathy for an object of attitude led to a significant increase in the number of moral arguments people used in relation to an environmental behavior. Likewise, the results showed that when the object of empathy was a vulture (a natural object), participants in the high empathy condition significantly increased the number of moral arguments of an ecocentric nature compared to the low empathy and control groups, although there were no differences for the rest of the moral arguments (i.e., anthropocentric and nonenvironmental). Furthermore, the results showed that when the object of attitude was a human being (young man), those in the high empathy condition significantly increased the number of arguments of an anthropometric nature compared to the low empathy and control groups, with no differences found for the other types of moral argument (i.e., ecocentric and nonenvironmental).

These results suggest that despite the fact that research in environmental psychology has rarely considered the possibility of a relationship between the empathy emotion and the quantity and type of environmental moral arguments, there is indeed a link between values and emotions in environment-related decision-making. This is of considerable relevance, above all, in view of the fact that the effects of affective states on evaluative judgments are often presented as more dysfunctional than functional (Batson, Turk, Shaw, & Klein, 1995).

Figure 2
Mean Number of Moral Arguments Used and Empathy Level When Object of Empathy Was a Social Stimulus (Young Man)



Previous studies on environmental attitudes and behaviors based on Schwartz's norm-activation model of altruism have shown the importance of value orientations and beliefs about the consequences of environmental deterioration in environmental behavior. Authors such as Stern point out that, in line with the value–belief–norm theory, environmental behaviors are more likely to occur if the individual believes that environmental attributes will have adverse consequences for his or her valued object(s) and that he or she could reduce the threat and has personal norms for such behaviors (egoistic motivation). Some research (Kortenkamp & Moore, 2001) has shown the importance of situational variables (inclusion of information about environmental and human impact) in environmental ethical reasoning. These authors demonstrated that the inclusion of information about environmental impact elicited more ecocentric and anthropocentric and less

nonenvironmental reasoning. They argued, "It is clearly difficult to take the interests of the environment into consideration if those interests and the effects on them are either not known or not salient." Work in this line, from a clearly cognitive perspective, has provided sufficient evidence of a link between, on one hand, knowledge of the consequences of environmental deterioration, and on the other, people's environmental behavior, attitudes, and reasoning. It is not surprising, therefore, that a good deal of environment-related work has focused on increasing the quantity and type of environmental information made available, on the expectation of increasing one or more components of the value–belief–norm model.

Is it possible to establish the same link between the empathy emotion (altruistic motivation) and people's environmental behavior, attitudes, and reasoning?

The first part of this question has already been answered by previous studies, which have shown the effectiveness of empathy for generating proenvironmental attitudes and behaviors. The research shows that inducing empathy is a useful and powerful technique for creating attitudes of environmental responsibility (Shelton & Rogers, 1981; Schultz, 2000) and encouraging environmental behaviors, suggesting that Batson's model on empathy can be applied to the environmental field (Berenguer, 2007).

As regards the relationship between empathy and environmental reasoning, the results of the present work provide clear findings that are largely in accordance with those of previous research on moral reasoning.

As far as the relationship between empathy and number of moral arguments is concerned, Kortenkamp and Moore (2001) suggested that environmental moral reasoning could be influenced by situational variables, such as amount of information available about the environmental and human damage that can be caused by environmental behavior, and underlined the need for people to be aware of this information if it were to affect their moral reasoning. In this sense, Kohlberg's (1984) and Hoffman's (2000) theories pointed out that inducing empathy focuses the person's attention on the needs of the object of empathy, generating the required perception of it. In this regard, it should be borne in mind that emotions add at least three aspects to the understanding of values and goals (Batson et al., 1995), because they can function as a second channel of information supplementing information based on rational belief and inference, provide a kind of validity check on beliefs, and be attention getting, insofar as they involve physiological arousal.

Thus, it makes sense to expect that the manipulation of empathy will increase the number of moral arguments underpinning an environmental behavior, as shown by the results of the present study.

With regard to the relationship between the object of empathy and type of moral argument used, the results show the differential presence of ecocentric and anthropocentric arguments depending on the object of empathy, in line with the hypothesis proposed by Kortenkamp and Moore (2001). These authors expected a positive relationship between the type of information people focused their attention on and the kind of moral reasoning employed. Thus, the presence of information about the effect of environmental harm on nature would generate a greater number of ecocentric arguments, whereas the presence of information about the effect of environmental harm on human beings would generate a greater number of anthropocentric arguments. It is therefore also to be assumed that the type of moral argumentation a person employs will be in accordance with the object of empathy. Such argumentation will be largely ecocentric when the person focuses on the problems and needs of an animal and largely anthropocentric when the focus is on the problems of a human being.

Some important considerations emerge in relation to these results. First, the evidence that generating empathy about a natural object increases the number of ecocentric arguments is even more striking if we bear in mind that the story used in the present study was about a bird, which as a species is fairly distant from the human being. And that, indeed, of all birds, the vulture has one of the most negative social connotations, being used as a metaphor (given the behavior of bird itself) for mean-spirited human behavior, unscrupulously taking advantage of a situation for its gain.

Our results could also have important applied implications, on opening up the possibility of working with emotion and altruistic motivation as a source of change in environmental moral reasoning. In this regard, Batson et al. (1995) pointed out that the informative function of the empathy emotion can be found in relation to either valuing another person's (animal) welfare or perceiving that person (or animal) to be in need (the possibility tested in the present study). Batson et al. also stressed that people can use the awareness of their empathetic feelings, of their level of empathetic response, to infer the degree to which they value the welfare of a person (animal) in need. As Batson remarks in that same work, if valuing another's welfare is inferred from empathetic feelings, then this inference would appear to be potentially important because values are more enduring. The latter aspect is clearly a candidate for study in future research.

Another applied implication of the results is related to the role played by the object of empathy. As our results show, when empathy is focused on the vulture, the arguments are largely ecocentric; whereas in the case of the young man, the arguments are largely anthropocentric. This finding should

be studied in more depth and taken into account in the design of environmental campaigns, because focusing environmental concern on the consequences of environmental degradation for human beings would be generating anthropocentric perspectives, according to which problems of nature are important for the individual only insofar as they affect him or her or a valued other. This effect may underlie the results of some studies that reveal a weak relationship between knowledge about environmental problems and individuals' environmental behaviors and beliefs. For example, Heath and Gifford (2006) stressed the lack of fit between scientific information on the seriousness of climatic change and the beliefs of the general public. These authors presented a review of different studies showing this discrepancy in different types of sample and studied the effect of free-market ideology on environmental degradation. The data from this work showed ecocentrism to be positively correlated with beliefs about consequences, behavioral intention, and self-efficacy, and negatively correlated with free-market ideology. The authors concluded that the relationship between support for free-market ideology and beliefs about global climate change is mediated by environmental apathy and suggested different possible explanations for the results. In this case, it would be interesting to explore whether the results might be partially explained by the object of empathy on which the person is focusing (environment vs. free market). The data from the second study by Kortenkamp and Moore (2001) may be supporting this idea, because they showed that the presence (or absence) of information related to land use and social conflict influenced the use of ecocentric reasoning. When one of them was present (and the other absent) in the moral dilemma, the participants used more ecocentric and less ecocentric moral reasoning. As Kortenkamp and Moore pointed out, ecocentric reasoning requires a focus on the intrinsic value of nature, and individuals would be less likely to want to protect the environment if other, human-centered values interfered (Nordlund & Garvill, 2003).

The present study has some limitations similar to those indicated in relation to previous work (Kortenkamp & Moore, 2001). First of all, it could be pointed out that it would be advantageous to use other types of sample than the one used (university students), such as the general population, urban or rural respondents, land managers or land users, with a view to examining the permanence of the effect found. Another possible limitation concerns the type of dilemmas employed. In this study, we opted to use dilemmas already tested in previous work and established within the scientific literature. But these dilemmas may be unsuitable for samples of city dwellers. As previous works

have shown (Berenguer, Corraliza, & Martín, 2005), place of residence (rural or urban) may affect environmental measures on attitudes and behaviors if these lack relevance. Specifically, these authors stressed the need to use measures of attitude and behavior that adequately represent the true ecological niche of the participants. In the present case, given that the sample used is of city dwellers, the dilemmas may be out of touch with their everyday reality. Nevertheless, in this regard, it should be recalled that the effect of empathy found in our study is in itself sufficiently robust in comparison to the situation of low empathy and the control condition. We indeed considered the possibility of working with dilemmas created by the participants themselves, although this methodology leads to considerable variation in the type and number of dilemmas produced (Kortenkamp & Moore, 2001) and makes it enormously difficult to control intervening variables.

In sum, the present work shows the effect of empathy on environmental moral reasoning. These results have a clear applied value, on permitting the use of empathy in processes of moral reasoning about the environment and individuals' decision making. In this sense, the manipulation of empathy has shown itself to be effective in the possibility of generating sufficient attention toward the problems of others (persons or animals) and thus motivating proenvironmental moral reasoning.

Appendix A

(Vulture/Young man) left paralyzed after being hit by car.
20 minutes. 25.09.2006—09:04 hr

- Hit by speeding car.
- Rushed to (animal hospital/hospital).
- Is paralyzed (and will be unable to fend for itself/from the waist down for life).

Agencia (Efe)

A griffon vulture/young man was seriously injured yesterday in an accident near El Boalo (Madrid).

The vulture/young man suffered severe spinal injuries after being involved in a collision with a speeding car in the North-Eastern National Park region.

A mobile intensive care unit was sent to the scene and the animal/man was taken to the animal hospital/regional hospital where it/he is receiving treatment.

According to hospital spokesman, Roberto Suárez, the initial indications are that the vulture/the young man "is severely paralyzed and will no longer be able to fend for itself/is likely to be paralyzed for life from the waist down."

Appendix B

We shall now present you with four real situations. We shall describe the situation and ask you to say what you think those involved in each situation should do. When you have given your answers, we shall ask you to write down the reasons (minimum of 1, maximum of 10) on which you based your decision.

Situation 1: Overgrazing a Common

A piece of common grazing land is shared by 10 herdsmen. All the herdsmen know that the common land is the perfect size for the total quantity of sheep they possess. Although the herdsmen are all in the same business, they scarcely share a social life, and it cannot be said that they are friends. Even so, they have an unwritten agreement to avoid overgrazing of the common land. This agreement was reached on considering that overgrazing could have two types of adverse effect. One type would involve the reduction of vegetation cover, infertility of the land, soil erosion, and contamination of nearby rivers; the other type of adverse effect would be economic, in that if all the herdsmen were to buy extra sheep, they would ruin each other's business.

Nevertheless, one of the herdsmen, José, finds a special offer that would enable him to buy several more sheep at a very good price.

Situation 2: Logging Old Growth Stands

Not long ago, an extensive area of old forest in a small region of the Pyrenees was provisionally designated as a national park. However, the local logging company, which has owned the forest for years, wants to exploit its timber potential. The region in which the forest is situated has been going through an economic depression for a number of years, and this new project would undoubtedly lead to the generation of jobs and an inflow of money for many years to come. María has lived all her life in this area. Both she and her husband are unemployed, and they know that they would be taken on by the logging company as soon as the new project began. The majority of the inhabitants of the village are really excited about the logging project and want it to go ahead. Moreover, in the village it is felt that nobody gave the locals a thought when they were going through the economic crisis. However, María knows that 98% of the oldest forests on the Iberian Peninsula have already been exploited for the production of furniture and paper and that this ecosystem of forests constitutes the habitat of many species in danger of extinction that cannot survive in other environments. Also, María has just found out that the jobs created by the logging company would last only until all the trees are cut down, just a few years, and afterward they would all be unemployed again.

(continued)

Appendix B (continued)
Situation 3: Cutting Firewood in a Protected Forest

In a rural area, a national forest park has been created as part of a project aimed at recovering a wooded area that is being affected by the traditional practices of the local inhabitants. Specifically, these local people have been cutting wood for generations to cover basic domestic needs such as cooking and heating. In the area most strongly affected by these practices, there has been severe erosion, such that newly planted trees cannot take root. This has led to a loss of biodiversity as well as a lack of wood for the local inhabitants. As part of the recovery plan, those managing the forest have created a designated woodcutting zone. In spite of this, the locals are complaining because to obtain wood they have to walk some kilometers from their village several times a week, with a 20-minute climb at the end, to reach the designated woodcutting zone. According to the locals, this task is becoming harder and harder because they have to go farther each time to collect enough wood for the daily needs of their families. Like other villagers, Silvia has the same thought everyday as she walks through the national park, "My task would be much easier if I could take wood from the protected zone near my house." However, Silvia knows that it is illegal to take wood from the park area and those caught doing so are severely punished. On the other hand, she also knows that the possibility of her being seen is very little.

Situation 4. Building a New Landfill

A region in the province of Soria (central-northern Spain) includes an area of beautiful national park with a rich ecosystem of indigenous flora and fauna; moreover, it is a highly popular place for the pursuit of leisure activities. However, there is also a growing problem in the area concerning what to do with the rubbish from the local population. The landfill site reached its capacity six months ago. The local environmental health authority has developed two proposals for dealing with this situation. The first would involve no financial costs whatsoever and would consist in the creation of a second landfill project on a site within the national park. If the landfill site is created there, it will affect the complex ecosystem of this natural area. Moreover, situating it there would drastically reduce the value of the numerous houses close by, which would be financially disastrous for their owners. The second proposal involves the creation of a new waste collection system that would oblige all users to separate their rubbish into seven categories, six for recycling paper, glass, plastic, metal and aluminum, medicines, and batteries, and another for organic waste. Apart from the task of the sorting itself, the main drawback would be that, as is already the case in some other regions (such as La Rioja), those who do not sort out their rubbish in this way would incur high fines. Furthermore, the inhabitants of the entire region would have to pay a monthly charge to cover the additional cost of this system of waste collection. Marta and Luis, two residents of the area, are going to take part in a public vote on the matter next week.

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