

“You Have the River to Throw It Away”: Colombian Children’s Reasoning About Transgressions to Nature in Contexts of Economic Performance and Communitarian Needs

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Abstract

This study explored the reasoning, expectations, and judgments concerning prototypical transgressions to nature and contextualized situations entailing conflict of interest between conservation of nature and economic performance or communitarian needs. The authors interviewed 71 children from three grade levels (mean ages first grade=5.91, fifth grade=10.17, ninth grade=14.48 years) who belong to two schools in Bogotá, Colombia, that are located in a zone with polluted rivers and wetlands with high levels of environmental risk. Results showed that children construct moral reasoning regarding prototypical and contextualized environmental transgressions, and their judgments vary due to informational assumptions. Children are very concerned about environmental transgressions as they recognize their impact on human welfare and the intrinsic value of nature, especially when they believe that there is a correspondence between humans and nature. Whereas young children focus on welfare, older children are also able to consider justice and harmony in their moral evaluations. Surprisingly, children of all ages tend to expect people to damage the environment even when there is no

conflict of interest, and this could be related to exposure to degraded environments. Keywords: Environmental reasoning—Biocentric—Anthropocentric—Moral development—Informational assumptions.

Introduction

The environmental crisis on earth has motivated many political debates and research about possible alternatives to mitigate it. Specifically, understanding the psychological relationship between humans and nature is highly important as a mechanism that might impact conservation behavior. Some psychologists and philosophers (e.g., Aldo Leopold, Arne Næss, and Peter Singer) have proposed that this relationship might be mediated by moral principles that are constructed through the daily interaction with the environment. According to Kahn and Lourenço (2002), those principles belong to the moral domain in contrast to the conventional domain because they include concepts related to welfare, justice, and rights that are universal and independent of social consensus. In early childhood, moral reasoning is focused on concrete harm and the importance of equality; later, in adolescence, moral reasoning includes notions of equity and considerations of individual differences in needs and statuses (Smetana, 2013).

In fact, several studies (Howe, Kahn, & Friedman, 1996; Kahn & Friedman, 1995; Kahn & Lourenço, 2002) have demonstrated that children judge moral environmental transgressions to natural phenomena (e.g., polluting a waterway) as wrong even when cultural conventions or laws allow for environmental transgression. Most importantly, the studies have shown that participants justify their

moral judgments about environmental transgressions primarily based on anthropocentric considerations about damage to human beings (e.g., “Because it harms our health, generates bacteria, diseases, that people may catch” [Kahn, 1999, p. 240]), and to a lesser degree based on biocentric concerns related to the attribution of moral standing to the ecological community (e.g., “every living being has its own rights, and the fish have the right of being in the sea, and no human being has the right of taking away their habitat” [Kahn, 1999, p. 250]). In addition, when asked to judge about damage to a living being such as an endangered animal, children 7 and 10 years old endorsed proenvironmental judgments, and the majority said that it was not alright to kill the animal and provided biocentric and anthropocentric justifications (Ruckert, 2016). Likewise, in a hypothetical scenario in which aliens harm a nonhuman populated earth-like environment, the majority of the participants judged the harm to forests and wild animals as wrong, and most of them mentioned the intrinsic value of nature (biocentric consideration) in their justifications (Severson & Kahn, 2010).

Although all of these studies have demonstrated that children morally reason about environmental damage, their findings have not shown a clear developmental pattern about the reasons to justify those judgments. According to Kahn (2002), biocentric reasoning develops later, and it is scarce in young children. In fact, when asked about river pollution, younger children tend to focus more on anthropocentric concerns compared with older children. However, the study did not find the expected significantly higher reports of biocentric justifications in adolescents. In addition, one of the studies found evidence of biocentric reasoning early in development (Severson & Kahn, 2010). Findings showed that 7-year-old children tend to report biocentric justifications, stating the intrinsic value of nature in a situation in which humans are not involved (e.g., aliens scenario). Therefore, more research is needed to explore whether there is a developmental path in the kind of justification that children provide regarding situations of environmental damage.

Previous research suggests that it is relevant to explore the effect of context on moral reasoning. For instance, a study carried out in Colombia showed that children in conditions of violence and poverty expect people to harm others in contextualized situations of revenge even after reporting negative moral judgments of harm in general situations (Posada & Wainryb, 2008). Furthermore, it is known that most of the impacts of environmental damage are greater in low-income economies. People living in developing countries appear to be more vulnerable especially to the effects of climate change (Ribot, 2010). However, almost all the research

has been carried out without including children in impoverished communities (but see Kahn & Friedman, 1995) and, therefore, little is known about the effects of growing up in contexts of high environmental risk. Regarding environmental reasoning, another study found that when farm worker children consider financial matters and prevention of risks, they tend to accept the use of pesticides in their own orchards, even after judging hypothetical pesticide exposure as incorrect (Severson & Kahn, 2010). It seems that the features of the children’s environment might impact the application of their moral reasoning to real-life situations and their future decisions, specifically because those experiences inform the construction of informational assumptions defined as concepts about the nature of reality (Wainryb & Brehl, 2006). Therefore, it is not only relevant to explore children’s moral reasoning about contextualized situations of environmental damage but also their expectations about others’ actions toward the environment, as both kinds of reasoning might have implications in their motivation to take care of the environment.

The aim of this study was to examine whether children in impoverished Colombian communities reason morally about prototypical transgressions to nature (e.g., water pollution, animal mistreatment, and harm to plants), and if so, how children apply that reasoning about nature to judge real-life situations entailing conflict of interests about economic performance and communitarian needs. In addition, the study aimed to explore age-related differences in children’s environmental moral reasoning and expectations about others’ behavior toward nature.

Framed with a social domains approach (Turiel, 1983), we expected that most Colombian children would evaluate environmental prototypical transgressions as morally wrong, and we expected to find age-related differences regarding the justifications of moral evaluations, with older children providing more reporting about justice. Moreover, in line with previous research, it was expected that the exposure to degraded environments might lead to variations in children’s reasoning about real-life situations compared with their reasoning about prototypical transgressions.

Methods

Participants

The sample consisted of 71 Colombian children and adolescents. Of them, 22 were in first grade (M age = 5.91 years), 24 were in fifth grade (M age = 10.17 years), and 25 were in ninth grade (M age = 14.48 years). Written informed consent was obtained from the participants’ parents. Participants belong to two schools in

Bogotá, Colombia, that are located in a zone with polluted rivers and high levels of environmental risk due to the presence of many factories and close motorways.

Procedures and assessments

The main purposes of this study were to assess (1) whether participants reason about water pollution, animal mistreatment, and harm to plants in moral terms and (2) how they reason about acts entailing pollution and nature destruction in situations of economic performance and communitarian needs. For the first purpose, participants were asked about their moral evaluations (e.g., "Is it okay or not okay to hurt or hit an animal? Why?). In each case, we asked children about their justifications for every judgment. Furthermore, participants were given a set of questions designed to assess moral criteria, such as alterability (Do you think that there should be a rule against hitting an animal?), rule contingency (Would it be okay or not okay, if there were no rule against it?), common practice (Would it be okay or not okay to hit an animal, if it happens in a country where people usually hit animals?), and ratings of the transgression's severity. These assessments seek to provide further evidence that children reason in moral terms when judging prototypical transgressions to nature.

For the second purpose, three contextualized hypothetical situations were designed: one of them involving environmental transgressions related to reasons of economic performance, another one related to reasons of communitarian needs, and a baseline situation. In the former, a businessman's company produces a lot of waste and a day the garbage truck cannot pick up the garbage. In the latter, the city mayor promises to build a new road to make transportation faster, but the only free space to build is where the river is located. A third situation was designed as a baseline in which moral concerns were not pitted against other interests (Appendix A1). Assessments for each situation were conducted in two phases. First, there was an open-ended phase wherein participants were asked about their expectations regarding the main character's course of action and the reasons for those expectations (What do you expect the story main character is going to do? Why do you think he/she would do that?); second, there was a structured phase wherein participants were told that the main character damaged the environment (e.g., the businessman threw the waste into the river) and were asked to judge that action and provide justification for their judgment (i.e., Do you think it is okay or not okay that he threw the garbage into the river? Why?). These assessments seek to examine how children apply their moral reasoning about nature to judge environmental situations entailing conflict of interests.

Coding and reliability

Participant's moral judgments were scored using coding categories adapted from the Davidson, Turiel, and Black (1983) coding scheme. Negative evaluations of all the transgressions received a score of 3, positive evaluations received a score of 1, and mixed evaluations (i.e., it is not ok and ok simultaneously) received a score of 2. Regarding the severity judgments, participants rated the transgressions on a 5-point scale, from "it is right" (1) to "it is very wrong" (5). The coding scheme for the justifications of the prototypical moral evaluations and the contextualized evaluations was built based on the categories proposed by Kahn (1999), as well as Davidson et al. (1983). Emergent categories were derived from scoring 20% of the study protocols. A brief description of the justification categories is presented in Table 1. Multiple justifications were coded in terms of the proportional use of each category. Moreover, a category called "sense of correspondence" was introduced to include reports of informational assumptions or beliefs about the commonalities and similarities between humans and nature, whether anthropomorphic or not (e.g., "Because they [animals] are like us, we ought not to hit them because they are part of nature too"). In addition, in the contextualized situations, the expectations of direct (i.e., immediate) damage to nature received a score of 3 (e.g., he will throw the trash in the river), indirect (i.e., not immediate) damage received a score of 2 (e.g., He will leave the trash in the street, nearby the river), and benefit to nature received a score of 1 (she will leave the trash in the truck, and after that she will keep playing). The reasons provided to explain those expectations were coded with the categories presented in Table 2.

Inter-rater reliability in 20% of the interviews was assessed with Cohen's Kappa. Regarding the prototypical transgressions to nature, the Cohen's Kappa was found to be significant at the 0.05 level for judgments ($\kappa = 1$) and justifications ($\kappa = 0.80$). Regarding, the contextualized situations, the Cohen's Kappa was significant at the 0.05 level for expectations ($\kappa = 0.95$), reasons ($\kappa = 0.82$), judgments ($\kappa = 0.95$), and justifications ($\kappa = 0.84$).

Results

Judgments and justifications about prototypical transgressions to nature

A majority of children judged harming the natural environment as a moral transgression. All participants (100%) evaluated the three situations as wrong, even in the absence of a policy or even if it is a common practice in other countries. Regarding alterability, the majority of children at all ages accepted the legitimacy of a policy that would sanction these acts. Specifically, 100% of participants

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Table 1. Summary of Justification Coding Categories for Prototypical and Contextualized Situations

CATEGORY	DESCRIPTION AND EXAMPLES
Aesthetics	An appeal to the preservation of the environment for the viewing or, more broadly, sensorial pleasure of humans ("If one sees the nature all dirty, all burned[...], that looks ugly").
Personal interests	An appeal based on personal predilections, interests, and projects of self and others ("Because I like the plants").
Appeal to authority	References to authority, laws, punishment, and rule obedience "Because one always has to obey his parents, in everything they say, whatever they say").
Prudential reasons	References to negative consequences for the self (independent of authority), prioritizing their own benefit ("Because if a child hits a cat, it will get angry and it will scratch the child, and that hurts").
Anthropocentric welfare	An appeal to the welfare of human beings in the present and future ("Because water is needed for humans to survive").
Anthropocentric justice	An appeal that humans have rights, deserve respect, fair treatment, and merit freedom ("Because they [foreign people] also have the right to have their own unpolluted water").
Biocentric justice	An appeal that nature has rights, deserves respect or fair treatment, or merits freedom ("Animals have the right to live and be happy, without being mistreated").
Intrinsic value of nature	References to the value of nature and the validity of that value are not derived solely from human interests ("Because the plants are living beings, they are like animals, they are born, grow, reproduce, live and die. Killing them is not OK").
Harmony	References to harmony or balance between humans and nature in a biotic community ("Plants do photosynthesis and that is important because it contributes to the balance of the planet. If there are not trees, there is not life or water, everything is connected").
Other	All the answers that were not coded in the previous categories.

accepted the legitimacy of a policy positively related to the water pollution situation, 94% with regard to animal mistreatment, and 97% related to harming plants. Finally, most participants evaluated the situations with the highest severity on a 5-point scale (from 1 = It is right, to 5 = It is very wrong). In the water pollution situation, the

Table 2. Summary of Reasons for Expectations Coding Categories

CATEGORY	DESCRIPTION AND EXAMPLES
Likes and desires	An appeal to reasons associated with comfort, desires, or personal preferences ("Yes, because if she wants to play, this is the easiest option").
Obedience to authority	References to the existence of a law or an authority requirement ("Because if she does not do it, she will not be allowed to play outside anymore").
Economic interests	References about the importance of economic gains or about avoiding monetary deficit ("He needs that the company keeps functioning. Why would you keep something if you had the river to throw it away?").
Sympathetic interests	An appeal to the motivation to win followers or avoid enemies ("Because he [the mayor] cares what people think about him, good thoughts about him, not bad thoughts").
Community well-being	References to the benefit for the community, favoring their well-being or at least not preventing it ("So that people can arrive faster to their emergencies").
Environmental benefit	References associated with the balance of the ecosystem or with the protection of the environment ("He will do that to help the environment and take care of animals")

average severity was 4.73 (SD=0.59), in the animal mistreatment situation it was 4.70 (SD=0.55), and in the harm to plants situation it was 4.68 (SD=0.63). According to the social domain theory, the answers to these criteria questions confirm that children judged the environmental damage based on moral principles. Moreover, we created a moral judgment score, which was calculated by averaging each participant's moral judgments in all situations (excluding severity judgments) and we conducted a one-way analysis of variance (ANOVA) with moral judgment score as the dependent variable and grade as the independent variable. The analysis revealed that there were no significant grade-related differences.

In addition, participants supported the majority of their judgments with reasoning regarding the welfare of humans and the intrinsic value of nature. Particularly, participants focused on the welfare of fish, domestic animals, and flowers that are common in their immediate surroundings. For instance, a ninth grader said "all countries must respect policies against animal mistreatment because every animal is important, even if they are very ugly, as rats that sneak into your house, they are still very important." However, some adolescents included information regarding biological and community

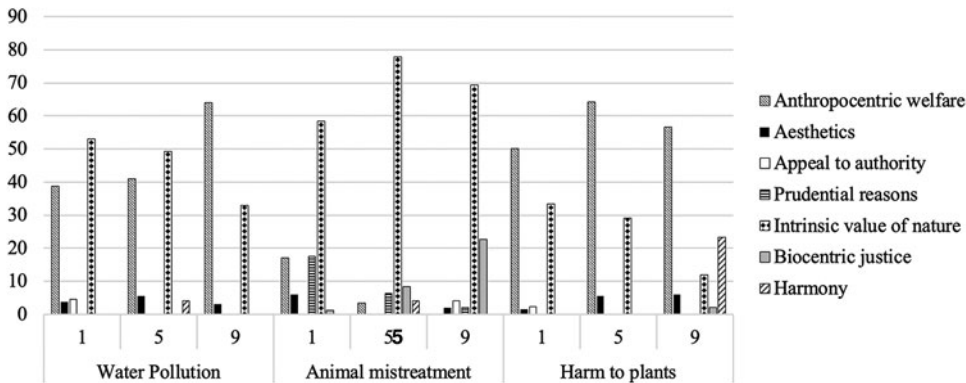


Fig. 1. Percentages of justification for moral evaluations about prototypical transgressions by situation and grade.

issues, such as sentience and animal exploitation. The percentages of the justification for the moral evaluation of the three prototypical situations are shown in Figure 1.

Furthermore, to identify differences in the justifications for the moral evaluations, a multivariate analysis of variance (MANOVA) was conducted on the proportional report of each justification by grade level and type of situation with situation as a repeated measure yielded significant effects for each type of situation ($p < 0.001$), grade level ($p = 0.02$), and a grade level X situation interaction ($p = 0.009$). Since there were no gender-related differences, this variable was excluded from subsequent analysis. Follow-up ANOVAs revealed

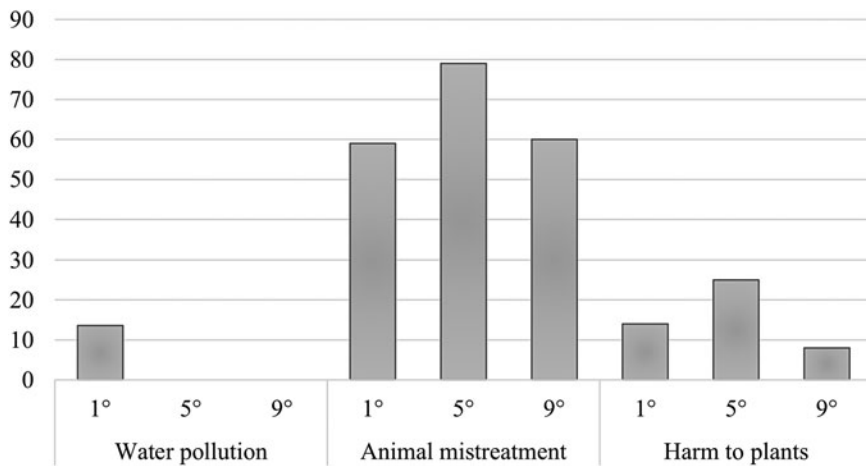


Fig. 2. Percentages of participant's sense of correspondence by situation and grade level.

significant differences in the biocentric justice ($F(2, 136) = 11.09, p = 0.001$), intrinsic value ($F(2, 136) = 19.65, p < 0.001$), prudential reasons ($F(2, 136) = 8.61, p = 0.005$), and anthropocentric welfare justifications ($F(2, 136) = 32.350, p < 0.001$) by situation. The post hoc analyses with Bonferroni corrections revealed that the first three kinds of justifications were more common in the animal mistreatment situation than in the other situations (p 's < 0.05). Moreover, the intrinsic value justification was more common in the harm to plants situation than in the water pollution situation ($p = 0.011$). Meanwhile, the anthropocentric welfare justifications were less common in the animal mistreatment situation compared with the other situations (p 's < 0.01).

In addition, the follow-up ANOVAs revealed significant differences in biocentric justice ($F(2, 68) = 5.41, p = 0.007$) and harmony ($F(2, 68) = 3.86, p = 0.026$) justifications by grade, but this effect was not found in the intrinsic value justification. Post hoc analysis showed that ninth graders reported more frequently the biocentric justice and harmony justifications than first graders (p 's < 0.05). Likewise, the biocentric justice justification ($F(4, 136) = 3.77, p = 0.025$) was more common in ninth graders than in first graders regarding animal mistreatment ($p = 0.014$), and the harmony justification ($F(4, 136) = 6.12, p = 0.001$) was more common in ninth graders than in the others in the harm to plants situation (p 's < 0.005).

Two-thirds of the participants (66%) reported a sense of correspondence in the animal mistreatment situation, whereas only 4% and 15% reported these assumptions related to water pollution and harm to plants, respectively. With regard to grade level, 59% of first graders, 79% of fifth graders, and 60% of ninth graders reported those assumptions in the animal mistreatment situation (Fig. 2). A chi-square test of independence was performed to examine the relation with the grade level, but it showed that a sense of correspondence was equally reported. However, the relation with gender was significant $\chi^2(1, N = 71) = 13.15, p < 0.01$. Boys were less likely to show a sense of correspondence.

Table 3. Percentages of Expectations in Contextualized Hypothetical Situations by Situation and Grade

EXPECTATIONS	BASELINE SITUATION			ECONOMIC PERFORMANCE			COMMUNITARIAN NEEDS		
	1°	5°	9	1°	5°	9	1°	5°	9
Direct damage to the environment	32	71	76	50	88	72	64	54	64
Indirect damage to the environment	18	13	12	27	8	28	0	0	0
Environmental benefit	50	17	12	23	4	0	36	46	36

Expectations and reasoning about people's contextualized actions

Children, particularly the older participants, tended to expect that humans would harm the environment, even when there was no conflict of interest, either economic or communitarian (Table 3).

The percentages of the reasons for those expectations are given in Table 4. A MANOVA conducted on the proportional report of each reason revealed significant effects by situation ($p < 0.001$), grade level ($p < 0.001$) and a grade level X situation interaction ($p < 0.001$). There were no significant gender-related differences. Follow-up ANOVAs revealed a significant effect of situation in the reasons about likes and desires $F(2, 130) = 147.48, p < 0.001$ and obedience to authority $F(2, 136) = 10.47, p = 0.001$. *Post hoc* analysis with Bonferroni corrections showed that these reasons were more common in the baseline (p 's < 0.01). Additional significant differences by situation were found in the reasons related to sympathetic interests $F(2, 136) = 20.41, p < 0.001$, community well-being $F(2, 136) = 97.09,$

$p < 0.001$, and only viable alternative $F(2, 136) = 8.18, p = 0.001$, as they were more common in the communitarian needs situation than in the other situations (p 's < 0.01). Especially participants reported that the mayor will try to avoid complaints from the community, and he will be interested in being elected again in the future. In contrast, the economic interests reason $F(2, 136) = 114.63, p < 0.001$ predominated in the economic performance situation compared with the other situations ($p < 0.01$).

Significant differences by grade level were found in the reasons of obedience to authority $F(2, 68) = 5.40, p = 0.007$, community well-being $F(2, 68) = 5.19, p = 0.008$, and economic interests $F(2, 68) = 25.82, p < 0.001$. *Post hoc* analysis revealed that the first two reasons were more reported by first graders, whereas their reports of economic interest were lower than participants in other grades (p 's < 0.05). Particularly, many ninth graders based their reasoning in the power of industries and said that in this context, the profits take precedence over nature.

Table 4. Percentages of Reasons for Expectations in Contextualized Hypothetical Situations by Situation and Grade

REASONS FOR EXPECTATIONS	BASELINE SITUATION			ECONOMIC PERFORMANCE			COMMUNITARIAN NEEDS		
	1°	5°	9	1°	5°	9	1°	5°	9
Obedience to authority	30	4	4	5	0	0	0	0	0
Likes and desires	52	79	90	20	10	2	0	0	0
Economic interests	0	0	0	9	75	76	0	4	1
Sympathetic interests	0	0	0	0	0	0	9	27	26
Community well-being	0	0	0	0	0	2	77	44	37
Environmental benefit	18	13	6	18	4	0	5	13	5
Only viable alternative	0	0	0	30	8	10	5	4	19
Other	0	4	0	18	2	10	5	8	12

Finally, significant grade level X situation interactions were found in the reasons related to obedience to authority $F(4, 136)=4.40, p=0.01$, community well-being $F(4, 136)=5.53, p=0.006$, economic interests $F(4, 136)=18.98, p<0.001$, and likes and desires $F(4, 136)=6.47, p<0.001$. The post hoc analysis revealed that first graders mentioned the reason of obedience to authority more frequently than other participants in the baseline and the reason of community well-being in the communitarian needs situation (p 's < 0.05). First graders also reported reasons about economic interests less frequently in the economic performance situation and ninth graders reported more likes and desires in the baseline than other participants (p 's < 0.05).

Judgments and justifications about harmful contextualized actions

All participants (100%) judged the environmental damage as incorrect in the baseline and economic performance situations. In the communitarian needs situation, 82% judged the damage as incorrect. Most of them reported moral justifications of their judgments related to anthropocentric welfare and intrinsic value of nature (Fig. 3). A MANOVA conducted on the proportional use of each justification by grade level and type of situation with situation as a repeated measure yielded no significant effects for situation or grade ($p > 0.05$). These results suggest that participants used similar justifications to judge the damage in the baseline and the conflict of interest situations.

Discussion

As expected, children from the three grade levels brought moral reasoning to bear on their evaluations of environmental damage to

rivers, animals, and plants. Consistent with criteria from the social domain theory, children did not show variations in their judgments even when the damage was a common practice in other countries, or in the absence of a policy. In addition, participants justified their judgments with reasons about the welfare of human beings and the intrinsic value of nature. These findings are not consistent with the theory of motivation proposed by Maslow. According to Maslow (1943), when physiological needs are not satisfied or in danger, other kinds of needs become nonexistent. However, children from low-income communities in this study reported that they are still concerned about the welfare of other beings when considering situations of environmental damage in which human basic welfare is in risk.

In addition, compared with research carried out in other contexts (Kahn & Lourenço, 2002), children in Bogota showed higher reports of biocentric justifications even in situations not directly related to animals, although some of them mentioned the animals that live in rivers and parks. In fact, in both studies, the biocentric justifications were more common in the animal mistreatment situation than in the other situations. One possible explanation of the findings relates to the features of the situations in this study. As human beings are members of the ecosystems, all of the situations implied a harm to humans in a direct or indirect way, except in the animal mistreatment situation, in which the damaged agent is clearly identified. Support for this possibility was shown by Severson and Kahn (2010), who demonstrated that biocentric justifications appear seldom when the situations have humans involved, whereas biocentric reasoning appears more often in situations, such as the alien scenario, in which there are no human considerations in the evaluation of damage to the environment.

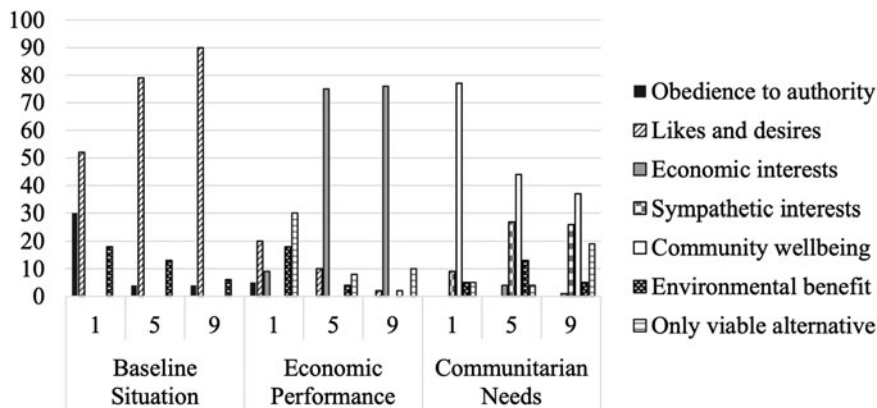


Fig. 3. Percentages of justifications for judgments of contextualized transgressions by situation and grade.

Another explanation of these findings regards the human tendency to perceive animals as social others. As stated by Myers and Saunders (2002), through the experiences of interaction with animals, especially with pets, children identify their properties of agency, affectivity, coherence, and continuity, and in this way, they start to care about them and perceive their importance. In fact, in the animal mistreatment situation, children brought to bear assumptions about the physical and psychological correspondence between humans and animals, but they did not find a sense of correspondence related to plants and rivers. It seems that the possibility to recognize a sense of correspondence with animals allows more recognition of their intrinsic value.

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Regarding age differences, the analysis suggested that although first graders attribute an intrinsic value to natural entities, they do not tend to report justifications regarding justice and harmony. This finding is consistent with the process of moral development proposed from the social domain theory in which children first construct concerns about the welfare of others and argue about the damage caused by actions (Nucci, 2008). In contrast, ninth graders who reported biocentric justice justifications mentioned the existence of a balance in the ecosystem and try to coordinate aspects of different domains, giving priority to the moral domain.

In terms of the contextualized situations in which children were asked about their expectations, most of the participants predicted that humans will harm nature, even in the baseline situation in which there was no conflict of interest. It is remarkable that older participants seem to believe that people will usually give priority to their own desires instead of caring for the environment. Those expectations and informational assumptions are developed through daily experiences and interactions in the context in which the participants live and through the information they are able to access (Wainryb, 1991). This study was carried out in Bogota, a city with polluted rivers where citizens usually have a scarce contact with local biodiversity. Bogot is one of the places where the majority of Colombian industrial activities take place, and this has led to air pollution and deforestation (Gaitn, Cancino, & Behrentsz, 2007). Considering the environmental generational amnesia proposal (Kahn, 2002), it seems that in this context, children might construct a standard vision of how the world works and how a normal human relationship with nature is. Given the results, it seems that this vision has been informed by the decisions and speech of those in economic and political power who have given priority only to economic growth and have even refused to address climate change.

It is important to clarify that even with those expectations, children are still able to judge the harm to nature expected as wrong, but these results still give rise to the question of how environmental programs should address that tendency to expect environmental damage in conflict of interest situations. According to Kopnina (2013), most of the approaches in education for sustainable development have had an anthropocentric bias, as they have focused on the importance of finding socioeconomic solutions related to the environmental crisis. Those tendencies in education might not be effective in fostering environmental conservation, especially in conflict of interest situations, although more research is needed to support this hypothesis. Then, it is important to develop more research to explore the tendencies of environmental education in Colombia and its implications on children's and adults' perceptions

of the human's relationship with nature. In conclusion, this study confirmed that children and adolescents judged transgressions to the environment as wrong based on moral reasons related to human welfare and nature's intrinsic value. However, children who live in a degraded environment, especially the older children, tend to expect people to damage the environment even when there is no conflict of interest. Then, it is important to develop further research about the assumptions that children take into account when they are interacting with nature. The results of this study are a call to keep exploring the developmental trends of environmental moral reasoning, as well as a call to explore the role of environmental education and media in children's expectations of the humans' relationship with nature.

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Appendix

Appendix A1. Contextualized Hypothetical Situations (Translation)

Baseline Situation

Sara/Mario lives in Fontibon. His/her house was built nearby the river and she/he loves playing there. One day, her/his father asked her/him to leave the garbage far from the house in the garbage truck and she/he wants to keep playing.

What do you expect Sara/Mario is going to do?

Why do you think she/he would do that?

If the expectation does not include damage to the environment ask, do you think it is okay or not okay that Sara/Mario does that?

Why?

End: It turns out that after taking out the garbage Sara/Mario decided to throw it into the river to keep having fun.

Do you think it is okay or not okay that Sara/Mario throws the garbage into the river?

Why?

Economic Performance

In Fontibon, there is a company named “Don Pedro Oils” near the river. In the beginning, the owner put waste in bags so that the garbage truck could take them. The company has been growing rapidly, generating great profits, and also more waste. One day there was too much waste in the company and the garbage truck was scheduled 2 days later. The owner needs to put out the waste to keep producing.

What do you expect the owner is going to do?

Why do you think he would do that?

If the expectation does not include damage to the environment ask, do you think it is okay or not okay that he does that?

Why?

End: The businessman collected all the waste from his oil company and threw it into the river.

Do you think it is okay or not okay that he threw the garbage into the river?

Why?

(Appendix Follows →)

PIZZA AND POSADA

Communitarian Needs

In Fontibon, people complain because there is heavy traffic on a particular street. Then the city mayor promises to build a new road that will allow people to reach their worksites faster. However, the river is the only free space to build.

What do you expect the mayor is going to do?

Why do you think the mayor would do that?

If the expectation does not include damage to the environment ask, do you think it is okay or not okay that the mayor does that?

Why?

End: Finally, with the desire to facilitate transportation, the mayor filled the river with sand and stones to build the road there.

Do you think it is okay or not okay that the mayor filled the river to build the road?

Why?