

# **Pupils' and teachers' attitudes related to the environment and its protection**

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## **SUMMARY**

This paper is based on the results obtained from a pilot study developed for the master's thesis in Environmental Sciences (specialisation in teaching) from the University of Minho, intitled "Pupils' and Teachers' Attitudes related to the environment and its protection". First we present the results related with some general questions. After, we discuss the answers given to the environmental dilemmas that focus opposite values and by analysing the justifications and their framing in the given categories elaborated by Pozarnik, we infer the level of moral development of the people inquired.

**KEY WORDS:** environment, environment protection, environmental education, values in environmental education, environmental attitudes.

## **RESUME**

Cet article présente les résultats acquis d'une étude expérimental développée pour la thèse du magistère en Sciences de l'environnement (enseignement) de l'Université du Minho, intitulé "Les attitudes des élèves et professeurs face à l'environnement et sa défense". Dans une première partie on présent certains résultats relatifs à des questions générales que l'on considère plus importantes. Dans une seconde partie, on explore les résultats acquis au sujet de certains dilemmes de l'environnement et, selon son encadrement dans la catégorisation élaboré par Pozarnik, on peut conclure le niveau de développement moral des personnes interrogées.

**MOTS-CLES:** environnement, défense de l'environnement, éducation environnementale, valeurs environnementales, attitudes environnementales.

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## 1. INTRODUCTION

The current environmental context has made it very evident that the paradigm of scientific, technological, economical and social rationality that has governed the production and use of scientific and technological knowledge in western societies does not fit the presupposition of sustainability, but rather the postulate that 'the environment has value only as long as it is economically profitable.' (Fien, 1999<sup>3</sup>). This type of non-sustainable development found, among other aspects, in an unbridled exploration of natural resources and in the contamination of the environment by various pollutants, has shown that Man cannot use Nature irresponsibly without running the risk of irreversibly compromising the natural equilibrium and consequently creating situations of rupture that ultimately revert against him.

Such a rationale is found in and perpetuates an anthropocentric ethic of the conception of the world. At the threshold of the XXI century, it is urgent to promote the change of paradigm to one of ecocentric ethics, which prizes a respect for all forms of life and for the non-life base that helps to sustain it and which sees Man as an inseparable part of the environment and Nature.

These imperatives clearly show the role of Environmental Education in raising conscious awareness, informing citizens as well as citizen intervention in relation to environmental questions. According to the Belgrade Declaration (1975), the big goals of the EE are: 'forming a world population that is conscious of and worried about the environment and its problems, a population that has the knowledge, the competency, the spiritual well-being, the motivations and the sense of obligation that will allow for individually and collectively working towards the resolution of current difficulties and preventing their reappearance'(cited by Novo, 1996<sup>4</sup>). Environmental Education involves the acquisition of knowledge and the development of attitudes and values that are environment-conscious; consequently, they involve a complex system of cognitive, psychomotor and social-affective components.

Previous research indicates that a relationship exists between a wider knowledge of ecology and larger concerns with the environment. (Cottrel & Graefe, 1997<sup>5</sup>).

On the other hand, Kohlberg (cited by Marentic Pozarnik, 1995<sup>6</sup>) inferred the existence of a close relation between cognitive development and moral development. As a result, it appears that the cognitive components may determine the development of certain environmental attitudes and values. The values related with EE which are most frequently mentioned are: a responsible, caring attitude towards the environment, respect for all forms of life, an awareness of the consequences of one's behaviour, solidarity with all living beings, active support for the sustainable use of resources, enhancing quality of life (Marentic Pozarnik, 1995<sup>6</sup>).

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<sup>3</sup> Fien, J. "Reorienting formal education for sustainable development". In UNESCO. *Sustainable Development. Education, the force of change*. Caracas: UNESCO, 1999, 65-91.

<sup>4</sup> Novo, M. *La educación ambiental. Bases éticas, conceptuales e metodológicas*. Madrid: Editorial Universitas, S.A., 1996, 21-68.

<sup>5</sup> Cottrel, F. P. & Graeffe, A. R.. "Testing Conceptual Framework of Responsible Environmental Behaviour". *Journal of Environmental Education*, 29, (1), 1997, 17-27.

<sup>6</sup> Marentic Pozarnik. "Probing into Pupils' Moral Judgement in Environmental Dilemmas: a basis for "teaching values". *Environmental Education Research*, 1, (1), 1995, 47-58.

The principal objective of this pilot study and consequent Master's thesis is to identify some environmental values and related attitudes and to detect the level of moral development of the pupils and teachers of elementary education. This deals with the establishment of a starting point for the promotion of the necessary moral development so as to define a solid framework of pledged environmental values, the basis for attitudes and behaviours in the defence and protection of the environment.

## 2. METHODOLOGY

**Population and sample:** The sample considered in this pilot study consisted of 44 subjects (33 pupils and 11 teachers) of a Elementary School of the Coastal Centre. Twelve of the pupils enquired belong to the 7th form (ages between 12 and 14 ); nine pupils attend the 8th form (ages between 13 and 14); twelve students were from the 9th form (ages between 14 and 18). The teachers enquired presented very distinctive ages and educational backgrounds.

**Instruments:** the questionnaire used is divided into two parts: (I) Questions of a general nature, (II) environmental dilemmas. The first part included six questions of a more general nature and which separate the importance attributed to environmental problems and environmental defence and on the evaluation of attitudes related with the environment. The Second part consisted of nine dilemmas that asked the participants to opt between different attitudes presented that typify opposing values. To clarify the options taken, they were also asked to justify their choice.

**Collection and Data-handling:** The questionnaires were delivered to the then School Council of Elementary School of Pardilhó with the instructions to be administered to 90 pupils, 30 from the 7th form, 30 from the 8th form and the remaining 30 from the 9th form. Another approximately 30 questionnaires were to be handed out among the various department heads so as to have two to three educators responding per subject group. To infer the level of moral development of those enquired, a categorising scheme elaborated by Pozarnik (Marentic Pozarnik, 1995<sup>5</sup>), from Kolberg's combination of development stages (Kolberg, 1976<sup>7</sup>) and a simplified version of the reflexive development stages in problems of ill-structuring (Kitchener & Fischer, 1990<sup>8</sup>) was used.

In this way, the analysis of the arguments that justified the options taken in the resolution of the presented dilemmas permit the inference as to the level of moral development of those enquired by placing them into the following categories: (1) Gives no reasons or illogical reasons ; (2) Provides one-sided reasons (only related with one side of the dilemma) on a concrete level; (3) Provides one-sided reasons, on a general level; (4) Suspends judgement or only repeat arguments for both sides; (5) Connects both sides of the dilemma, on a concrete level; (6) Connects both sides of the dilemma on a general level.

Although we remained faithful to this categorisation, it was noted that, in future, there was a need for an adaptation to be made (namely, in relation to the fourth level), as those

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<sup>7</sup> Kohlberg, L. "Moral Stages and moralisation", in: LICKONS, T. (ed) *Moral Development and behaviour*, 1976, 2-15.

<sup>8</sup> Kitchener, K. S. & Fischer, K. W. "A skill approach to the development of reflective thinking", in: KUHN, D. (Ed.). *Developmental Perspectives on teaching and learning thinking skills. Contribution to human development*. 21, 1990, 48-62.

enquired who suspended judgement either presented only one-sided arguments or provided reasons that appeal to both sides.

### 3. ANALYSIS OF RESULTS

#### 3.1. Some general indicators

The results obtained in the questions of a general nature won't be analysed in this presentation. But we will show you some of them. It can be seen that the problems related with the environment occupy a third place on the preoccupations of the pupils while only fifth place (with the same average for poverty) in the preoccupations of the teachers.

Among the problems of humanity, the degradation of the environment appeared to concern not only the pupils but also the teachers enquired. It is interesting to note the high percentage that the environmental problem of 'Destruction of the ozone layer, greenhouse effect and acid rains' presents. Such fact may be a result of the huge disclosure of certain themes by the mass media.

#### 3.2. Answers to environmental dilemmas

The results obtained in the answers to the environmental dilemmas are translated in the tables that follow.

*Table I. Answers obtained in the dilemma 1 "To buy cars that use unleaded gasoline or buy diesel cars?"*

	Possible answers to dilemma 1		
	To buy cars that use unleaded gasoline	Buy diesel cars	Undecided
<u>Students (%)</u>	79	0	21
<u>Teachers(%)</u>	82	0	18

*Table II. Answers obtained in the dilemma 2 "Reduce the production of CO<sub>2</sub> or to postpone the resolution of the problem?"*

	Possible answers to dilemma 2		
	To begin, at once, the reduction of the production of CO <sub>2</sub>	To postpone the resolution of the problem	Undecided
<u>Students (%)</u>	79	6	15
<u>Teachers(%)</u>	82	0	18

Table III. Answers obtained in the dilemma 3 “To prohibit the use of CFC’s or not to prohibit them?”

	Possible answers to dilemma 3		
	To prohibit the use of sources of CFC’s at once	To continue to allow the use of sources of CFC’s	Undecided
<u>Students (%)</u>	58	9	33
<u>Teachers(%)</u>	36	0	64

Table IV. Answers obtained in the dilemma 4 “To build waste treatment infrastructures even if such leads to an increase in taxes or wait for new and cheaper solutions ?”

	Possible answers to dilemma 4		
	To build sewer networks, residual waste treatment station and wastes, increasing taxes if necessary or to increase the rate of garbage treatment	Not to increase the taxes nor the garbage treatment rate even that leads to not constructing the sewer networks and waste treatment	Undecided
<u>Students (%)</u>	49	18	33
<u>Teachers(%)</u>	36	9	55

Table V. Answers obtained in the dilemma 5 “Should the parish support the construction of the waste treatment plant or oppose it ?

	Possible answers to dilemma 5		
	The parish population should support the construction of the waste treatment plant and accompany its operation	The population should be opposed and apply pressure so that the waste treatment plant is built in another parish	Undecided
<u>Students (%)</u>	33	18	49
<u>Teachers(%)</u>	27	18	55

Table VI. Answers obtained in the dilemma 6 “Should the industries be forced, at once, to install treatment systems or to postpone that installation until the prices decrease?”

	Possible answers to dilemma 6		
	The industries should be forced, at once, to install treatment systems	The installation should be postponed, until the prices decrease	Undecided
Students (%)	77	23	0
Teachers(%)	100	0	0

Table VII. Answers obtained in the dilemma 7 “To build the tourist complex or not to build?”

	Possible answers to dilemma 7		
	To build the tourist complex	Not to build the tourist complex	Undecided
Students (%)	79	0	21
Teachers(%)	82	0	18

Table VIII. Answers obtained in the dilemma 8 “Should availability of fuels be limited per inhabitant or not?”

	Possible answers to dilemma 8		
	The availability of fuels should be limited per inhabitant	Should not be limited	Undecided
Students (%)	67	9	24
Teachers(%)	55	9	27(*)

(\*) From 9% of those interrogated, we didn't obtain any answer.

Table IX. Answers obtained in the dilemma 9 “To buy the wallet made of crocodile skin or not to offer a gift to the father?”

	Possible answers to dilemma 9		
	To buy the wallet	Not to offer a gift to the father, on his birthday	Undecided
Students (%)	18	61	21
Teachers(%)	18	55	27

### 3.3. Obtained results from the categorisation

In this transparency we give you an example of the categorisation made to the justifications given for the resolution of the environmental dilemmas.

#### DILEMMA 7:

In a certain forest area, there exists some species of rare animals and plants, such as a certain species of eagle. However, this village finds itself with a huge social-economic problem: there are very few employment opportunities, the majority of the inhabitants being farmers and many families, to avoid starving, must rely on the charity of neighbours.

A foreign investor has presented the Municipal Hall with a project for the construction of a tourism complex in the parish, which would create dozens of job opportunities. However, it would be necessary to destroy a huge part of the forest area, which would cause the death of the protected animal and plant species. What should they do?

The pupils and teachers had to chose among the following answers and to justify their choise by writing down arguments:

- (a) To build the tourist complex
- (b) Not to build
- (c) Indecided

The Table X shows some examples of the categorisation made.

<b>(1)</b> Gives no reasons or illogical reasons.
• E.g. To build the tourist complex to protect the environment.
<b>(2)</b> Provides one-sided reasons (only related with one side of the dilemma) on a concrete level.
• Do not build so as to not cause the extinction of the eagle species.
• Yes, build if it help the villagers.
<b>(3)</b> Provides one-sided reasons, on a general level.
• If they build, nature will be destroyed.
• These species of animals and plants are rare and they are all that we have left and are disappearing. If the hotel industry complex is built, these animals and plants will disappear and with them the pride of the inhabitants of the region. Never again can these species be recuperated, we would lose a patrimony of Humanity.
<b>(4)</b> Suspends judgement or only repeat arguments for both sides.
• If, on the one hand, the construction industry will benefit the population, on the other, it will destroy the vegetation and the species of plants and animals.
• On the one side, the economy of the village will benefit but on the other it will harm the environment, placing the eagle species in danger.
• Because by building the hotel complex, many people will earn some money na won't have to rely on the charity of their neighbours. On the other hand, these birds are endangered and

if they die, there won't be any other like them.
<b>(5)</b> Connects both sides of the dilemma, on a concrete level.
<ul style="list-style-type: none"> <li>Although I like the environment, the job opportunities are more important, as they provide economic resources for people to feed themselves properly. Then they can do something to recuperate the lost forest area.</li> <li>Construct the hotel complex, but adhere to a plan which would integrate the forest area so as to respect and allow for the preservation of the animal and plant species.</li> </ul>
<b>(6)</b> Connects both sides of the dilemma on a general level.
<ul style="list-style-type: none"> <li>If the people have the right to survive, then so do other living creatures. Different alternatives should be sought, such as to respect and allow for the preservation of the animal and plant species.</li> </ul>

In the table XI are presented the results obtained from the categorisation of the justifications given for the resolution of the dilemmas by those interrogated.

*Table XI. Results of the categorisation of the justifications given for the resolution of the dilemmas by those interrogated.*

	Dilemma 1		Dilemma 2		Dilemma 3		Dilemma 4		Dilemma 5		Dilemma 6		Dilemma 7		Dilemma 8		Dilemma 9		Total	
	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T	S	T
1	5	2	9	2	10	3	7	2	15	3	10	3	11	2	18	3	9	2	94	22
2	17	0	15	1	10	1	12	0	12	1	18	2	13	2	10	1	12	0	119	8
3	3	6	5	5	6	2	5	3	2	3	3	5	2	0	3	6	6	1	35	31
4	4	1	0	1	4	4	6	3	2	3	0	0	5	1	0	1	2	2	23	16
5	2	2	2	0	1	1	1	3	0	1	0	1	0	2	0	0	2	6	6	16
6	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	6

The following table illustrates the classification elaborated by Marentic Pozarnik, that appears represented in the table XI by the ciphers from 1 to 6.

*Table XII. Classification elaborated by Marentic Pozarnik.*

1	Gives no reasons or illogical reasons.
2	Provides one-sided reasons (only related with one side of the dilemma) on a concrete level.
3	Provides one-sided reasons, on a general level.
4	Suspends judgement or only repeat arguments for both sides.
5	Connects both sides of the dilemma, on a concrete level.
6	Connects both sides of the dilemma on a general level.

### **3. CONCLUSIONS, SUGGESTIONS AND IMPLICATIONS**

Although this was a pilot study, the analysis made of the obtained results allow for some inferences. However, it can be told that we had some difficulties in the categorisation of the justifications given to the environmental dilemmas. It should be necessary another instrument such as an interview to clarify some of the answers obtained.

However, it can already be stated that pupils and teachers reveal in their decisions and arguments a clear tendency towards attitudes that typify environmental values. It is interesting to see that this tendency is superior in the pupils', although there are exceptions, such as the case of dilemma three, intitled "To prohibit the use of CFC's or not to prohibit them?".

In relation to the categorisation made as to the justifications of those enquired, it can be seen that the pupils tend to respond at a concrete one-sided level and teachers at a general one-sided level. Here it can be concluded that there is a necessity for incrementing situations that favour the development of values with a view to an effective environmental growth. It is not enough to have a development of exact attitudes that are lost in time and that do not last. The creation of a framework of values that are the basis of a set of attitudes for the defence and preservation of the environment and which provide evidence of a degree of high moral development are the most desired results of Environmental Education.

## Annex 1

### Example 1:

Dilemma number 9: 'Pedro's father's birthday is today and Pedro wants to buy him a present. The shops are closing and the boy debates the problem: His father needs a wallet and Pedro has seen a very beautiful one, made of crocodile skin, at an accessible price. However, Pedro knows that these animals are a protected species, as they face the danger of extinction. But, after all, it is also true that the crocodile is already dead and there is nothing he can do about it. What decision should Pedro take?

### Example 2:

Dilemma number 3: The ozone layer protects the Earth's surface from the dangerous ultraviolet rays. However, certain chemical products which exist in sprays, foam, air conditioners, some fire extinguishers, refrigerators, etc. are sent into the atmosphere and provoke its destruction. Consequently, the life of some living beings may be affected and in Man there may appear certain skin cancers among other health problems. Most scientists defend the prohibition of the use of the products in which these chemical compounds exist (Chlorofluorocarbons - CFC's), others do not see the problem in such a radical way. Furthermore, the use of sprays, foam, fire extinguishers, air conditioning, and refrigerators guarantee us a more comfortable and safe life. What should be done?