

A comparative study of environmental moral judgment with and without education about sustainable development

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# Outline

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- 1. Moral judgment
- 2. Environmental moral judgment
- 3. Education for sustainable development
- 4. Research questions
- 5. Method and results
- 6. Discussion & conclusion



# 1. Moral judgment

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- Moral : "A system of rules and the essence of all morality is to seek the respect that the individual acquires for these rules » (Piaget, 1932).
  - Moral is possible at 6 years old
- Kohlberg (1963) : introduction of dilemmas
  - Moral is possible at 2 years old
- Theory modularist (Dupoux & Jacob, 2007) : predisposition to general moral judgment, experiments
  - Moral is possible at 6 months



## 2. Environmental moral judgment

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- Environmental moral judgment: System of involving judgment and reasoning
- Few studies on the spontaneous environmental moral judgment
- Link to The Biophilia (Wilson, biologist, 1984): human being has a connection to nature because it is the place that has enabled man to evolve
- Kahn (2002, 2006, 2008) uses the concept of Biophilia in his research.
- Children and adolescents from 6 to 19, in different cultures, with different methods of research
- Environmental moral judgment is possible as early as 7 years old (Kahn, 2008).



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- Kahn (2002) presents 3 types of reasoning about the environment:
  - Homocentric reasoning = the environment is of service to humans.
  - Biocentric reasoning = the environment has an ethical status and has rights comparable to those of man.
  - The third type of reasoning, Kahn (2006)
  - Isomorphic reasoning = relation between the human being and nature which is important because the two have essential similarities.



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- Kahn JR (2008) Continuity of earlier work: connection with the animal.
  - Semi-structured interview (Piagetian interview) about how children respond to a scare situation with a bat
  - Kids between the ages of 6 and 16.
  - Results: 80% like bats; 78% care; 64% care as they do with pets.
  - Even in a situation of fear: 72% demonstrate kindness, 94% think the bat has feelings.
  - Kids use biocentric reasoning.



Jugment  
Moral  
General

Link with  
moral  
reasoning

Piaget  
(1932)

Kohlberg  
(1963)

Dupoux &  
Jacob  
(2007)

Jugment  
Moral  
Environmental

Link with  
environmental  
values

Wilson  
(1984)

Kahn  
(2002)



# 3. Education for sustainable development

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- Environmental education increases the awareness of children.
- Purpose: to understand the various aspects of protecting and conserving the environment.
- Kopnina (2014): Environmental issues are moral dilemmas: All living beings have values and should be considered morally.
- Otto et al. (2017) suggest that environmental education could be a tool to combat environmental problems.



## 4. Research questions

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- Do biocentric and/or isomorphic environmental moral judgments appear spontaneously or are they linked to education?
- How does school education contribute to their development?
- Hypothesis: We assume that students from schools with an education for sustainable development will have a more biocentric and/or isomorphic reasoning as opposed to students without that education.



# 5. Method and results

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- Population:
- Cluster sampling including a total of 116 children ( $M = 6$  years and 6 months;  $SD = 0.28$ )
- 60 children with specific education ( $n_1 = 60$ ,  $M = 6$  years and 6 months,  $SD = 0.24$ ) and 56 children with no specific education ( $n_2 = 56$ ,  $M = 6$  years and 5 months,  $SD = 0.33$ )  
Grades 1 ( $n = 58$ ) & 2 ( $n = 58$ )
- Participants from the same suburban area of Paris.



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- Procedure:
  - Interview with professors for course content.
  - Then, to reach the judgments and reasoning of children, 7 sentences were proposed with 3 dimensions: natural environment, animals, pollution/selective sorting. The children were asked to judge the event described in the sentences and to explain the decision.
  - Interjudge reliability: Kappa coefficient: 0.99



# Results: interview with teachers

## Specific teaching

External Lecturer

Notions for grade 1: the living world, animal growth, and different ecosystems.

Notions for grade 2: the living world and the lifecycle of animals.

Organization of the class: time for reflection + time in which the pupils were in charge of maintaining the school vegetable garden and raising turtles within the school.

## Without specific teaching

Teacher

Grade 1: Observed changes in the tree in the school garden.

Grade 2: Understanding the characteristics of animal life cycles.



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Reasoning	1st grade without teaching	1st grade with teaching	2nd grade without teaching	2nd grade with teaching
Bio-centric	36,51%	53,92%	45,31%	54,19%
Homocentric	27,51%	30,88%	31,53%	28,08%
Isomorphic	10,58%	7,83%	12,32%	14,77%
I don't know	25,40%	7,37%	10,84%	2,96%



Reasoning	1st grade without teaching	1st grade with teaching	2nd grade without teaching	2nd grade with teaching
Biocentric	It destroys nature, plants give us air.	Because it's not right to kill nature.	It's not good because it pollutes the earth and the earth will be sick after.	Because you don't have to destroy the forests to make money. Nature is more important.
Homocentric	Because at least you can see the animals.	Because after people, they have no food.	Because at least there will be more room for people.	That's good, it can be useful.
Isomorphic	To destroy trees is not good but to build for people is good	That way people will be able to see them but they are not in their natural place	Because trees give us air and we can kill animals that live in trees like birds	The tablets can be useful to us but it is not good to destroy the vegetables



# Occurrence of reasoning with specific teaching and non-teaching

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1st grade

	1st grade without teaching	1st grade with teaching
R. Biocentric	<b>69</b>	<b>117</b>
R. Homocentric	52	67
R. Isomorphic	20	17

=> Chi 2 : 28.73 p=1%



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## 2nd grade

	2nd grade without teaching	2nd grade with teaching
R. Biocentric	<b>92</b>	<b>110</b>
R. Homocentric	64	57
R. Isomorphic	25	30

=> Chi 2: 11.61 p=10%



# Results about « I don't know »

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	Without teaching	With teaching
1st grade	48	16
2 <sup>nd</sup> grade	22	6

T-Test for the 1st grade :  $t(-1.842)$ ,  $p < .05$

T-test for the 2<sup>nd</sup> grade :  $t(3.053)$ ,  $p < .05$



## 6. Discussion & conclusion

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- Differences

- Teaching reinforces biocentric reasoning
- There is a difference significant between knowledge, the children who have teaching have more knowledge than other children (T-Test for the 1st grade :  $t(-1.842)$ ,  $p < .05$ ; T-test for the 2<sup>nd</sup> grade :  $t(3.053)$ ,  $p < .05$ )
- There is no significant difference between the dimensions

- Similarities

- Both groups of children are most likely to have biocentric reasoning (confirmed hypothesis, Kahn 2002, 2006, 2008)



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- Children have a predisposition to biocentric thinking about the environment.
  - Biocentric environmental ethics are present as early as the age of 6
  - Education increases biocentric thinking, and provides knowledge of the living world, allowing, moral development of the environment
  - Maybe more environmental centered
  - Perspectives: research with a larger population; lifespan developmental perspectives; cross-cultural comparisons.





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Thank you for your attention

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