

# Cultivating Environmental Consciousness during Early Childhood – Kindergarten Teachers' Views on the Role of Social Values

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## ABSTRACT

This study examines issues of the modern sociological and environmental research which in order to decode environmental behavior has turned its focus towards the study of social values, among others. This study focuses specifically on the educational group of kindergarten teachers as they are the first persons, after family, to get involved with the process of education and socialization of children. This study is based on empirical research so as to examine kindergarten teachers' views on the values which they themselves think are related to environmental consciousness as well as to what extent these values are cultivated within the educational system. The main conclusion of this study is that, according to kindergarten teachers, the education provided in kindergarten cultivates to a very limited extent those social values which they think necessary for developing the environmental consciousness of children.

**Keywords:** environmental consciousness, attitudes, social values, preschool education

## INTRODUCTION

In the last decades, the increasing deterioration of environmental problems has attracted the attention of a rising number of researchers throughout the world. The discourse between social and environmental research is focused on studying the social values as decisive parameters in the formation of attitudes and environmental behavior. An increasing number of scholars assert that social values lay the foundation for each type of behavior, be it on the individual or on the collective level, and hence understanding their role may contribute significantly to improving the programs for the development of environmental consciousness and to strengthening environmental awareness among citizens (Poortinga, Steg, & Vlek, 2004; Steg, Perlaviviute, Werff, & Lurvink, 2012).

Taking the above into consideration, many researchers have focused their attention on younger generations as it is the young people who will take decisions in the future and who will have to take action for the quality of the environment within the context of sustainable development (Cini, Leone, & Passafaro, 2012). Under this light, environmental education is a strong tool of environmental politics in order to cultivate environmental consciousness in children.

The importance of education in the formation of behavior and generally the socialization of an individual has been highlighted not only by educationalists but also by sociologists worldwide. Education is the first

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**Article History:** Received 15 March 2018 ♦ Revised 16 April 2018 ♦ Accepted 26 May 2018

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entity (after family) to lay the foundation for the socialization of individuals on a non-biological basis (Parsons, 1959; Nova-Kaltsouni, 2010).

From the 19<sup>th</sup> century, Emile Durkheim already highlights that education is an important process for the socialization of individuals as their behavior is cultivated through education in the context of social integration and coherence (Pocock, 1953). Indeed, the importance of education in the social adaptation of an individual has been underlined by important educationalists, such as Fröbel, Dewey, Decroly, Cousinet, and others (Houssaye, 2000). Dewey defines education as a social necessity, a social process or a social institution. Decroly regards the smooth integration of an individual into the existing social environment, where the child becomes familiar with their rights as well as their obligations and duties, to be the main goal of education (ibid). In the same direction, Hungerford and Volk (1990) highlight that the ultimate aim of education is the formation of behavior and that societies adopt educational programs based on the attitudes and behaviors they want their citizens to develop.

Especially nowadays, environmental education aims to create an environmental ethos based on which citizens will express their interest in environmental issues; by means of knowledge, skills, and attitudes they will try to prevent and solve these problems (Papadimitriou, 1998). According to Dimitriou (2009), environmental education or the education for sustainable development<sup>1</sup> plays an important role in cultivating the environmental thinking of students. The aim is to develop a new consciousness regarding environmental problems which leads to a greater participation of citizens in decision making processes. (Dimitriou & Christidou, 2011). At the same time, it aims to foster knowledge on environmental issues as the more advanced environmental knowledge is, the more likely it is that future action will be taken to protect the environment (McFarland & Boxall, 2003; Meinhold & Malkus, 2005).

However, students should take action as part of a team and in collaborative spirit (Dimitriou, 2009) since, as Gardner and Stern (2002) point out, no matter how important personal effort may be, it is the collective actions that bring about the most important results. In this context, individuals learn through environmental education to perceive the environment as a whole, where all elements are interconnected interdependently and interactively (Sweeney & Sterman, 2007). Through the critical and systemic thinking they develop, students search for the factors that cause environmental problems either on a personal, social or a political level. In this way, they are no longer based on passive knowledge and, as active members of society, they seek ways and organize actions to overcome environmental problems (Barrett, 2006; Barratt & Scott, 2007; Stevenson, 2007). In this context, the teacher should not only possess the necessary scientific knowledge, but also the necessary pedagogical background so as to be able to create the appropriate conditions in a learning environment, where the children can actively participate and take decisions through dialogue and cooperation (Chawla & Cushing, 2007; Summers, Kruger, Childs, & Mant, 2000).

Based on this view, many researchers have stressed the importance of cultivating environmental consciousness starting as early as the preschool age; these individuals will play an active role as future citizens and through their attitudes and behavior they will contribute to the development of a sustainable society. Preschool age is a critical period because then the foundations for the formation of the personality as well as of the socio-somatic, emotional and cognitive development are laid (Ryzhova, 2003). The importance of education in preschool age is mentioned as early as Comenius (1592-1670), John Locke (1632-1704) and later J. J Rousseau (1712-1778). Indeed Fröbel underlines that during preschool age, the child develops in body and spirit more than in any other age (Houssaye, 2000).

Tilbury (1994) also mentions that environmental education should start from the first years in the life of an individual because the habits, the values and the role models towards natural environments are formed gradually through various experiences. According to Cini et al. (2012), raising environmental awareness from a young age may contribute to forging a strong bond with the natural environment and to developing an environmentally friendly behavior. Likewise, Evans, Brauchle, Haq, Stecker, Wong, and Shapiro (2007) point out that environmental awareness should start early on so that children develop positive attitudes towards the environment in their future lives too. The earlier a child becomes familiar with environmental issues, the more their environmental consciousness will develop. In other words, when a child becomes aware of the

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<sup>1</sup> Since the 1990s, environmental education has been evolving into education for Sustainable Development. Sustainability not only includes overcoming environmental problems but mainly aims to understand the relation between humans-environment-society with the goal to secure environmental balance and social welfare for the present as well as for future generations (Jacobs, 2004; Koprina, 2012).

importance as well as the problems of the natural environment, s/he will want to adopt an environmentally friendly behavior and take action in order to overcome these problems.

### Environmental Consciousness

“Environmental consciousness” is a term that, despite the important efforts of researchers, is difficult to define with absolute clarity. A holistic approach to this term includes two dimensions, whose interaction defines the type of environmental behavior. First and foremost, there is the environmental dimension which encompasses environmental knowledge, environmental attitudes as well as environmental behavior (Maloney & Ward, 1973). Environmental knowledge is defined as the information and awareness of an individual on various environmental issues with the belief that utilizing this information will lead to a positive environmental behavior. On the other hand, environmental attitudes include the emotions experienced by an individual, i.e. their fears, concerns and other emotions resulting from realizing the dangers and the potential destruction of the natural environment, along with the intention for behavior. Finally, environmental behavior emerges from the two above dimensions, since both of them are based on the belief that through them (knowledge and attitudes), the individual will be led to environmental awareness and behavior (Papadimitriou, 2006).

On the other hand, the systematic analysis of ecological problems and their operative events commands that a social dimension – apart from the environmental one – be given to the notion of consciousness. Its social dimension concerns more the social awareness as the focus is shifted specifically to various social problems that emerge as a result of environmental problems (Schultz, Gouveia, Cameron, Tankha, Schmuck, & Franek, 2005; Dempsey, Bramley, Power, & Brown, 2011). This is corroborated by the fact that environmental problems are caused by society itself and human behavior, while simultaneously having an impact on society. Under this light, the interest in social problems, the quality of the environment bequeathed to future generations and social inequalities are vital parameters of social awareness.

### Attitudes and Behavior

As mentioned above, environmental consciousness includes attitudes and behavior. Attitudes are considered important for interpreting, controlling and predicting behavior (Ajzen, 2001; Witt, Boer, & Boersema, 2013). Environmental psychology has evolved in the last years on this basis; it studies, among other things, the role of environmental attitudes as variables of environmental behavior. Schultz, Shriver, Tabanico, and Khazian (2004) define environmental attitudes as all the beliefs and intentions of individuals regarding environmental issues. Dunlap and Van Liere (1978) argue that environmental attitudes emanate from beliefs on anthropocentrism, limits to growth and the balance of nature. Based on these parameters, they created an intercultural tool comprised of 12 items in order to evaluate how individuals perceive their relationship to the environment. This is the “New Environmental Paradigm Scale” (NEP) in which Dunlap, Van Liere, Mertig, and Jones (2000) included two more dimensions and hence it is now comprised of 15 items. These are the “concerns about the ecological crisis” and the “freedom of people from the constraints of nature.”

The construction of attitudes, however, comes from the three-dimensional model of Rosenberg and Hovland (1960). According to them, attitudes include three dimensions: the emotional, cognitive and behavioral dimension. The emotional dimension refers to emotions, fears, and concerns regarding the deteriorating condition of the environment. The cognitive dimension includes the knowledge and beliefs of an individual regarding environmental issues and problems. Finally, the behavioral dimension refers to the desire to take action (intention for behavior) and to actively participate in preventing or overcoming environmental problems and dangers. The combination of these three dimensions is deemed vital for the formation of environmental behavior and, by extension, environmental consciousness.

Based on this theory, Schultz et al. (2005) distinguish between three types of attitudes towards the environment: the social-altruistic attitudes, the biospheric attitudes, and the egoistic attitudes. The first one refers to the concern about other people, while the second one to the concern about all living creatures in nature. Finally, the egoistic attitudes refer to the concern about the negative consequences that may affect the self. Despite the fact that all three types of attitudes imply a concern about the environment, each of them relies on different values because the motives are different in each case. Understanding the different motives seems to be of vital importance as they define the final choices in the behavior of any individual.

Several researchers (e.g. Papastylianou & Papadimitriou (2009)) studied environmental behavior based on three central notions: anthropocentrism, egocentrism, and ecocentrism. Egocentrism refers to the fact that people aspire first and foremost to improve their own living conditions and also perceive the value of the

natural environment in the same light. Anthropocentrism instrumentalises nature, holds that mankind is sovereign within the ecosystem and regards environmental commodities as having the purpose of contributing in whatever way to the satisfaction of human needs. Ecocentrism presents an ethical dimension to man's relationship with nature. In nature it recognises a value which is independent from the extent to which nature can or cannot serve human needs. People- according to this same approach- are seen as part of nature and besides having the right to extract from nature they also have the duty to protect it, even if this would mean restricting their needs.

The distinction between ecocentrism and anthropocentrism raises the question as to what extent protection of the environment and harmonious man-nature relations constitute a distinct category of social values. Numerous studies either make no mention of environmental values or include them as values under collectivism or other relevant categories (Gärling, Fujii, Gärling, & Jakobsson, 2003; Schultz et al., 2005). Stern (2000), however, maintains that collectivism, individualism and «biospheric» values may also be related to attitudes, intended behavior and behavior itself. He claims that the attitude of people who embrace biospheric values is governed by the effect their acts will have on the ecosystem. Although in several studies certain difficulties would appear to arise in empirically confirming the existence of biospheric values and their links with the other values, the intention to behave and the actual behavior itself, the correlation is obvious (Nilsson, Von Borgstede, & Biel, 2004; Steg, Drijerink, & Abrahamse, 2005).

### Values and Behavior

The formation of attitudes and behavior, as mentioned above, relies on a more general context, that of social values. According to Schwartz (1992:21), values are defined as “*the desired goals which vary in importance and serve as guidelines in the life of an individual or a social entity.*” Actually, these are value systems which have an important influence on the formation of behavior, but also the ethics of any individual (Perkins & Brown, 2012). In this sense, values provide a foundation for the formation of attitudes and serve as guidelines for behavior (Poortinga et al., 2004). The importance of these values in the formation of attitudes and behavior has been highlighted by many researchers (e.g. Cordan, Welcomer, Scherer, Pradena, & Parada, 2011; Lee, Soutar, Daly, & Louviere, 2011; Pauw & Petegem, 2011; Schwartz, 2012; Steg et al., 2012) resulting in a series of studies that stress the social-altruistic and environmental values as well as the notions of “individualism” and “collectivism” to be vitally important for the formation of environmental behavior (Dietz, Stern, & Guagnano, 1998, Perkins & Brown, 2012; Steg et al., 2012).

The social-altruistic values, in particular, express the interest of individuals in the welfare of humanity, while the environmental values represent a more ecocentric dimension where interest is shifted exclusively to the well-being of nature itself (Perkins & Brown, 2012). On the other hand, collectivism is represented by individuals who, by leading a more collective way of life, seek for an environmentally friendly behavior for the benefits it entails for other people (Papastylianou & Papadimitriou, 2009). On the contrary, individualism aims at the independence of the individual, at competition and success (Lampridis & Papastylianou, 2014), and as a result, the individual is led to an environmentally friendly behavior only when there is a personal gain involved (Papastylianou & Papadimitriou, 2009). Thus, it is reasonable that there is a greater correlation between collectively thinking individuals and environmentally friendly behavior as these individuals focus on the welfare of the society rather than their own self (Deng, Walker, & Swinnerton, 2006).

### Aims and Goals of the Research

By taking into account the special role of the educational group of kindergarten teachers, who are the first persons, after family, to get involved in the processes of education and socialization of the child, we focus the interest of our study specifically on them. To our mind, studying their views on the factors that contribute to the cultivation of environmental consciousness is of major importance and can shed light on individual aspects of the process of socialization and environmental awareness of children in education.

This study is based on findings resulting from quantitative research, which we carried out in order to examine the views of kindergarten teachers on the values which they think are closely related to environmental consciousness as well as to what extent these values are generally cultivated during preschool education (not limited to environmental education, but more generally through educational processes) in kindergarten.

**Table 1.** Educational background of respondents

	%
Two-year degree	15.8
Two-year degree with equalization	9.4
University degree	60.4
Master's Degree	13.4
Doctorate	1.0

In order to achieve this goal, the following research questions were formulated:

1. How do kindergarten teachers perceive “environmental consciousness”?
2. Which values do kindergarten teachers think are necessary to adopt environmentally friendly attitudes and behaviors?
3. How do kindergarten teachers evaluate the extent to which certain values are cultivated in preschool education?
4. To what extent do they think that preschool education contributes to the development of environmental consciousness?
5. How do the environmental attitudes of kindergarten teachers correlate to their views on the factors that contribute to cultivating environmental consciousness?

## METHODOLOGY

The research was carried out by means of a questionnaire distributed to kindergartens in four provincial Greek cities, Alexandroupoli, Komotini, Xanthi, and Kavala. More specifically, the sample was comprised of 202 individuals, out of which 200 were women and 2 were men<sup>2</sup>. The age of the participants varied from 22 to 59 years old, with an average age of 39.4 years. As regards the educational background of respondents **Table 1** depicts that the majority of kindergarten teachers hold a University degree in Pedagogy (60.4%)<sup>3</sup>.

The questionnaire was formed in a way that could reflect the aims and goals of the research, based on the relevant bibliography. In particular, it included the following scales:

1. A scale made up of notions that can be parameters of environmental consciousness.
2. A scale of 22 social values; the participants were asked to evaluate whether each of them is a prerequisite for an environmentally friendly behavior. The values included in this scale came from a reviewed form of the social values scale used in the research carried out by Papastylianou and Papadimitriou (2009). The same scale was used to study the views of kindergarten teachers on the extent to which these values are instilled in children of this age.
3. A scale to record the environmental attitudes of kindergarten teachers: the New Environmental Paradigm Scale (NEP) by Dunlap and Van Liere (1978), was used in its reviewed form, hence comprising 15 items. In all scales, kindergarten teachers were asked to answer according to the five-point Likert scale, ranging from “not at all” to “absolutely.”
4. Demographics: regarding gender, age, professional experience, educational background and the vocational education of the respondents.

The analysis of the data was carried out with statistical applications. A factor and a reliability analysis were conducted. The suitability of the data for a factor analysis was examined with a Barlett's Test of Sphericity and the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO). A Paired Samples *t*-test was used to test whether there is any statistically significant difference between ‘important’ and ‘cultivated’ values. Furthermore, the Pearson's correlation coefficient and the Independent Samples *t*-test were used to analyze the relation between the NEP Scale and demographic data.

<sup>2</sup> The fact that the majority of the sample are women is justified by the nature of the profession which, particularly in Greece, is exercised overwhelmingly by the female gender. Therefore, the gender factor was not taken into consideration in our analyses.

<sup>3</sup> The education of kindergarten teachers was provided until the 1980s in two-year high schools (two-year degree). In 1982, it was upgraded through legislation at a four-year university level (University degree), aiming at the scientific training of teachers. The kindergarten teachers with a two-year education could upgrade their degree through the process of equalization.

**Table 2.** Components of “environmental consciousness”

	Component	
	1	2
To what extent do you believe that being up to date on env. problems is a parameter of env. consciousness?	<b>.754</b>	-.053
To what extent do you believe that developing positive emotions towards the natural world is a parameter of env. consciousness?	<b>.722</b>	.111
To what extent do you believe that the desire to take action is a parameter of env. consciousness?	<b>.679</b>	.260
To what extent do you believe being concerned about the degradation of the natural environment is a parameter of env. consciousness?	<b>.592</b>	.455
To what extent do you believe that the interest in the problem of social inequalities is a parameter of env. consciousness?	-.011	<b>.854</b>
To what extent do you believe that the interest in various other social problems is a parameter of env. consciousness?	.168	<b>.807</b>
To what extent do you believe that the interest in future generations and the quality of the environment “bequeathed” to them is a parameter of env. consciousness?	.477	<b>.567</b>

## RESULTS

The factor analysis was used to analyze the parameters kindergarten teachers think are related to environmental consciousness, resulting in two components (see **Table 2**). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy is a statistic that indicates the proportion of variance in our variables that might be caused by underlying factors. The value 0.76 indicate that a factor analysis may be useful with our data. Bartlett’s test of sphericity is significant ( $p < 0.001$ ).

The first component with a Cronbach alpha reliability index 0.68 includes variables which, according to socio-psychological theory, are dimensions of attitudes (knowledge, emotions, intention to take action). These variables are the following: “*knowledge about environmental issues*”, “*developing positive emotions for the natural world*”, “*desire to take action to protect the environment*”, “*concern about the degradation of the natural environment.*” The second component with a Cronbach alpha 0.67 includes variables that imply awareness towards social issues as well as towards future generations. In this sense, this component connects social with environmental awareness. These variables are: “*interest in various other social problems*”, “*interest in future generations and the quality of the environment ‘bequeathed’ to them*” and “*interest in the problem of social inequalities.*”

As regards the comparison of the two components, it seems that the first one shows a higher mean than the second ( $A=4.04$  and  $A=3.74$ ). A statistically significant difference emerged by comparing the equality of the mean values  $t(200)=6.73$ ,  $p=0.000$ . Indeed, the mean value of the component referring to consciousness as attitude is higher than the mean value of the component referring to consciousness as a social dimension; This reveals that kindergarten teachers identify the notion of environmental consciousness primarily with the individual dimensions of attitudes (cognitive, emotional, intention for behavior), without however overlooking its social dimension.

Regarding the study of the social values deemed by kindergarten teachers to be a prerequisite for environmental consciousness, four suggested components arose from the factor analysis (**Table 3**), two of which are of particular interest according to the relevant literature (Dietz et. al., 1998; Perkins & Brown, 2012; Steg et al., 2012).

**Table 3.** Components of important values for environmental behavior

	Component			
	1	2	3	4
To what extent do you believe that “persistence” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.725</b>	.261	.158	.028
To what extent do you believe that “discipline” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.669</b>	.083	.281	-.007
To what extent do you believe that “friendship” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.660</b>	.278	-.158	-.263
To what extent do you believe that “loyalty” (to persons or goals) is a prerequisite for the development of a more positive attitude towards the environment?	<b>.631</b>	.249	.385	-.155
To what extent do you believe that “dignity” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.630</b>	.303	.140	-.298
To what extent do you believe that the “moral obligation to one’s promises” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.588</b>	.245	.383	-.134
To what extent do you believe that “assertion” is a prerequisite for the development of a more positive attitude towards the environment?	<b>.577</b>	.077	-.162	.117
To what extent do you believe that “integrity” is a prerequisite for the development of a more positive attitude towards the environment?	.270	<b>.808</b>	.053	-.055
To what extent do you believe that “sense of honor” is a prerequisite for the development of a more positive attitude towards the environment?	.224	<b>.773</b>	.158	-.051
To what extent do you believe that “solidarity” is a prerequisite for the development of a more positive attitude towards the environment?	.263	<b>.763</b>	.156	-.115
To what extent do you believe that “patience” is a prerequisite for the development of a more positive attitude towards the environment?	.414	<b>.590</b>	.028	-.012
To what extent do you believe that “altruism (helping others even at one’s personal cost)” is a prerequisite for the development of a more positive attitude towards the environment?	-.013	<b>.488</b>	.342	.044
To what extent do you believe that “living in harmony with nature” is a prerequisite for the development of a more positive attitude towards the environment?	.078	.064	<b>.871</b>	-.100
To what extent do you believe that “environmental protection” is a prerequisite for the development of a more positive attitude towards the environment?	.093	.125	<b>.846</b>	-.081
To what extent do you believe that “collectivism (caring deeply for the good of others)” is a prerequisite for the development of a more positive attitude towards the environment?	.140	.298	<b>.540</b>	-.177
To what extent do you believe that “individualism (caring only for one’s own interests)” is a prerequisite for the development of a more positive attitude towards the environment?	-.039	-.004	-.067	<b>.871</b>
To what extent do you believe that “unlimited competition” is a prerequisite for the development of a more positive attitude towards the environment?	-.088	-.082	-.191	<b>.789</b>

These are the environmental values (environmental protection (A=4.63)), living in harmony with nature (A=4.59) and collectivism (A=4.34) with a Cronbach alpha 0.742), but also the values related to altruism (solidarity (A=4.21), integrity (A=3.96), sense of honor (A=3.96), altruism (A=3.95) and patience (A=3.61), with a Cronbach alpha 0.68), elements which are in the centre of attention in this study. The KMO=0.84 indicates that a factor analysis may be useful with our data and the Bartlett’s test of sphericity is significant ( $p < 0.001$ ). As regards the cultivation of these values, they are grouped according to their mean in the following order: “solidarity” (A=4.02), “collectivism” (A=3.96), “environmental protection” (A=3.91), “living in harmony with nature” (A=3.64), integrity (A=3.78), patience (A=3.73), sense of honor (A=3.63) and “altruism” (A=3.28). These results are displayed in **Figure 1**.

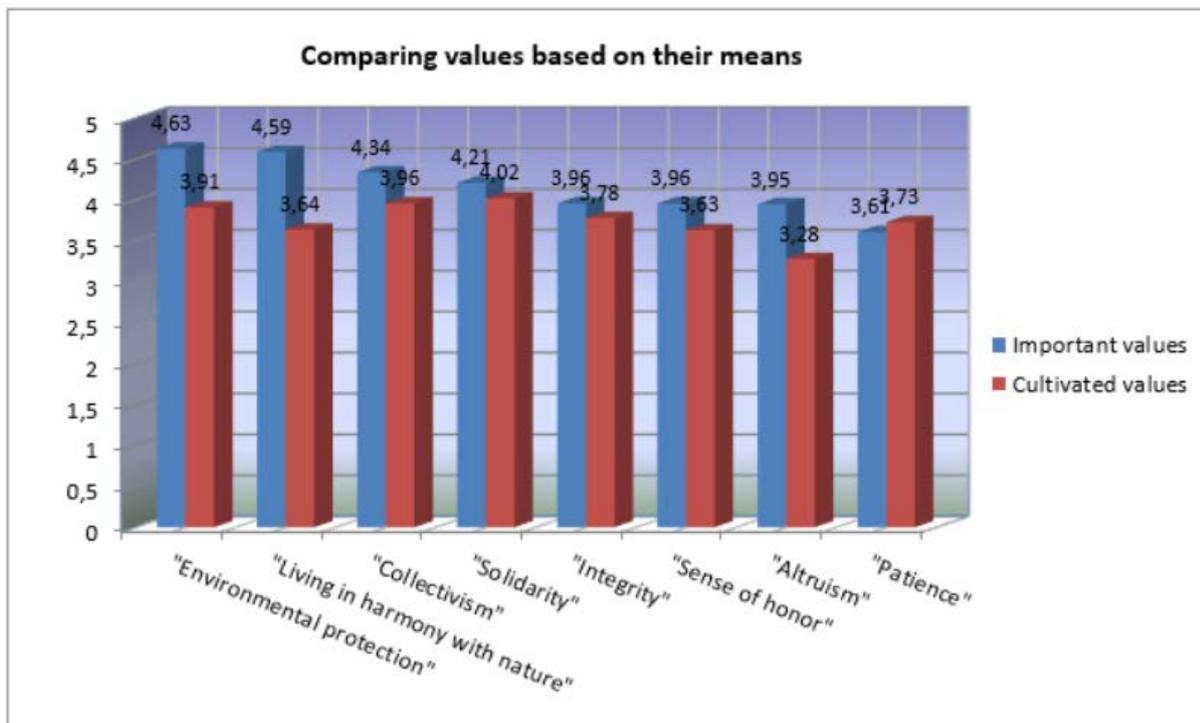


Figure 1. Comparing values based on their means

Table 4. Kindergarten teachers' views on the level of cultivation of environmental consciousness in children of preschool age

	%
Small	3.5
Average	23.3
Above average	52.0
Great	21.3
Total	100.0

In order to test whether there is any statistically significant difference between the above values, a Paired - Samples t-test was carried out as the measurements concern the respondents themselves. The analysis showed a statistically significant difference in the means of the values “environmental protection”, “living in harmony with nature”, “collectivism”, “integrity”, “sense of honor”, “solidarity”, “patience” and “altruism”, when their importance was compared to the level of their cultivation.

In particular, the test showed statistical significance for the variable “environmental protection”,  $t(201) = -13.06$ ,  $p = 0.000$ . This means that the mean of the variable “environmental protection” used by kindergarten teachers to describe its importance differs from the mean of the same variable regarding the extent to which they think it is cultivated. Likewise, as regards the means of the other variables, “living in harmony with nature” has  $t(201) = -15.38$ ,  $p = 0.000$ , “collectivism”:  $t(201) = -5.73$ ,  $p = 0.000$ , “integrity”:  $t(201) = -2.54$ ,  $p = 0.012$ , “sense of honor”:  $t(201) = -5.14$ ,  $p = 0.000$ , “solidarity”:  $t(201) = -2.97$ ,  $p = 0.003$ , “patience”:  $t(201) = 1.73$ ,  $p = 0.085$  and “altruism”:  $t(201) = -9.13$ ,  $p = 0.000$ .

A significant deviation emerges from this finding between the importance ascribed by kindergarten teachers to the above values and the extent to which, to their mind, these values are actually cultivated in preschool education. Despite that, according to Table 4, the majority of the respondents stated that environmental consciousness is fostered to a large (52%) and even to a great extent (21.3%) in preschool education in kindergartens which is not consistent with the above conclusion.

**Table 5.** Correlations between NEP and individual components

	NEP	Env. Values and Collectivism	Consciousness Attitude	Consciousness Social	Altruism- integrity-sense of honor- solidarity- patience
NEP	1	.248(**)	.066	.152(*)	.242(**)
Env. values and Collectivism		1	.255(**)	.178(*)	.398(**)
Consciousness Attitude			1	.488(**)	.246(**)
Consciousness Social				1	.317
Altruism-integrity-sense of honor- solidarity- patience					1

\*p &lt;0.05; \*\* p &lt;0.01

**Table 6.** Correlation between NEP and demographics

	Age of respondents	Years of professional experience	NEP
Age of respondents	1	.849**	.108
Years of professional experience		1	.086
NEP			1

\*\* p &lt;0.01

In regards to the measurement of the environmental attitudes adopted by kindergarten teachers, the NEP scale values show a quite ecocentric approach ( $A=3.78$ )<sup>4</sup>. In order to study the correlations between NEP and individual components and research variables, the Pearson's correlation coefficient was used (**Table 5**); it suggested that the higher NEP value is shown by individuals who acknowledge environmental values and collectivism ( $r=0.25$ ), altruistic values ( $r=0.24$ ) but also individuals who perceive the social dimension of environmental consciousness ( $r=0.15$ ).

The Pearson's correlation coefficient and the Independent Samples t- test were used to analyze the relation between the NEP component and demographic data. As shown in **Table 6**, there is no correlation between the variables of experience, age and the NEP component.

As regards the correlations between the environmental attitudes of kindergarten teachers and their vocational training or their staying up to date on environmental issues, the research results revealed that members of environmental organizations as well as individuals who stay up to date on environmental issues, do not show stronger environmental attitudes than individuals who did not reply positively in the above questions:  $t(200)=0.92$ ,  $p=0.358$  and  $t(200)=0.97$ ,  $p=0.331$ . Furthermore, individuals with a higher level of education did not show stronger environmentally friendly attitudes than their colleagues:  $t(200)=0.52$ ,  $p=0.602$ .

## DISCUSSION - CONCLUSIONS

The goal of this study was to examine the role of social values in cultivating the environmental consciousness of children in preschool age from the perspective of kindergarten teachers. Among the crucial questions of the study was to understand how kindergarten teachers perceive the notion of "environmental consciousness" and which values they think are necessary for the development of environmentally friendly attitudes and behaviors. Moreover, this study examined the opinion of kindergarten teachers regarding to what extent these values are cultivated as well as to what extent preschool education contributes to the cultivation of environmental consciousness.

In order to achieve the above goals, a series of analyses took place regarding the apprehension of the notion of environmental consciousness, the values that contribute to the adoption of an environmentally friendly behavior, and the values that are instilled in children of preschool age during their attendance in kindergarten. Furthermore, the study examined the environmental attitudes of the sample as well as the contribution of

<sup>4</sup> In order to create the NEP component, statements 2, 4, 6, 8 10, 12 and 14 were reversed so that they all "point" towards the same direction. Therefore, the ecocentric approach is expressed through a high NEP value.

various educational seminars, of the sample's awareness of environmental issues etc. to the formation of said environmental attitudes.

As regards environmental consciousness, results showed that kindergarten teachers seem to perceive more of its environmental dimension, expressed through environmental attitudes, and to a lesser, yet noteworthy, extent its social dimension which describes a broader spectrum of social issues.

As for the social values underlined by kindergarten teachers as important factors for the adoption of an environmentally friendly behavior, findings revealed a relative identification of their opinion with the relevant theories on the development of environmental consciousness and an environmentally friendly behavior. Specifically, the values emphasized the most in relation to developing environmentally friendly attitudes and behavior are collectivism and altruism (e.g. Dietz et. al., 1998; Perkins and Brown, 2012; Steg et. al., 2012).

Likewise, the teachers stressed the above values, by even grouping environmental values together with collectivism under the same component. The value of collectivism is related to environmental values because both of them seem to be of utmost importance for environmental behavior (Schultz et. al., 2005). Besides, the nature of collectivism itself, inspiring team spirit and social morale, are connected to social and environmental behavior and attitude. These aspects are necessary for the collective participation and collaboration of the citizens in order to solve environmental problems in the context of sustainable development.

On the other hand, however, there are major differences between the values which kindergarten teachers state are instilled in children during preschool education and the values they deem necessary for the adoption of a more positive attitude towards the environment. This finding comes from the fact that the means of the values related to environmental behavior show a statistically significant difference from the respective means of the values that are instilled into children according to kindergarten teachers. These are the values "environmental protection", "living in harmony with nature", "collectivism", "integrity", "sense of honor", "solidarity" and "altruism". The mean of the importance of these last values was higher than the mean of their actual cultivation.

Consequently, teachers recognize the role of certain values, such as altruistic values, solidarity, individualism and collectivism for environmentally significant behavior and indeed the same values are acknowledged by the literature. Several studies point to the fact that the ultimate decision regarding behavior is governed by a small number of values and that the «individualism-collectivism» bipolar dimension emerges as being of particular importance (Hui & Triandis, 1985; Kaiser & Byrka, 2011; Schwartz, 1994; Swami, Chamorro-Premuzic, Snelgar, & Furnham, 2010). In the case of environmental behavior, where the individual is called upon to make personal sacrifices beyond the related institutional orders, rules and laws, the two dimensions of collectivism and individualism are central, since both of these important dimensions in the study of values refer a) to individual values and b) to the individual's compliance with group values. Both of these concepts are seen to some extent to provide a sound basis for determining a society's culture, as is noted by Triandis, Leung, Vallareal, and Clack (1985), since cultures vary as a function of collaboration, competitiveness and collectiveness.

Using the same scale, kindergarten teachers were asked to what extent each of these social values is cultivated in preschool education. Their answers showed that there is a significant difference between what they think is important and what preschool education actually delivers. However, their answer to the question "to what extent is environmental consciousness cultivated in kindergarten" contradicts the above finding as their evaluation in this regard is positive.

As regards the assessment of environmental attitudes of kindergarten teachers, the NEP value appears to be quite high, revealing a quite ecocentric approach, whereby humans' relation and interaction with nature is interpreted through respecting and valuing the environment. The correlations between the individual components and variables of the research showed that individuals who recognize environmental values, values related to altruism and collectivism, and also individuals who perceive the social dimension of environmental consciousness reveal a higher NEP value. As a result, the findings are in line with the relative research as the above components have been underlined in many studies so far (e.g. Dietz et. al., 1998; Groot & Steg, 2007; Papastilianou & Papadimitriou, 2009; Perkins & Brown, 2012; Schultz et al., 2005; Steg et al., 2012).

As for the correlations between the environmental attitudes of kindergarten teachers and their education or information etc., the results of the research showed that members of environmental organizations as well as individuals who stay up to date on environmental issues do not show stronger environmental attitudes compared to individuals who provided a negative answer to the above. In addition, individuals with a higher educational level did not show stronger environmentally friendly attitudes than their colleagues.

Interestingly, in the international scientific literature education levels are linked with levels of environmental concern (Franzen & Meyer, 2010; Kelly, 2012; Plombon, 2011). An interpretation could be that our sample consisted of people with a similar educational level and, therefore, differences regarding their environmental attitudes are not statistically significant. On the contrary, a positive correlation was found between individuals in the sample who stated that they participate in programs or educational seminars on environmental education. This means that these individuals showed more positive environmental attitudes.

All in all, the findings of the research highlight that kindergarten teachers perceive the notion of environmental consciousness in a comprehensive manner and show positive environmental attitudes. At the same time, they recognize the importance of certain social values in the cultivation of environmental consciousness and specifically the values of collectivism, altruism as well as environmental values. However, they assess that the educational system does not cultivate these values adequately in the context of preschool education in kindergarten.

### Disclosure statement

No potential conflict of interest was reported by the authors.

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