

Analysis of environmental awareness in elementary school students

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Abstract

The destruction of the ozone layer is caused by environmental pollution, and man mainly generates this, so schools must promote love and respect for the planet in children from an early age. For this reason, the general objective of this study was to analyze the environmental awareness of fourth-grade elementary school students in a public institution in Lima, Peru, and the specific objective was to determine and explain the affective, cognitive, conative and active dimensions of elementary school students. The article was methodologically developed with a mixed approach and sequential explanatory design. The sample consisted of 135 fourth-grade students of the “María Reiche Grosse” school of the district of Puente Piedra. The techniques used were the survey and the interview, and a questionnaire and an interview guide were used as instruments. The results show that there is an adequate environmental awareness that reflects a medium level in the affective, cognitive and conative dimensions, while in the active dimension, they are at a high level; this is evidenced in the attitudes, feelings, values and pro-environmental actions that the students have as a result of the knowledge they have acquired regarding the environment.

Keywords: environmental awareness, environmental pollution

Introduction

Planet Earth is being destroyed due to environmental pollution, and the responsibility falls on individuals who have been devastating natural resources. This is stated by Palacios and Moreno (2022), who refer that one of the biggest problems in the world is environmental pollution, the consequence of which is the loss of our species, and the irony is that it is the human being who is responsible. In this concern, the systematic decrease of flora and fauna breaks the balance within the system and even though the human being is one of the most intelligent creatures, he cannot protect his planet (Pérez Quispe, 2021).

In that sense, the actions taken since the United Nations summit in Stockholm (1972) responded to stop environmental pollution. Furthermore, it was agreed that environmental issue at all educational levels is of utmost importance (Andrade and Andrade, 2017).

In 2008 the Ministry of the Environment (MINAN) was created, linking itself to the state structure with the clear mission of combating this reality. The main work is the formulation of the National Environmental Policies of the National Environmental Action Plan (2011 - 2021) is a tool that sought to project the particular problems that were detected in the country regarding our environmental situation within an agenda called National Environmental Action Agenda (MINEDU, 2016).

This agenda includes sustained work with other state agencies, such as the Ministry of Education to create opportunities for educational institutions to raise awareness of the need to protect and preserve natural resources.

In this sense, the school is guiding in such training spaces for environmental sustainability. In this way, it is expected that the entire population, particularly the educational community, will assume a high environmental awareness to reduce and solve all human activity that destroys the environment (Jara and Tapia, 2022).

The Ministry of the Environment intends to work jointly with all state and private organizations to generate a national network of environmental awareness, and therefore the basis for educating environmentally conscious citizens is the school.

Aparecida et al. (2018) indicate that environmental education should be promoted in the classroom as an essential part of life. Bishnu (2017) mentions that the student's preparation, attitude and sensitivity toward the environment should be influenced. For Emine (2019), teachers' influence on students' environmental awareness is very important because it allows them to develop sensitivity to environmental issues.

The students of "Maria Reiche" school show negative attitudes against the environment, since it can be observed that many children throw garbage on the ground, do not take care of green areas, continue to leave open pipes and do not have the culture of reusing and recycling solid waste found at home, school and community, so it is necessary to analyze the environmental awareness of fourth-grade students who are working on the care of green areas continuously and performing sporadic recycling actions.

This study is scientifically supported by Leopold's (1988) theory of Earth Ethics, which states that both ethics and human nature are interpreted from ecological explanations, and moral codes are nothing more than an adaptive strategy, a means to increase social (biological) well-being. Therefore, ethics arises from the advantages of common existence and depends less on reason than passion and instinct.

Theoretical considerations of environmental awareness

Although the definitions of environmental awareness are varied, they respond to a single concern: the relationship between man and the environment. One definition would be that of Chuliá (1995), who links society with a set of elements related to the environment. These elements include emotions, knowledge, individual and collective action on environmental issues and attitudes, and dispositions. On the other hand, Nazarenko and Kolesnik (2018) assume the transcendent line seeks “environmental competence”, especially in students. Another definition of education principles is respecting the natural environment, i.e., being aware of environmental care (Çokçaliskan and Çelik, 2017).

Similarly, Tonello and Valladares (2015), from a more psychological trend, point out that environmental awareness responds to psychological factors related to a kind of inclination of people to generate pro-environmental behaviors.

This term considers multidimensional to the extent that it is part of an attitude in favor of environmental behavior. In this way, having an environmental awareness or having worked adequately generates a change at a critical level, a reflective in front of the environmental problem (Díaz and Fuentes, 2018); however, it does not generate pro-environmental behaviors, but indifference is part of the environmental problem (Cerón et al., 2015).

Dimensions of environmental awareness

Chuliá (1995) indicates that information and knowledge, as well as beliefs, values, feelings and interests are positive attitudes of individuals towards nature, both individually and as a group.

Environmental awareness has the following areas or dimensions:

Affective Dimension

Chuliá (1995) states that these are emotions such as anxiety about the state of the ecosystem, but also practices to improve contact with nature. Achieving a sustainable and respectful environment culture requires a greater link between human beings and nature, giving a valuable contribution to the care and protection of natural resources, and in many cases, are beneficial to the long-term interests of society as a whole. The emotional part usually has two positive or negative aspects for the surrounding nature. First, the individual must receive sufficient and beneficial information to make the right decisions to support mother nature and help future generations safeguard our planet.

Cognitive Dimension

For Chuliá (1995), these are all theories aimed at understanding and defining environmental problems. Education plays a very important role in acquiring general knowledge since it allows students to imagine what the planet would be like if they did not apply the environmental knowledge learned at home and school. Also, actively promote good environmental conservation practices by participating in harmonious activities in the face of nature.

Conative Dimension

For Chuliá (1995), that deals with the ability to conduct individuals on ecological principles. A person with a spirit of solidarity with the world and all the creatures that live in it is usually very encouraging and positive about life on earth. First, it is necessary to change the bad attitude toward nature, starting with small actions such as saving energy and recycling.

The change of attitude toward the environment must begin with young children because they are like little sponges that absorb all the information and knowledge about environmental issues.

Active Dimension

For Chuliá (1995), the individual active dimension is the personal behaviors with the environment, such as the responsible use of the environment and the proper distribution of recyclable waste. Finally, the collective active dimension emphasizes society's behaviors that aim to safeguard the environment. In this dimension, the subject is committed to making more conscious changes, especially in their daily life, to create a lifestyle in harmony with their environment, the practice of saving energy at home, as well as recycling plastic containers and office paper in addition to avoiding the use of aerosols are actions that will prevent further destruction of the ozone layer.

Ways to develop environmental awareness

UNHCR (2018) points out that environmental awareness can be generated from schools through environmental protection activities for children and adopting proposals to raise awareness of the impacts that the actions can have on the environment.

Teachers can increase students' environmental awareness through various strategies such as workshops, training, study visits and the same practice at school. Likewise, it is confirmed by UNHCR (2018), which states that information exercises to activate environmental awareness can vary from concrete facts about a specific topic to awareness campaigns that force one to reflect on daily practices and how they produce damage to nature.

Material and methods

Methodologically, this study responds to the mixed or hybrid approach, which includes the definition of a set of methodological, empirical and critical research procedures and assumptions, in addition to the collection and analysis of qualitative and quantitative data, as well as the simultaneous composition and general discussion about making inferences and conclusions, thereby achieving a better understanding of the phenomenon or object of study. (Hernández- Sampieri and Mendoza, 2018).

The design used in this study is a sequential interpretation, one of the most widely used mixed methods strategies today (Creswell, 2013). This method is characterized by collecting data from each source and then analyzing them sequentially. In addition, this approach is often useful when qualitative and quantitative sources attempt to answer the same question. Another notable advantage is that data collection, analysis and interpretation tend to be simple in monitoring and implementation (Creswell, 2014).

The mixed method in this research was developed as follows: to collect quantitative data, the survey technique was used and the Environmental Awareness questionnaire, proposed by Laurente (2019), was used as an instrument, which has been previously validated by Cronbach's Alpha index and the evaluation of content validity, apparent by experts, and it was also adapted for elementary school students. On the other hand, for the qualitative data, the interview technique and the interview guide were used as an instrument to analyze environmental awareness from the point of view of the informants, as described below:

Table 1

	Affective		Cognitive		Conative		Active	
	fi	%	fi	%	fi	%	fi	%
High	33	24	62	46	64	48	76	56
Medium	93	69	73	54	68	50	56	41
Low	9	7	0	0	3	2	3	2
Total	135	100	135	100	135	100	135	100

Source: *Own elaboration*

The sample comprises 135 students from the fourth grade of primary education of the “María Reiche Gross” School of Puente Piedra, Lima, Peru. Non-probabilistic purposive sampling was used because the selection of participants was not based on probability but on the purpose of the study.

Therefore, it should be noted that this study includes criteria of reliability, auditability, transferability and reliability of the data that determines the scientific nature of the work.

Table 2: Categorization matrix

Category 1: environmental awareness
Subcategory 1: affective dimension
Subcategory 2: cognitive dimension
Subcategory 3: conative dimension
Subcategory 4: active dimension

Source: *Own elaboration*

Table 3 :Dimensions of environmental awareness

Quantity	Interviewee
03	Students
02	Teachers
02	Directors of the I. E.
01	Officer of the Municipality of Puente Piedra
01	Specialist

Results and discussion

According to the results in response to the general objective and in terms of the affective dimension, it is evident that 69% of the students are at a medium level, some of them feeling sad, frustrated and worried because there is no environmental awareness of people throwing garbage in the streets without giving importance to the care of the environment and this is negatively affecting living beings.

The concern for the lack of love and respect for the planet in the interviewees is evident, as one of them states: “... the pollution caused by human beings can negatively affect living beings, including people” (E 3). These results agree with the study of Laurente (2019), who found that 70.45% of the students are at an average level in the affective dimension of environmental awareness. Likewise, Díaz and Fuentes (2018) found that the relationships between the environment and children are formed within an educational project, which enhances love, responsibility, respect, commitment and active cooperation to protect the environment.

Regarding the cognitive dimension, students are at 54%, placing them at a medium level for their environmental awareness knowledge. Some children express that it is important to know the causes and consequences of negative actions against the environment. This acquired learning allows people to avoid destroying the planet to conserve and preserve life, as indicated by one of the interviewees: "... it is the responsibility of the individuals to take care of the environment" (E 4). These results are similar to those of Laurente (2019), who, in his study, concluded that 52.3% of the students know about environmental awareness, placing them at a medium level. Similarly, Díaz and Fuentes (2018) concluded that the information acquired by students about caring for the planet, they associate it with protecting biodiversity and preserving the beauty of the environment.

For the conative dimension, 50% of the children are at an average level; some of them state that they practice hygienic habits in their environment, protect green areas, save water and take care of parks, even indicating that they place signs in these areas so that people do not mistreat the plants. Likewise, they say that some people are indifferent to the environment due to the lack of culture and dehumanization of today's world; as one of the interviewees points out: "... people are selfish, we only want to accumulate money without caring about the consequences of our action" (S 1). Accordingly, Laurente (2019) found that 3.6% of the students are at an average level for this dimension. On the contrary, Diaz and Fuentes (2018) found in their study that students associate the connotation of environmental apathy with indifference, exclusion or rejection, difficulty in implementing environmental strategies, lack of motivation and constant environmental awareness in students.

And finally, 56% of the students show a high level in the active dimension; most of them indicate that they carry out recycling campaigns at school and at home. They also say that they sow and take care of the plants in their garden and park, as well as of the water and protect the soil from contamination. Also, they use cloth bags and reuse bottles, cans, paper, etc. All this to contribute to the care of the environment, as indicated by one of the interviewees: "... campaigns are conducted to prevent environmental pollution, and we participate in the "Escuela te quiero verde" project to develop environmental awareness" (E 2). This differs from Laurente (2019), who concluded in his study that children are at an average level doing 50%, so some students have achieved this through the prevention and reduction of environmental problems derived from the implementation of different pro-environmental strategies over time and in different contexts.

In turn, in the study conducted by Diaz and Fuentes (2018), they found that the actions carried out by children to prevent environmental problems so through environmental monitoring, awareness and support for environmental care, likewise, they put into practice responsible consumption, recycling their garbage and other actions in favor of the environment.

Conclusions

The study reached the following conclusions: fourth-grade students are developing their environmental awareness favorably, putting into practice the knowledge they have acquired about the environment and performing pro-environmental actions from school to home and community.

Concerning the affective dimension, the students are at a medium level, some of them expressing feelings of sadness, frustration and concern for the environmental problem. In addition to this, some of them show respect and empathy for the planet, expressing responsibility for their bad actions against the environment.

About the cognitive dimension, it is concluded that the students are at an intermediate level, knowing some of the environmental issues, which allows them to become aware of the causes and effects of all the negative activities that people carry out, thus harming all of nature, including human beings.

Likewise, some children are at an average level in the conative dimension, showing positive attitudes in favor of the environment, such as watering and protecting the green areas of their school, home and community, as well as taking care of the water and soil by throwing garbage in different garbage cans to reuse materials such as paper, cardboard, glass and plastic bottles.

And finally, the students are at a high level in the active dimension since they participate in recycling campaigns in their school and community, planting plants and making homemade compost to nourish the green areas.

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