Universe of environmental education linked to presocratic philosophy from the perspective of complexity

Universo de la educación ambiental vinculada a la filosofía de los presocráticos desde la complejidad

Carlos Liborio Camacho Quintero*
https://orcid.org/0000-0002-7552-5245
Mérida, Mérida state / Venezuela

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* Dr. in Advanced Management, Universidad Fermín Toro, Venezuela. Dr. in Education, Universidad Pedagógica Experimental Libertador, Venezuela. Master's in Business Management, Universidad Fermín Toro, Venezuela. Specialization in Telematics, Universidad Nacional Abierta, Venezuela. Specialization in Labor Law, Universidad de Los Andes, Venezuela. Systems Engineer, Instituto Politécnico Santiago Mariño, Venezuela. Bachelor in Business Administration, Universidad Nacional Abierta, Venezuela. Lawyer, Universidad Nacional Experimental de los Llanos Occidentales Ezequiel Zamora, Venezuela. Public Accountant, Universidad Nacional Abierta, Venezuela. Email: clcamachoq71@gmail.com

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Abstract

The critical review of the development and progress of philosophical humanity where the pre-Socratics instructed the so-called myth to the logos, where rational thought begins. In this way, man is the place par excellence where nature and human beings converge, occupying the thinkers of Miletus towards the basic principle of things, nature or the element that makes up the world and universe. From the methodological point of view, the study is located within the qualitative paradigm in which the dialectical hermeneutic method is used. However, the absence of ethics and ignorance of the sensitivity of the habitat has allowed the irrational destruction of human beings in their path. This is how Aristotle chronologically organized the preclassical history of Western philosophy where the Greeks inherit objects from the Egyptians and Babylonians. In the same way, they give this heritage a vigorous effort provided with lucidity, reason and logic, likewise, it corresponds to the improvement of environmental education, by virtue of these points, the need arises to consider a study oriented to document the environmental concern that show their relationships, ecological behavior and cognitive models from the pre-Socratics.

Keywords: Environmental education, development, progress, philosophy, pre-Socratics, nature, human being.

Resumen

La revisión crítica del desarrollo y progreso de la humanidad filosófica en donde los presocráticos instruyeron al llamado mito al logos, donde se inicia el pensamiento racional. De esta manera, el hombre es el lugar por excelencia donde converge naturaleza y ser humano, ocupó a los pensadores de Mileto hacia el principio básico de las cosas, la naturaleza o elemento que conforma el mundo y universo. Desde el punto de vista metodológico, el estudio se ubica dentro del paradigma cualitativo en el cual se hace uso del método hermenéutico dialéctico. Sin embargo, la ausencia de ética y el desconocimiento de la sensibilidad del hábitat ha permitido la destrucción irracionalmente del ser humano en su paso, fue así como Aristóteles organizó cronológicamente la historia preclásica de la filosofía occidental donde los griegos heredan objetos de los egipcios y babilonios, del mismo modo, le dan a esa herencia un pujante esfuerzo proporcionado lucidez, razón y lógica, asimismo, corresponde al mejoramiento de la educación ambiental, en virtud de estos señalamientos, surge la necesidad de plantearse un estudio orientado a documental la preocupación ambiental que muestre sus relaciones, conducta ecológica y modelos cognitivos desde los presocráticos.

Palabras clave: Educación ambiental, desarrollo, progreso, filosofía, presocráticos, naturaleza, ser humano.

Introduction

Given the complexity of modern society, characterized by advances in technology, sciences, mass media, as well as issues of poverty, social deterioration, and ecological damage to the

planet, an integral education with agile educational management under a strategic approach that includes citizen participation is required.

Referencing Morin (2003), a complex vision understands reality and manifests simultaneously from all possible perspectives, seeking to channel the best possible strategy in a complex and global manner. Dividing it into small parts to facilitate study limits the scope of knowledge, meaning that to understand it, we cannot be reductionist or holistic. Instead, we must adapt to reflexivity, requiring public organizations to reform their adaptive capacity to minimize harmful environmental effects.

The genesis of social sciences embraces the complexity of reality and the diversification of theoretical and epistemological possibilities. It is transdisciplinary and transdimensional, studying phenomena related to human reality through economic theories, sociology, political science, anthropology, geography, history, philosophy, culture, technology, and more. This focus on individual and collective existence breaks various paradigms set by ideologies and assumptions of scientific communities.

In achieving an interactive process between man and the environment within the social context, individuals should focus on respect for nature and environmental awareness. These aspects determine positive activities concerning axiological processes, ways of organizing collectives, interpersonal relationship systems, successful ways of addressing socio-natural problems, methods of conveying collective feelings, expectations, formative actions, and altruistic and philanthropic actions.

Humans have coexisted in intimate relation with their environment, leading to interaction in knowledge construction based on reason and experience. At many points in history, humans have promoted various approaches in this knowledge construction process. In particular, students come to understand concepts and theoretical constructs to solve everyday problems, from the perspectives of Plato and Aristotle to the current visions of Morin and Cury.

The Presocratics broke away from traditional cognition and reductive knowledge, maintaining philosophical thought as the center of knowledge transmission, with the goal that transformation and innovation processes move away from stable schemes and embrace transcomplex and transdisciplinary perceptions.

Another aspect to consider is the Nuremberg Code, implicitly related to mathematical thought as a mental structure, conventionally focusing on specific scientific disciplines separated from each other. While this may help obtain partial knowledge, it maintains and strengthens the separation, even when consuming a large amount of information without real epistemic meaning.

However, the Presocratics champion knowledge, a core aspect of philosophy, emphasizing its growing importance in modern science from a realistic perspective. The materialist sense of na-

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ture benefits humanity from both ethos and pathos, without being solely driven by reason.

It is important to note that the United Nations Development Programme (UNDP) asserts that human development places people at the center of development, promoting the potential development of individuals, increasing their possibilities, and ensuring the freedom to live the life they value. Analyzing this, human societies are in constant social change, not only due to technological advances but also in all aspects related to social development. Hence, human development has gradually separated from economic globalization to incorporate other equally relevant aspects of life, such as culture, which has also redefined its role in development.

The outlined indications of human and philosophical development, as well as complexity, predict that the ecological crisis will create local and global environmental problems due to overpopulation, pollution, and the destruction of natural resources. These issues impact the health of ecosystems and the planet as a whole, resulting from the relationship humans have established with the environment throughout history.

The importance of this article lies in the universe of environmental education linked to the philosophy of the Presocratics from a complexity perspective. Consequently, there is a need for a study oriented toward a hermeneutic analysis of environmental concern, showing its relationships and ecological behavior, the importance of the Presocratics in nature, and cognitive models of environmental concern. Therefore, the following questions are considered: (a) Why do we harm the environment? Have we lost our environmental beliefs? (b) Why do we pollute so much if we know the damage we cause? Have we lost personal values due to complexity? (c) What guidelines can be established to generate Presocratic ecological awareness and restore life to the planet by renewing faith?

Methodology

The development of this article arises from a qualitative study of a hermeneutic-dialectical type, whose approaches are considered for the fulfillment of the objectives outlined for the research process. According to Hurtado & Toro (2004), the hermeneutic method is the most appropriate for the study of human action, where the interpretation and detailed study of significant human phenomena for man and his environment are involved. This method takes into account the individual's need to interpret various situations occurring in daily life and their surroundings to achieve a definitive interpretation.

According to Hurtado & Toro (2004), the hermeneutic method considers the following suggestions: (a) Knowing that human beings are intuitive by nature. (b) Hermeneutic discourse cannot be formalized; everything must be interpreted. (c) New interpretations must be placed, as human beings can learn through interaction and commitment. (d) Hermeneutics is deconstructive because only by deconstructing can life be reconstructed. (e) The hermeneutic method allows researchers to exchange experiences with the research subjects to obtain data that guide conceptual frameworks and thus fulfill the objectives of the method that interprets and unders-

tands the meaning of things.

Moreover, this hermeneutic method is used by social sciences as a fundamental object for research intervention. It is not only applicable to the interpretation of facts, documents, among others, but also in scientific advances of social reality. This allows a tacit visualization of its field of action, directing its study of human behavior both individually and generally, through observation, considering repeating it as many times as possible.

Results

Background

Osorio & Suárez (2020) conducted a study titled "Environmental and Energy Education in Doctoral Theses of Angola Defended in Pedagogical Sciences in Cuba" at the Universidade Rainha Njinga a Mbande in Angola. This research outlined that in the genesis of humanity in the 21st century, there are enormous challenges to address, such as scientific and technical advancements and the rapid increase in environmental problems that severely affect the planet due to irresponsible human actions. For this reason, environmental education becomes a priority for all countries, depending on their level of development. Therefore, the Republic of Angola must continue its efforts to transform social practices regarding environmental issues, aiming to meet the 2030 Agenda for Sustainable Development Goals. These results highlight the importance of the current work by emphasizing the capacity for transformation and the complexity of development in different countries, reaffirming the need to educate new generations for harmonious coexistence among all environmental components.

Arias & Ramírez (2018) presented a scientific article titled "The Organization-Company: A Living System? Contributions of Complexity Theory and Environmental Philosophy to Administrative and Organizational Theory." The purpose was to understand the administrative-organizational phenomenon in the context of organizational society and environmental crisis. It involves comprehending the social organization as a living social system that establishes intricate relationships with its environment, affecting the development of its operations and processes. They premise that the living company is flexible in its processes and assumes organizational social responsibility as a strategy to compete and survive in the market amidst a world in crisis, marked by a society dependent on nature and facing numerous civilizational problems stemming from classical administrative thought. Nonetheless, they attempt to contribute an epistemic discussion in the field of Organizational and Administrative Theories, viewed through the theoretical lens of Complexity and Chaos Theories and Environmental Philosophy.

Environmental Education

Every pedagogical theory implicitly carries a set of educational intentions, axiological and epistemological principles, and conceptions about educators and learners, addressing different eras and schools of thought. Understanding the complexity of the environment as the core of envi-

ronmental education offers a variety of psychological and pedagogical approaches to achieve a shared conception, recognizing the naturalistic theory since the mid-18th century among its antecedents.

Rousseau (cited in Leff 2006, p. 679) states, "the relationship between man, education, school, science, and industry must be exalted in the planetary crisis." According to the author, since the early 1970s, there has been ecological concern within education, progressively creating concepts and critical explanations about environmental issues, acquiring an educational sense.

Although there is no single definition of Environmental Education, most authors agree that this discipline should have an integrative, holistic, and interdisciplinary approach, where knowledge, information, and local wisdom are articulated. Likewise, it should encompass an ethical, political, and pedagogical vision that provides theoretical and practical elements to establish, support, and enrich knowledge in this area.

Gutiérrez (2011, p. 148) defines Environmental Education as:

> ...the process that consists of recognizing values and clarifying concepts to foster the skills and attitudes necessary to understand and appreciate the interrelationships between man, his culture, and his biophysical environment. Environmental Education also entails practicing decision-making and formulating a code of conduct regarding environmental quality issues.

Therefore, Environmental Education aspires for humans to understand the complex nature of the environment resulting from the interaction of biological, physical, social, and cultural components. Consequently, it should enable individuals and communities to interpret the interdependence of various elements in space and time to promote a reflective and prudent use of the planet to meet humanity's needs (Torres, 2006).

Thus, it should be involved as a process that produces changes in individual thought and the behavior of community or social groups, changes in social and conceptual aspects, attitudes, and values. Additionally, Environmental Education is ideological, has grand goals, prioritizes practice, and is immersed in a realm where different paradigms are present. It should also contribute to forming individuals so that their actions do not harm their surrounding environment and allow them to contribute to the development of the communities they inhabit.

Considering the ideas of Chagollan *et al.* (2008, p. 17), Environmental Education:

> Is the process that consists of bringing people closer to a global conception of the environment, acquiring knowledge, elucidating values, and developing attitudes and skills that allow them to adopt a critical and participatory stance regarding issues related to the conservation and proper use of resources and quality of life.

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With environmental education, the goal is for individuals to understand the realities of their environment, develop a sense of belonging to their surroundings, and be responsible for its use and conservation. Therefore, reclaiming the planet's complex order requires teachers to change their epistemic attitudes, ways of relating to their environment, and conceptions of teaching from a complex perspective to understand human actions as causes and consequences of environmental deterioration.

Traditionally, the purpose of Environmental Education is to transmit knowledge, instill values, and develop competencies and behaviors that can favor understanding and solving environmental problems. It should be a continuous process involving everyone, allowing an analysis of the main problems affecting the environment and identifying possible solutions. Despite the concern for the environment and the recognition of the role education plays in its improvement, different authors propose ways to conceive and practice educational action in this field, as highlighted by Ortega (1998, p. 144).

Environmental education is not about nature conservation, resource management, or a new program to add to the already overloaded school system. It constitutes a new approach to the relationships between humans and their environment and how they influence each other. It aims to form responsible citizens committed to improving the quality of life through the appropriation of ecological values and democratic coexistence.

The Environment

The environment is, above all, the person himself, his thoughts, dreams, utopias, beliefs, and of course, everything he does in his world. His relationship with his natural setting (nature) is where philosophy and ethics reside, although it is not a new reality, it remains an important topic from a human perspective.

Environmental Education is a complex dimension of global education, characterized by a great diversity of theories and practices that address the concept of teaching and learning, the environment, and social development from different viewpoints. Here, the environment is not just a topic but a vital, everyday reality, and this education should be placed at the center of a human development project (Sauvé, 2006).

Moreover, it must be approached from an inter- and transdisciplinary perspective, which implies openness to various fields of knowledge to enrich the analysis and understanding of the complex realities of the environment. It cannot be developed through passive learning methods; therefore, the acquisition of knowledge must be conceived as a complex process of knowledge construction.

In this context, Environmental Education can be characterized as having a systemic vision that allows for participation and the development of attitudes and values with an interdisciplinary focus. It aims for holistic development in students by combining the acquisition of knowledge

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specific to their field of study with interaction with other disciplines. According to Gutiérrez (2011, p. 13), "transdisciplinary planning is seen as an expedient way for teaching Environmental Education in the university context, promoting understanding rather than memorization when facing real-world situations."

The teaching practice in Environmental Education involves internalizing the social, historical, official, and technological context in which one is immersed to understand the influence that theory might have within that context and to guide relevant action through practice. This highlights the importance of the hypothesis as a fundamental element for problem-solving in everyday life, which implies the scientific analysis of human history.

It is in this context that the transdisciplinary approach can contribute to the search for a new educational trend based on the four (4) fundamental pillars: learning to know, learning to do, learning to live together, and learning to be, as outlined in the Unesco Delors Report. All four types of learning are important in the educational process of the sciences. However, special emphasis should be placed on learning to BE for teaching Environmental Education at the university level.

Philosophy of the Presocratics

The Presocratics, known in the history of ancient philosophy as pre-Platonic and pre-Aristotelian philosophers, were the earliest thinkers of the Western world who initiated philosophical discourse. Their most prominent representatives include: Thales of Miletus (640-545 BCE), Anaximander of Miletus (610/11-547 BCE), Anaximenes of Miletus (585-528/5 BCE), Xenophanes of Colophon (570-470 BCE), Heraclitus of Ephesus (6th-5th century BCE), Pythagoras of Samos, Alcmaeon of Croton, Parmenides (540-450 BCE) of Elea, Zeno of Elea (464/41 BCE), Melissus of Samos, Empedocles of Agrigento (492/90-435 BCE), Philolaus of Croton, Archytas of Tarentum, Anaxagoras (499-428 BCE), Leucippus of Abdera, and Democritus of Abdera (460-370 BCE).

"Everything is One and the same," a principle coined by the Greeks, applies to Homo sapiens and all species cohabiting on planet Earth. Thales of Miletus (640-545 BCE), considered one of the seven sages, was the first to delve into natural philosophy (Eggers & Juliá, 1978, p. 64). Thales did not completely detach from myth but stated that water is the principle and end of all things, attributing a natural element to the expression of physis.

With Thales, it is evident that since the beginning of time, a harmonious relationship has linked man with nature, indicating that the reflection on what things are and what they are made of has been based on the cosmos and its components, including humans.

Thus, by reasoning about the foundation that makes each thing what it is, man manages to appropriate known elements: water, air, earth, and fire. This reflective discovery indicates a permanent dialogue between man and nature, between the essence of things and the interaction of common values observed and understood.

Similarly, just as Thales of Miletus admired nature to seek the arche or founding principle of the existence of things, Alexander the Great is considered a Homo sapiens demens for his intervention in ancient civilizations, many of which were extinguished, leaving us with very little of their ancestral wisdom.

Philosophical thought, according to Gil (2015, p. 522), expresses "Thought as a genuine philosophical anthropology endowed with a strong humanistic, propositional, affirmative, and essentially critical sense, both from a methodological perspective and, above all, an attitudinal one.". This means that the decisive intellectuality provided by ideas placed in the cloud surrounding the reasoning of the teacher for self-criticism, experimentation, and imagination of cognitive production is vital. There are elements that characterize this thought, such as sensitivity to sensations received, intellectuality of the knowledge of things, understanding of being, and conceiving the reality of the environment in the breadth of ideas that their mental structures provide

Proposal

The philosophy of the Pre-Socratics suggests that environmental educational programs become communities as an option in solving their environmental problems, in ecological, economic, social, and cultural terms. If synergistic participation of the communities is achieved, it will enable the planning of actions directed and committed to governmental entities and private institutions to collaborate with the planetary catastrophe that is leading us to an eco-cultural limbo.

Anthropocentrism should be questioned from an ethical standpoint, not only because of the irresponsible attitude towards the environment and the cosmos in general but also because of its drive for consumption and utility without self-criticism. Similarly, the human perspective seen from cosmogony and human centrism will not improve the crisis due to its ego to achieve the alpha and omega of the planet. There must be an appropriate interaction between sociocultural, economic, and ecological systems that ensures sustainable management of biodiversity.

At the same time, the complex vision of ecological problems will compel humans to address them in an interdisciplinary and transdisciplinary manner. This is when systemic work involves the participation of communities, politicians, and government management prospects, as well as scientists and technicians from universities and institutes. Axiology is the pillar of the existence of environmental values that are methodologically difficult to measure. These valuation techniques do not aim to bestow the value of biodiversity per se, but rather estimates of the economic value associated with certain goods or services compatible with planetary conservation, which transforms our common home.

Conclusions

Modernity is marked by autonomy, which is the event where thinking resides in humans after centuries in which the word was revealed by the sacred scriptures. It is from the "I think, therefore I am" of the philosopher René Descartes (1596 – 1650) that subjectivity becomes the possibility

of doubting, experimenting, elaborating, and constructing knowledge autonomously. However, despite his intelligence, man is not the most powerful species of all, because from birth he needs the care of the mother. His physiological-anatomical apparatus is inferior to that of many animal or plant species.

Therefore, nature is superior to the human condition; Montesquieu (1748, p. 8) wisely pointed out: "But one cannot say that the intelligent world is also governed like the physical world". And even: "Plants in which we do not perceive feeling or knowledge fulfill the laws better" (p. 8). Despite man's desire for dominance, he has accumulated knowledge, which Lorentz (1979) calls the human spirit, built upon the primary faculties of living beings.

The philosophical currents that support the pre-Socratics base their conceptions on phenomenology and hermeneutics, under the perspective that makes observation possible no longer as a predetermined end, as traditional aspects proposed, but which can have diverse visions depending on how philosophers are involved in their own thoughts, needing to meditate on sustainability not as a political responsibility but as an environmental necessity that encompasses us from our environmental beliefs to care for and safeguard biodiversity, the survival of humanity as one more species living on planet Earth.

However, Environmental Education has not been seen as a learning process in which knowledge, values, skills, and experiences are transmitted to all social groups through educational institutions, media, governmental organizations, and non-governmental organizations that seek to solve environmental problems through individual and collective actions.

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