"Trees have a soul too!"
Developing Empathy and Environmental Values in Early Childhood

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ABSTRACT

Coping with environmental crisis cannot but presuppose a change in the values adopted by modern man. Both ecocentric values associated with creating a caring relationship with nature, and the development of empathy, can become vehicles of transformation towards a society based on ecological principles. In connection with these issues, an Environmental Education program for preschoolers was designed and implemented in the classroom. The evaluation shows that preschool children can be interested in non-human beings, can feel the need to protect them, and ascribe them intrinsic value.

Keywords: environmental values, empathy, preschool environmental education

What accords Environmental Education its dynamic character - and marks its difference from environmental studies - is the dimension of critique, relating to the identity of the active citizen who - through studying and clarifying attitudes and values, rejects the prevailing standards, and who, by seeking alternative ways of being, modifies his actions accordingly, and consequently transforms society and the environment (Sterling, 1993). A special case of such a process involves the anthropocentrism - ecocentrism dichotomy and all the movements in between that have emerged over the last decades (Attfield, 2014). More specifically, the technocentric-anthropocentric approach is part of a traditional moral framework which does not question the dominant role of humankind, does not ascribe ethical values to non-human beings and bases the protection of the environment on an economic- administrative approach and on its instrumental value[i]. On the other hand, the ecocentric approach is developed through the concept of the abolition of the separation of human from his environment, as we are in unity with the rest of the world who contributed in our creation (Taylor, 2011). Awareness of this fact impels modern human beings to attribute intrinsic value[ii] to non-human beings, and to entire ecosystems (Norton, 1982; Regan, 1983; Taylor, 2011; Nash, 1989).

Ecology is interested in improving the relationship between humankind and nature. If people accept the indisputable scientific fact of their interrelation with the natural world, then they will regard it with respect and love (Leopold, 1949; Taylor, 2011; James, 2015).

From another perspective, the ecofeminists are committed to establishing caring relationship with the environment (Gilligan, 1982; Warren, 2000). The perception of the "self in relationships" provides the basis for the review of our relation with nature[iii] in a way that people are considered part of a relationships network. In this context humans take care of the land selflessly, without expecting anything in return, just as the mother looks after, and provides for the needs of her child. Such a relationship does not allow for an instrumental value to be attributed to nature. These features bring women very close to a holistic, organic moral philosophy, according to which every being has its role and is worthy of respect and dignity (Dodson, 1982).

Other researchers and philosophers concentrate on creating deep empathic relationship between humankind and nature (Silva and Phillipi, 1998; Wahlstrom, 1998), whose focal point seems to be the resignation of human from the position of sovereign ruler and the acceptance that he is only one link in an endless chain, whose overall needs have priority over those concerning a single link.

Empathy

Humans could not have survived as a species if everyone cared only for himself (Hoffman, 2001, p. 1). Empathy is the interpersonal ability to discard egocentric impulses, while focusing on the needs of the other, or "the knowledge of the state of mind of another person and the spontaneous emotional response to it" (Hoffman, 1975) or "an affective response more appropriate to another's situation than one's own" (Hoffman 2001, p. 4). Empathy is found in new-born-infant's response cry, which has been verified by experiments and observations (Nakao and Itakura, 2009), among apes (Clay και de Waal, 2013, Yamamoto και Takimoto, 2012) and generally in nature (De Waal, 2010). Although empathy is a capacity that young children possess inherently (Denham, 1998; Nakao and Itakura, 2009), it is also a social capacity, which requires cognitive achievements and therefore can be developed.

Role-Taking as a precondition for empathic arousal. The ability to take on roles, that is the development of the perspective of the other, seems to develop in parallel with empathy. At the age of two years children perceive others not only as separate physical entities, but as beings with their own thoughts, feelings, perceptions and intentions (Hoffman, 1988)[iv]. This is the initial step in the ability to take on roles, which is considered as the main precondition for the development of empathy (Omdahl, 1995). Role-taking is a term that refers to the person's ability to see the world through the eyes of another, to understand their needs and desires as being different than those of oneself, and understand the relationships between individuals. The three types of role-taking (affective, perceptual, cognitive[v]) require the subject to come into conflict with his own perspective and to overcome it. The element that is of particular importance in early childhood is the ability of affective role-taking.

Children in their socializing display an empathic approach, perceive the feelings, perspective and cognitive functions, emotional concerns of other children, show interest, provide care and assistance and develop altruistic behavior (Borke, 1975; Hoffman, 1975; Radke Yarrow, Zahn-Waxler and Chapman, 1983; Radke-Yarrow and Zahn-Waxler, 1984; Stewart and Marvin, 1984; Pearl, 1985; Dadds, Hunter, Hawes, Frost, Vassallo and Masry, 2008; Gilbertson, 2012; Chomey, 2014; Gregoire, Bruneau-Bherer, Morasse, Eugène and Jackson, 2016).

The empathic reactions, when they start early in human life, can later contribute to the adoption of ethical principles (Damon, 1988). Growing, the child will be able to get in touch with the three related but quite distinct aspects of empathy, namely, experience sharing, mentalizing and prosocial concern (Li and Yu, 2015), therefore will seek and construct corresponding ideologies (Hoffman, 1984; Hoffman, 2001), given the fact that enhancing children's emotion understanding may facilitate the development of the cognitive dimension of empathy (Li and Yu, 2015). The emotional and cognitive traits, although separately developed, constantly interact and are experienced together (Hoffman, 1988). Ethical principles are thus accompanied by an emotional charge that contributes to their most effective compliance.

Empathy is considered a prerequisite for the development of moral thinking by Kohlberg himself (1969), although he sided with the traditional research trend in empathizing with ''cold'' cognitions rather with the ''hot'' affect in making judgments of ethicality, therefore he focuses his ethical orientation on the concept of justice and ignores the emotional side of morality, and the motives of behavior. Nevertheless, recent work has begun to add greater balance to affective reactions and showed that "both cognition and affect are important, but more research is needed to determine how they work together"[vi] (Fortin, Nadisic, Bell, Crawshaw and Cropanzano, 2016).

The ethical orientations of justice and care are based on diametrically opposed types of experiences and interpersonal relations and are different ways of organizing the basic elements of moral judgement. While initially Gilligan (1982) considers both orientations totally opposed, in subsequent approaches she negates the strict dichotomy by stressing the relativity of things. She believes that the two kinds of ethics are complementary between them. Along with the ethics of care, general principles and rules are needed (Crittenden, 1990).

Acquiring the feeling of care (i.e. being receptive to what another has to say, and open to possibly hearing the other's voice more completely and fairly- Thayer-Bacon and Bacon, 1996) and responsibility is complementary to the ethical thinking, that is why researchers have been arguing about the "need for a pedagogical framework to productively incorporate the role of emotions in (…) ethics teaching" (Gillam, Delany, Guillemin and Warmington, 2014).

The above described personal sense of empathy with other people can be extended into empathy towards the natural environment which is one of the main variables for responsible environmental behavior (Hungerford and Volk, 1990; see also the empathetic representation of nature in an anthropomorphic manner that enhances action efficacy, Tam, 2014). People who put aside their personal interests and give priority to the needs of nature tend to protect it and adopt environmentally friendly values.

The development of environmental altruism is related to creating a caring relationship, love and respect for the environment. In this framework then, empathy towards the non-human world means recognizing the needs of animals, and nature in general, the importance of their survival and displaying an interest in their wellbeing (Berenguer, 2010) [vii].

In accordance with Brabeck (1988) and Noddings (2002) who proposed the designing of educational programs for the development of attention, care and sympathy towards near and distant others, plants, animals and the environment, and in order to study the possibility of developing in preschoolers empathy for non-human beings and nature, an environmental education program was designed and prepared which is presented in this research work.

The educational intervention

The research program took place at the 60th public Kindergarten School of Thessaloniki in the academic year 2001-2002, and it was the main part of a PhD thesis dissertation. In that research program, the educational intervention effect towards cultivating environmentally friendly attitudes and values was examined. Seventeen five years old preschoolers participated in the experimental group. Through the thematic unit 'Forest', the program aimed to develop the perspective of non-human beings, and the emotional sensitization of preschoolers to them. Integrating environmental philosophy, namely the respect and care towards other forms of life and our kinship with them, constitutes a basic core. Children come into contact with the idea that animals have intrinsic value, and that they are part of a large extended family of human and non-human creatures sharing the natural world. Empathy in this educational design is not an end in itself but is chosen as the developmentally appropriate tool for forming ecocentric environmental values at preschool age.

In an early childhood educational program the integration of environmental ethics with the rest of the activities can be done as described in Table 1 (Lithoxoidou, 2006):

Table 1
Linking environmental ideas in the program

ENVIRONMENTAL IDEAS	⇨	LINK IN THE PROGRAM
Unity Humans - Nature	⇨	We care about the other forms of life as our mother cares for us. We are one family.
Relationships networks	⇨	We take care of forest trees and animals. Their well being depends (among other things) on our behavior towards them.
Ascribing intrinsic value	⇨	Organisms like plants and animals have a good of their own.
Biodiversity	⇨	Organisms like plants and animals support the life of the whole ecosystem.
The Ecosystem – Habitat	⇨	The forest is the home of animals. That is where they sleep and eat.

The proposed program aims at fostering environmentally friendly attitudes through:

• the acquisition of knowledge,
• creating sentiments, feelings of care and developing a sense of responsibility for other beings,
• forming values and rules of pro-environmental behaviour, which the children will voluntarily follow, and
• the strengthening of environmentally friendly action.

The introduction to the topic was a discussion concerning the children's past experiences from their trips to the forest. The discussion was followed by a narrative tale, as a trigger for an interdisciplinary approach to knowledge, reflection and exchange of views.

The content of the program involved four main modules (see Table 2):

Table 2
Thematic program units

Unit 1: A. "Trees" • The parts of a tree -the biological needs of the tree • Similarities with humans • The trees as natural resources • Managing of trees-paper • The forest is the animals' shelter	Unit 2: B. "Animals" • The biological and emotional needs of animals • The concept of "home" - habitat • Similarities with humans • Interdependence • Unity: The relationship humans- animals
Unit 3: C. "The risks to the forest" • The lighting of fire • Tree cutting • Real estate development • Hunting • Endangered species • Scenario: "How would our life be without forests? "	Unit 4: D. "The protection of the forest • Standards of environmentally friendly behavior • Creating environmentally friendly behavior rules • Participation in environmentally friendly activities

(FOREST)

A. "Trees": The purpose of this section is to demonstrate first that the trees have their own lives with biological needs similar to those of humans (explored through simulation games). Reference is made to the value of the tree

as a natural resource, both for the preservation of human health and for utilitarian objects produced by it (delivered through children's literature, role playing and discussion), with the main aim being the development of the concept of sustainable management of this resource (experienced through educational visit - field trip, puppetry, texts, ethical dilemmas, crafting with waste materials). Finally, emphasis is given to the value of the tree, and the forest as habitat, since these provide the environment in which many species of animals, birds and insects find shelter (with simulation games and constructing a model of a forest).

B. "Animals": This unit aims to underline the similarities of animals with humans, through highlighting the biological and especially the emotional needs of the animals (delivered through matching games, discussions, naming, imitation). The animals, like man, need a home (ecosystem) to survive. The concept of ecosystem leads to the development of the concept of interdependence, and the elaboration of the relationship between humans and animals (through experiential games). Unity and interaction between them within a network of relationships is one of the main purposes of this section (for the achievement of which the children came in contact with Indian poetry).

C. "The risks to the forest": In this section the risks to the forest as a whole, such as fire, logging and real estate development, but also especially to animals, such as hunting, are presented through children's literature texts (narrative, drama, puppet shows). Both the causes (indifference, overconsumption/waste, the desire of wealth, greed) and the consequences (destruction of tree life; death of animals) are illuminated. Finally, a scenario of our life without forests is presented.

D. "The protection of the forest": In this part the main objective is to create environment friendly rules of conduct for the children and take protective action (planting trees, paper consumption reduction, recycling, cleaning of the forest) and dissemination/persuasion (posters, interview, demonstration). Furthermore, environmentally friendly actions are presented directly to the children (inviting professionals and volunteers into school) and indirectly (through children's literature texts and showing relevant films).

The children were divided into four groups, corresponding to the four sections of the subject, in order to write the information gathered in a newspaper. The program included seventy five designed activities and fifteen emerging activities. The program started in January and finished in June 2002. The completion of the program took the form of a celebration where the children dramatized the story they wrote, presented a role-playing game and displayed their artistic works.

During this intervention we focused on techniques promoting feelings, especially empathy, which plays a key role in shaping attitudes during early childhood (Gassin, 2002) and is therefore deemed to be an emotional state which can be nurtured (Pickens, 2009). The lived experience of observing a "person" in need makes empathy to spring out; therefore, it was necessary for the children to be in direct contact with the natural environment. There, they had the opportunity to participate in outdoor activities, to mobilize their attention, provoke their interest and stimulate them emotionally. The acquisition of experiences in nature is an extremely crucial factor in building children's relationship with nature (Louv, 2008), promotes prosocial behavior towards nature and peers (Acar and Torquati, 2015), increases empathy to nature (Palmberg and Kuru, 2000; Tanner, 1980; Chawla, 1998; Palmer et al., 1998a; Palmer et al., 1998b; Clark and Yu-Fai, 2007), and intensifies the sense of common bond of life with other living beings around us and develops our interest in the needs and the benefit of other creatures (Drissner, Haase, Wittig and Hille, 2014).

Within this context, at the start of the program, the children made an excursion to the suburban forest of the city and participated in a variety of experiential games (listened to the sounds of the forest, embraced tree trunks, built piles of leaves etc.) in order to feel a connection with the world of the forest.

Through literature and role-playing, trees or animals were perceived as persons, disclosing information about their situation to the children, helping them in this way to understand their feelings and to relate to their position (Hoffman, 1988). Consequently, pupils develop an understanding of their perspective and identify with them. More specifically, literature (Simpson, 1988; Elting, 2015; Clement, 2013, p. 4-5) and role-playing (Verducci, 2000; Fischer and Sarah, 2002; Janusheva and Pejchinovska, 2011) can serve as vehicles transferring information and in that way

bridging the spatial and temporal distance between the subject and its direct personal experience. In that way they promote a universal kind of empathy, to include whole groups and categories of beings, approaching the notion of a "universal consciousness" (Rifkin, 2009, p. 128).

Children's literature describes natural objects as human beings with human appearance, behavior, etc (anthropomorphism), in order to make them appear more familiar. Through those anthropomorphic features and the use of human names the environment turns into an entity which the children recognize as similar to themselves, with common needs for survival. Through this process sound environmental attitudes are developed (Mallet, 1974), since anthropomorphism is related to empathy (Tam et al., 2013, Apostol et al., 2013, Chan, 2012) and leads children to ascribe intrinsic value to trees and animals.

Role-playing sensitizes pupils to the thoughts and feelings of others. Moreover, the use of language in the process of playing has a significant impact on the acceptance of new ideas (Iannotti, 1978).

Based on the above, during the program the children came in contact with several children's literature texts, in which the heroes (trees or animals) carried and communicated information on their situation. Very often dramatization of stories followed in which children took roles, and developed the perspective of other creatures (see Figure 1).

In order to facilitate role-taking, educational activities (narrative and dramatization of stories) were employed with background music capturing attention, magnifying awareness and triggering emotions, so that the stimulus was strong, and thus efficient. Research shows that when children play an active role in forming their learning experience, and are involved both cognitively and emotionally, their level of involvement will be more fundamental (Farveh, 2014).

Figure 1: Children dressed in masks dramatized what animals and trees
of the forest experience when people *come by.*

Activation of empathic skills in children is achieved by highlighting the innocence of the "victim", in other words, by helping children understand that this creature (tree, animal) is not responsible for the difficult situation it finds itself in. According to the theory of *causal attribution*, this 're-living' stimulates their sense of justice, which in turn activates the emotions of empathy in children (Taylor, Peplàu, and Sears, 1994).

Employing this theory in practice becomes part of the program activities when working with children's literature. For example, if our goal is to prove the innocence of a nonhuman being who suffers, and emphasize the injustice, we need to ask children the following questions: "If you were the blackbird (or other animal) whose forest was burned, what would you like to tell us? How do you think you would feel?"

It is important to identify our common needs with someone in a difficult situation (Reykowski, 1984), as we care more for those with whom we recognize similarities and perceive to have links with ourselves (Warnock, 1996, Lian and Mathis, 2016, p. 614; Parsons, 2016). It is not by accident that animal rights activists "emphasize our similarities [to animals] in order to break down the human–animal divide" (Cherry, 2016, p. 79).

The connection of children with other beings was sought to be enhanced through poetry relating to the Indian worldview and games. The similarities with humans were emphasized with activities, which included:

> Similarities between man - tree: Look at your body and compare it to your tree: "As we stand, our feet and our toes keep us firmly on the ground. The roots of the tree are in the ground. Our skin protects our internal organs and keeps germs out. So does the bark of the tree. Also, under the bark, the sap goes to all parts of the tree, just like the blood in our veins. Our body is similar to the trunk of the tree, straight and tall. Our hands are like branches. Leaves grab the sun as our fingers grasp an object".

Empathy development techniques also included the strategy of inductive discussion[viii], which is proposed by the cognitive-social theory and aims to develop interest in the welfare of others, as it places emphasis on the emotions and desires of other people, and connects their needs with the actions of the individual (Staub, 1971, 1981). Inductive discussion refers to all elements of ethics: emotions, knowledge, judgment, behavior (Shaffer, 1989), and provides a cognitive network that assists the child in role-taking and the development of the perspective of others.

The analysis of the consequences of the child's acts to others, as well as providing advice on the appropriate conduct in each particular case, helps the child to realize the consequences of his actions on others, understand and ultimately internalize moral norms.

During the course of the program, questions were regularly asked to prompt discussions on the consequences of children's behavior towards forests, trees and animals. For example, "what happens to the trees if we misspend/waste paper? What happens to the birds in the forest if you shout loudly? What problems do we cause to animals by throwing garbage in the forest?"

The program is also enriched with other teaching strategies originating from the Values Education approach (Caduto, 1985; Huckle, 2015, p. 81), which are considered developmentally appropriate for preschoolers (Mackey and de Vocht-van Alphen, 2016). Applying the techniques for building empathy skills is adopted by the strategy of moral growth, which is an offshoot of the cognitive development theory (Piaget, 1932), as empathy is considered a precondition for the development of moral thinking (Kohlberg, 1969).

The teacher's aim is to strengthen the moral judgment of the child, through the introduction of new (under investigation) values, bringing him to a position where the child is faced with a cognitive conflict. Children play an active role in creating the rules stemming from the new values that have occurred (and which they have discussed), and the emotions they have experienced. The rules, namely, are not stated as absolute truths, but as issues for judgment, since the objective is the autonomy of children.

With the aim to explore the qualities related to the intrinsic value of nature, namely respect, caring, responsibility, and to create the necessary rules of behavior, children, in groups of two or three, dramatized different scenes, for example:
- We uproot flowers, cut branches and leaves.
- We eat sandwiches, drink juices and throw away our waste and rubbish.
- At school when we have to write our name, we are not careful and do scribbles, throwing away paper, one after another.

After each activity one of the children who viewed the scene de-constructed it. We judged the actions of the main characters, we talked with them about their choices, and we shed light on the values of respect, of care, responsibility, the intrinsic value of nature. We reflected about whether we are interested or not in paying attention

to the issues highlighted in the dramatized scenes. Children decided on the rules they will require to achieve the desired outcome. One of the children in each group made a drawing for each rule. On the drawings showing the desired behavior, we added the corresponding caption - rule.

Behaviorist teaching strategies like values inculcation, imitation of models and reinforcement of behavior (Kirschenbaum, 1995; Grace, David and Ryan, 2008; Gentile and Gentile, 2008, p. 130, 138; De Corte et al.,1996, p. 492 as referred in Greer, 2009, p. 150; Iscan and Senemoglu, 2009, p. 3; Kumar, 2014; Tan and Tan, 2014) are derived. More specifically inculcating values refers to the direct transfer of messages.

During the program several environmental messages were presented to children through literature, puppet shows, posters, toys, etc.

Providing role models for empathic imitation was performed through the thematic unit "*People who help and protect the forest*". Examples of empathy were identified in literary and television heroes, but also in real life, in the classroom and in our school. We talked about the forester, firefighters, simple children, nature lovers, and we were informed about the various environmental organizations.

The 'reward' received by the child for his environmentally sound behavior is best linked to his self-image (Kochanska, 1984), and not to external rewards. Awards with titles such as "the friend of the forest" or "friend of the earth" were chosen as the most appropriate method of reinforcement after the environmental activities in which children were involved.

Learning through action is another method of values education associated with the active participation of students in the protection of the environment. The children's activities relate to eco-management, anti-consumerism and actions to convince the community (Volk, 1998). Those kind of activities were shown not only to boost the pupils learning and development through their parents and family involvement (Fantuzzo, Tighe and Childs, 2000; Goodwin, 2005) but also to educate the whole of community (Vaughan et al., 2003) through cooperative children-parents learning and reach a point where the community and the school collaborate (see a relative literature review in Ma et al., 2016). The more the task of assistance to other forms of life is demonstrated to be important and meaningful, the more the involvement is effective (Zelezny, 1999).

During the program, the children had the opportunity to participate in eco-management actions, such as cleaning the forest, recycling at school and planting trees in a municipal park in the city of Thessaloniki, North Greece.

Furthermore, the element of action in the community was accomplished by us organizing a protest in the school playground where we used our prepared placards, we interviewed older children from the primary school and we displayed the posters we had created.

Evaluation method of the educational intervention

To investigate the development of empathy in the preschoolers who participated in the program, a research project was designed and implemented. This combined qualitative with quantitative approaches, with elements from experimental research and action research.

The convenience sample was chosen because of the easy access to it (one of the researchers was their teacher at that period of time). Moreover all of the seventeen pupils experimental group, despite the fact that they were living near the forest, they very rarely used to visit it. Due to the fact that they didn't have until then any previous kindergarten experience on the environmental issues they were more than willing to participate to the specific program. Of course, the results of the present research work are not generalisable since our sample does not represent the population as a whole.

Measuring attitudes and values, which are the dependent variables, was based on a semi-structured interview before (autumn 2001) and after the implementation of the program (summer 2002) for both the experimental group

and the control group. The children were asked to choose the environmental attitude that they considered correct (positive or negative), based on eight pairs of images which referred to paper management issues and the forest ecosystem as a whole (fire and garbage in the woods), but also to attitudes and behavior issues towards the plants and the animals of the forest. The questions are open (e.g. why do you prefer to collect garbage into a bag rather than throw it away in the forest?) so that the respondent, with flexibility and freedom, will give his own interpretation and develop his own arguments. All interviews were audio recorded in order to allow the detailed analysis and study of the content that the interview data underwent.

Results and Discussion

During the content analysis of the interviews, an attempt was made to make the categories mutually exclusive (Holsti, 1969), but this was not feasible. The theme was determined as the unit of analysis and the presence or absence of specific attitudes, values and ideas were investigated. In the present research, the categorization of the children's responses refers both to the stages of ethical-emotional development of preschool children and to the main currents of Environmental Ethics and Philosophy. After indexing the responses, subcategories emerged, resulting from the material gathered during the interviews, as mentioned in Table 3.

Table 3
Categories and subcategories of child responses

MAIN CATEGORIES Productive categorization		SUBCATEGORIES Inductive categorization
A. EGOCENTRIC ORIENTATION		A1. Avoiding punishment A2. Consequences to oneself A3. Hedonism A4. Practical interests
B. SOCIETY - CENTERED ORIENTATION		B1. Interest in other people B2. Stereotypical environmental rules
	C.I. ANTHROPOCENTRISM	C.I.1. Instrumental value - Natural resource C.I.2. Health C.I.3. Recreational - Aesthetic value
	C.II. ECOCENTRISM	C.II.1. Interest in the needs of other forms of life C.II.2. Intrinsic value C.II.3. Empathetic relationship

After implementing the program, the categories of environmental orientation were mostly preferred by the pupils of the experimental group. "Ecocentrism" (C.II) presents the most impressive increase in the number of responses among all categories[ix]) while it is observed that the categories of egocentrism and society - centered orientation are reduced, occupying the last two positions in the preferences. The desire of children to derive personal pleasure regardless of the consequences of their actions on others (egocentricity) is highly reduced, and replaced by concern for the environment.

These findings seem to contradict to the basic thesis of Piaget (1932), according to which children younger than six or seven years cannot "decenter"[x] and therefore behave in an "egocentric" way. The perceptual role-taking on which Piaget was based (1932) best illustrated in the famous experiment with the three mountains designed to prove the above point of view, however, is not a prerequisite for the understanding of the internal situation of another person. Research data of a later time (Crittenden, 1990, Svetlova, Nichols and Brownell, 2010; Thompson, 2012; Zahavi, 2015) shows that the young child can get in the position of another person more easily than what was considered by Piaget, and attribute children's "decentering" difficulty to the lack of interpersonal motivations - which facilitate

the desired understanding -from the experimental planning of Piaget (Donaldson, 1987). Researchers who took these factors into account when planning their experiments reached results that differ from those of Piaget (Borke, 1975; Hughes, in Donaldson, 1987; Astington and Hughes, 2013; Carpendale and Lewis, 2015). In other words, in a context of interpersonal motivation the difficulty of "decentering" attributed by Piaget to young children is in no way demonstrated. On the contrary, young children are able to take into account the views of others, if the experimentations in which they participate are more suitable for their age, and even more if these are observed during physical activities (during their play) and not in artificial laboratory conditions.

In addition to the preschoolers inefficiency related to perceptual role-taking, Piaget (1932) based his egocentrism concept on the children' s egocentric speech, according to which the child "makes no attempt to place himself in the position of the listener". However, there is research evidence to refute this position on egocentrism (Cole & Cole, 1993; Woodward, 2009; Wagner, Greene-Havas and Gillespie, 2010; Abbot-Smith et al., 2016). Preschool children can take into account the perspective of the listener. For example, they use simple speech when talking with younger children, but they do not do the same when talking with peers and adults (Hoffman, 1988; Syrett and Kawahara, 2014; Saylor, Baird and Gallerani, 2006).

Viewing ethical orientations of justice (Kohlberg) and care (Gilligan) combined with the multifactorial approach of empathy (cognitive and emotional factors in complementary relationship) the dominant perception of ethical development of preschool children is weakened. While, namely, in Kohlberg's terms of *moral judgement* preschoolers are placed in the pre-conventional stage as "not ethical ", conversely, in terms of care, children are characterized as "ethical". Preschool children, who meanwhile have attained the cognitive skills of distinguishing themselves from their environment, of role-taking, especially emotional role-taking, have the ability to take the perspective of others, to feel their emotions and express interest in their condition.

These findings support the view that preschool children develop the ability to diverge from egocentrism, opposite to what was the dominant view for many years. More specifically regarding the categorization of the sample's responses, the answers that fall into the category of *Environmentally Anthropocentric Orientation* are in favor of environmental protection for anthropocentric reasons. The environment must be protected because it has instrumental value, it is a natural resource:

> "*Do not spend paper. ... I do not want to spend paper because the forest will not have trees.*
> *There will be no apples for the children to eat*" (B10) (because human health and the preservation
> of life depends on it)

> "*I would get a bag and put them in the bag [the garbage], because when the forest becomes dirty*
> *we will not have oxygen*" (G2).

The pleasure offered by the natural environment and its beauty are additional non-utilitarian reasons to protect it:

> "*It is better to hear a little bird sing than have a cassette player scream. The birdies will get scared*
> *because that is not their own sound. ... It is bad for us because it will frighten them, they will leave*
> *and we will not have birdies. And for them it is also bad because then they will not be able to sing*"
> (B3).

The simultaneous presence of two subcategories in a child's answer occurs both in the initial interview and the final interview where the value of the natural resource (C.I.1) is combined with the value of health (C.I.2) (also see table 3):

> "*I don' t want to waste paper, I don' t want to waste trees. They bring fresh air, all the good things,*
> *a lot of good things they bring*" (B8).

In quantitative terms, in the initial interview the subcategories C.I.1, C.I.2 and C.I.3 of Table 3 show very low frequency in the total of 147 responses. In the second interview subcategory C.I.1 remains stable, C.I.2 increased more than sixfold its answers and C.I.3 increases them considerably, as shown in Figure 2.
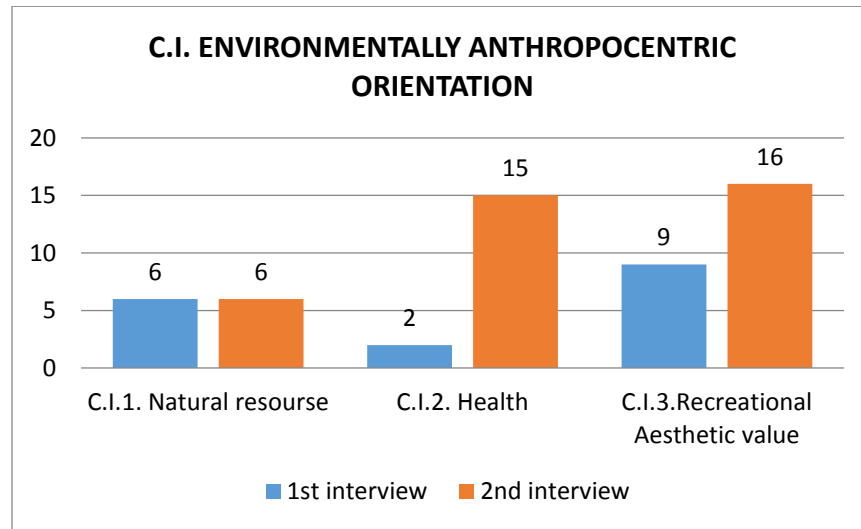
C.I. ENVIRONMENTALLY ANTHROPOCENTRIC ORIENTATION

	C.I.1. Natural resourse	C.I.2. Health	C.I.3.Recreational Aesthetic value
1st interview	6	2	9
2nd interview	6	15	16

Figure 2: Anthropocentric Orientation, experimental group

In qualitative terms, the responses of the other two subcategories differ in their content in relation to the initial interview, i.e., they are much more comprehensive in the final interview. For example, subcategory C.I.3 (referring to the Recreational- Aesthetic value) included answers concerning human interests such as:

> "It is not right to throw them on the road. The whole field will become dirty. If it is dirty, we cannot sit down to play" (initial interview, B6).

> Which was transformed as follows:

> "I do not want to throw down rubbish and make the forest dirty. I want to go with my parents, see the animals, eat and throw them in the rubbish bin, not down" (final interview, G3).

There was a significant increase of anthropocentric orientation responses in the final interview, especially in the subcategories "Health" and "Recreational-Aesthetic value". The development of anthropocentric values, we reckon is due to the attainment of the cognitive objectives of the program, which were incorporated in the planning in order to support the emotional goals. For example, the increase of the number of responses referring to "Health" is associated with the realization that the quality of human life depends on the quality of the wider environment. That realization came after the children were informed on the consequences of a potential environmental impact.

The *Environmentally Ecocentric Orientation* is the category which refers to recognizing the needs of non-human beings and to expressing interest in satisfying those needs by the children. In this category, associated with the main objectives of the program, responses that support the protection of the environment for reasons connected with the environment itself are included, such as interest in the presence of other forms of life (see Table 3 - C.II.1):

> "[*I don't waste paper in order*] to have trees, [because] there, the nests of birds are" (B9),

recognition of the inherent value of non-human forms of life (see Table 3, C.II.2):

"*I do not want to step on ants because they also have a heart, a little one*" (B10), and

development of empathic relationship with non-human forms of life, emotional arousal and intention for personal action (see Table 3, C.II.3):

"*I must not play music loud and deafen the animals. Because it is not very good to scare all the animals when we play loud music. It matters, when we frighten the animals, this means that something bad comes to the animals... and I don't want that*" (B6).

The simultaneous presence in the same answer, of two different responses which were classified in two different sub-categories was very common in this category, especially in the final interview answers. The most common such combination was when the interest towards other forms of life is expressed through emotional statements (C.II.1-C.II.3), such as:

"I wouldn't play music because it's scary for the birds, because I love them a lot" (B4).

The intention to take action is often associated with identifying the intrinsic value of other beings (C.II.2-C.II.3):

"*It's a pity to step on the little animals and the little flowers, then they wouldn't have lives*" (B3).

"*It is not good to kill little animals and flowers, we water them, we feed them. I want to take care of them*" (B6).

The simultaneous presence of both the intrinsic value of non human beings and the interest in other forms of life (C.II.1-C.II.2) is also frequent:

"*I like to do lots of flowers on a few papers so I don't spend paper, because then the trees will cry. I care because they have a soul too*" (G6).

The "interest towards other forms of life" was quite common to begin with (C.II.1 in Table 3) and it attracts twenty three responses before the implementation of the program, followed by forty-four responses at the final interview. The ability of preschool children to take into account the perspective of other forms of life (ie. the visual, cognitive, and affective aspects of life- see a relative review of the perspective taking in Mori and Cigala, 2016) and show interest[xi] in their situation is one of the key findings of this research, which is consistent with other recent research (Radke-Yarrow & Zahn-Waxler, 1984; Pearl, 1985; Eisenberg, 1989; Denham, 1998; Karniol, 2012; Gunindi, 2015[xii]; Hergovitch et al., 2002[xiii]). The literature review justifies the belief that young children, although they may have difficulty in differentiating between the needs of others and their own, when assisted to realize it, they can develop an altruistic behavior (Pearl, 1985; Herot, 2002, p. 173; Cigala, Mori and Fangareggi, 2015; Bhavnagri and Willete, 2011; Webster-Stratton and Reid, 2003). The survey by Stewart and Marvin (1984), which concerned the interest expressed by three-year-olds and four-year-olds and the care for their baby brothers and sisters, shows a positive correlation between preschool age children understanding the perspective of babies and care offering (see also Thompson and Thompson, 2015; Hinnant and O'Brien, 2007).

Preschool children can empathize with other people (Sallquist et al., 2009), learn to identify the feelings of others (Mortari, 2011) and be more socially sensitive (Findlay, 2006), as they express concern and interest in the feelings and perspectives of others (Baldwin, DaRos-Voseles and Swick 2003; Goleman, 1995; Ornaghi, Brockmeier and Grazzani, 2014).

Moreover, the ability of young children to care for other beings (human and nonhuman) appears to be an emotional skill which can be cultivated. This of course is clear from the responses of the experimental group and the control

group in the final interview. Especially in regard to the subcategory "interest in other forms of life" the two groups differ significantly, not only quantitatively but also qualitatively.

The intensity of interest and the emotional involvement that is expressed from one side by the children of the experimental group and from the other with moderate statements by the children of the control group become apparent in the examples described in Table 4.

We observe that the control group is interested in the proper functioning of the ecosystem and the physical needs of other beings. This is unlike the experimental group where the children's interest extends to the emotional needs of other beings. Also the intention to take action, the emotional activation of children and the emergence of the value of the ecosystem arise[xiv].

Table 4
Qualitative differentiation E.G. - C.G. in C.II.1 after the intervention

Experimental group	Control group
[I prefer not to light up fire to barbeque in the forest] for several reasons, [I want] to have flowers and water them, we will not have oxygen [if the forest is burned], (…) [birds] they have no nest, they will cry the whole winter, we don't want them to cry (B9).	I do not want to destroy the flowers because bees go in and take their pollen.
Because the birds will have nowhere to build their nests (G8).	In order not to cut the trees, to let them grow.
In order not to disturb the animals because I love them too (G3).	For the little birds to not leave.

In the final interview, all subcategories of "Ecocentrism" exhibit a high frequency and contain many more responses than those of the initial interview, as shown in Figure 3.
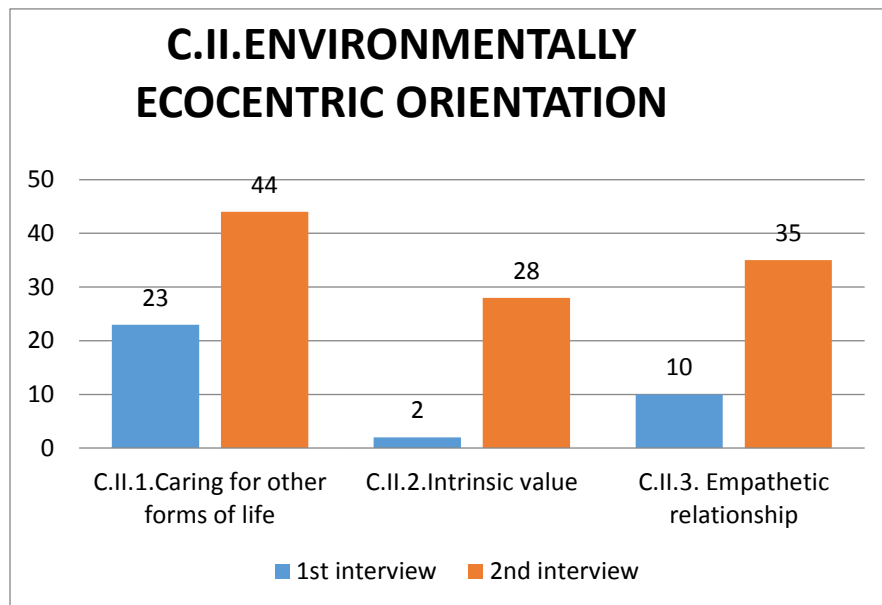

Figure 3: Ecocentric orientation, experimental group

In this research work, we mainly intended to develop the "empathic relationship" (C.II.3 in Table 3) and the planning of the intervention was designed accordingly. The difference between the number of the experimental group

responses of the initial interview (10) and the ones of the same group in the final interview (35) confirms their emotional activation. Children express themselves in the first person singular, which we considered as a sign of involvement and awareness of their actions' consequences and of their disposition to take personal responsibility.

Interestingly, a similar investigation by Kellert (1985) provided evidence that preschoolers do have emotional predisposition for the protection of non-human forms of life. More specifically, his cross-age study on the attitudes of children towards animals showed that children initially care for animals and justify that on emotional grounds, but later on they justify their care on ethical and ecological grounds.

The impressive presence of the subcategory of "intrinsic value" (see Table 3- C.II.2) in the children of the experimental group at the final interview confirms the development of environmentally friendly values. The content of the activities (which emphasized animals and trees "coming to life", their needs and desires) seems to have strengthened the functioning of the animistic character of the children's thinking at this age. Such anthropomorphism seems to have generally positive results; it is associated with empathy (Apostol, Rebega and Miclea, 2013; Chan, 2012; Tam, Lee and Chao, 2013) and leads toddlers to spontaneously recognize intrinsic value in trees and animals, which is probably the most disputed value within Environmental Ethics.

Additionally, the increased frequency of the subcategory "empathic relationship" at the final interview probably is due to the efficiency of empathy building methods, which were incorporated in the planning of the program. The development of the perspective of other people through role-taking is supported by a series of studies (Feshbach, 1982; Kalliopuska and Tiitinen, 1991; Diamond and Carpenter, 2000, p. 82; Shvedovskaya and Archakova, 2015, p.37; Tse, 2006, for children with disorders; Hess, 2006, for special needs children). Such methods are effective because they enrich the participants in cognitive and emotional elements (Damon, 1988). These techniques have been implemented by many well known programs such as "The Child Development Project", which stresses the role of literature as a means of identification with the main characters and thus of empathic skills development (Battistich, Watson, Solomon, Schaps, and Solomon, 1991).

Children who role played animals or responsible citizens involved with environmental issues during games, perceived the animals' point of view, recognized their emotions and consequently cared for them and protected them. Staub (1971) and Iannotti (1978) reported that children practiced role-taking with simulation games or improvised and acted out narratives, while the program of Kalliopuska and Tiitinen (1991) with children aged six and seven years old, combined practicing roles and storytelling leading to perspective taking of the "other" (McGinley and Carlo, 2007, p. 339; Mabry and Bhavnagri, 2012). Reduction of aggressive behavior and a corresponding increase in prosocial behavior was observed in children aged six years old who participated in activities recognizing emotions and exchanging roles (Feshbach, 1982). Additionally they used puppetry to play altruistic scenes, which they had previously watched on a television program (Radke-Yarrow et al., 1983).

Conclusion

The experimental group responses have changed between the initial and the final interview, whereas the control group ones remained the same. That fact is attributed to the participation of the first and the non-participation of the second in the experimental intervention. The experimental group was exposed to the natural environment (experiential component), it was provided of direct information in a slogan form (inculcation), its members participated in emotional role-taking (with empathy development techniques), they developed awareness of the consequences of their actions to the forest (inductive discussion), they were facilitated to take decisions while facing moral dilemmas (moral development) and developed the ability to diverge from egocentrism and show consideration for *others* and their needs. In this case the "Others" were non-human beings and thus the "ecocentric orientation" was developed. The same children were able to take responsibility and to proceed to environmentally friendly action (Newhouse, 1990). Such a multifaceted pedagogical approach is conducive to the development of environmental values and the progress of child morality.

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Footnotes

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[i] Instrumental value is the value attributed to something which is used as a mean to an end. Retrieved from https://www.khanacademy.org/partner-content/wi-phi/wiphi-critical-thinking/wiphi-fundamentals/v/intrinsic-extrinsic-value, 6 January 2017.

[ii] The intrinsic value of something is said to be the value that that thing has "in itself," or "for its own sake," or "as such," or "in its own right." Retrieved from https://plato.stanford.edu/entries/value-intrinsic-extrinsic/, 28 December 2016.

iii The connections between nature and woman at an ethical level are illuminated by Carol Gilligan (1982) through her book *In a Different Voice*, where she laid the foundations of the *Ethics of Care.*
Caring is the feminine way of approaching things and is associated with the tendency of women to recognize themselves in relationships, in affection and responsibility networks. Caring is determined by reference to the well-being of people in relationships (Vreeke, 1991) and is not limited by reciprocity. The same belief in the value of relationships networks between beings is expressed by Niebuhr, as cited by the Scoville (1995).

iv The ability to adopt a role appears from the age of two, especially for people who are familiar to the pupils, therefore their perspective is known to them, but it is often not detected because surveys only measure cognitive and verbal ability.

v Affective role-taking refers to the understanding of the emotional state of another person. Perceptual role-taking rather concerns the perception of different experiences of space, while cognitive role-taking is associated with understanding the other's way of thinking.

vi The ethics of nature should, rather than rely on impersonal, universal, theoretical moral concepts called rights, probably pay more attention to moral concepts such as respect, sympathy, interest, gratitude, friendship, responsibility.

vii In connection with the empathy of adults towards animals, researchers are wondering about the widespread skepticism concerning the mistreatment of animals which is still alive (Aaltola, 2013). They refer to the "liberated feminine empathy" towards animals (Phillips et al., 2011), the increased empathy of veterinarians to cattle (Norring, Wikman, Hokkanen, Kujala, and Hänninen, 2014; Wikman et al., 2013), of women and the elderly to goats (Muri and Vale, 2012). Also the relationship between the interest towards animal welfare and the economic crisis has also been investigated (de la Lama, Genaro, Sepulveda, Villarroel, and Gustavo, 2013).

viii Inductive is the discussion which beginning from particular instances leads to the formation of general rules. The Oxford English Dictionary (OED Online, accessed October 20, 2012) defines "induction," in the sense relevant here, as "the process of inferring a general law or principle from the observation of particular instances (opposed to deduction n., q.v.)". Retrieved from https://plato.stanford.edu/entries/induction-problem/#ConNotInd, 28 December 2016.

ix While in the initial interview Environmental Ecocentric Orientation (C.II) had collected thirty-five (35) responses, in the final interview it reached one hundred and seven (107) responses.

x Decentration includes an understanding of how others see the world and seeing how we differ

xi According to a research work (Howard Vick, 2010), insects receive the most negative verbal and nonverbal responses, whereas a real dog was viewed much more positively.

xii Children were requested to draw a picture related to the value of affection and explain it (…) they generally depicted (…) animals like butterflies and dogs, trees, flowers and grass.

xiii The presence of a dog fostered the development of a better segregation of self/non-self, which is the foundation of sensitivity towards the needs and moods of other people. Also empathy with animals was developed.

xiv From the answers of the children of the experimental group (Table 4) it is revealed the interaction of birds with the trees of the forest. The emergence of the value of the ecosystem is established on this basic awareness of interdependence.

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