



Review article

The process of professional improvement in environmental education of primary teachers in Ghana

El proceso de superación profesional en educación ambiental de los maestros primarios en Ghana

O processo de aperfeiçoamento profissional em educação ambiental de professores primários em Gana

Daniel Agbogbo¹



<https://orcid.org/0000-0002-6932-8835>

Taymi Breijo Worosz²



<https://orcid.org/0000-0002-9424-3278>

Jorge Luis Mena Lorenzo²



<https://orcid.org/0000-0003-1364-6524>

¹ Autonomous University of Baja California: Mexicali, Baja California, Mexico



daniel.agbogbo@upr.edu.cu

² University of Pinar del Río "Hnos Saíz Montes de Oca", Cuba.



taimi.breijo@upr.edu.cu,
jorgel@upr.edu.cu

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ABSTRACT

The interest in raising the quality of educational systems raises the urgency and need to overcome teachers and professionals in this sector. At present, it becomes more urgent in the area of Environmental Education, since the initial training in an emergent way causes insufficiencies and deficiencies of a theoretical and methodological order associated with other organizational, economic and social problems that lacerate the quality as a whole of the teaching-learning process. Particularly in Ghana, the analysis of this problem is focused, which contrasts with the situation of the education sector, exacerbated by the COVID-19 pandemic. The objective is to characterize the process of professional improvement in environmental education of primary teachers in Ghana. Methods such as historical-logical, documentary analysis and the procedures of analysis and synthesis, and induction and deduction were used. As a result of the study, the main features of the process studied in the current evolution of the educational system of that country were determined, and inherent and transcendent aspects for its transformation were distinguished.

Keywords: overcoming; environmental education; context.

RESUMEN

El interés por elevar la calidad de los sistemas educativos plantea la urgencia y necesidad de superar a los maestros y profesionales de este sector. En la actualidad, se hace más urgente en el área de la Educación Ambiental, pues la formación inicial de manera emergente provoca insuficiencias y carencias de orden teórico y

metodológico asociado a otros problemas de orden organizativo, económicos y sociales que laceran en su conjunto la calidad del proceso de enseñanza-aprendizaje. En particular en Ghana, se centra el análisis de esta problemática, lo que contrasta con la situación del sector educativo, agudizado por la pandemia de la COVID-19. El objetivo está dado en caracterizar el proceso de superación profesional en educación ambiental de los maestros primarios, en Ghana. Se emplearon métodos como el histórico-lógico, el análisis documental y los procedimientos de análisis y síntesis, e inducción y deducción. Como resultado del estudio se determinaron los principales rasgos del proceso estudiado en el devenir actual del sistema educativo de ese país, y se distinguieron aspectos inherentes y trascendentes para su transformación.

Palabras claves: superación; educación ambiental; contexto.

RESUMO

O interesse em elevar a qualidade dos sistemas educacionais desperta a urgência e a necessidade de superar professores e profissionais desse setor. Na atualidade, torna-se mais urgente na área da Educação Ambiental, uma vez que a formação inicial de forma emergente provoca insuficiências e deficiências de ordem teórica e metodológica associadas a outros problemas organizacionais, económicos e sociais que dilaceram a qualidade como um todo. o processo ensino-aprendizagem. Em particular, no Gana, centra-se a análise deste problema, que contrasta com a situação do setor da educação, agravada pela pandemia de COVID-19. O objetivo é caracterizar o processo de desenvolvimento profissional em educação ambiental de professores primários em Gana. Foram utilizados métodos como histórico-lógico, análise documental e procedimentos de análise e síntese, e indução e dedução. Como

resultado do estudo, foram determinadas as principais características do processo estudado na atual evolução do sistema educacional daquele país, destacando-se aspectos inerentes e transcendentales para sua transformação.

Palavras-chave: superação; Educação ambiental; contexto.

INTRODUCTION

The recognition of education as a right of all human beings is a recurring theme in international congresses. The United Nations Organization (UN) itself conceives it as a fundamental good and an essential strategy to avoid, in times of the COVID-19 pandemic, a "generational catastrophe". So much so, that since 1948, in article 26 of the Universal Declaration of Human Rights, free and compulsory primary education is promoted (UN General Assembly, 1948).

This aspiration is endorsed in the 2030 Agenda, particularly in the Sustainable Development Goals (SDGs), meaning in its SDG No. 4 the need to: "Guarantee inclusive and equitable quality education and promote lifelong learning opportunities for all" (UN, 2018, p.27); which, without a doubt, and in light of the current gaps in education, requires overcoming the current educational model with one that responds to the commitments acquired at an international level (Solís and Valderrama, 2015).

In the particular case of Ghana, the Inclusive Education Policy (Ministry of Education of Ghana, 2018, 2019) defines the government's strategic path for education, placing attention to various educational needs at its center. In this effort, environmental education is emerging as the

essential support to project educational changes (Mahama and Márquez, 2020), but thought and action that promotes sustainability from responsible lifestyles are required.

In Ghana, this thought was made official since 1992, in the nation's first environmental policy, which emphasized respect for all principles and issues relevant to the environment and sustainable development. In support of these ideas, it was determined that primary school students constitute the ideal age group to manage environmental education.

In this sense, the global call for quality environmental education is increasingly firm and has been the main topic of debate since the first Earth Summit, held in Stockholm (Sweden), in 1972; until the summit in Glasgow (Scotland, United Kingdom), in 2021, recognized as the most important of the decade for the protection of the planet.

Thus, from educational research, various authors claim environmental education based on sustainability criteria (Tilbury, 2012; Azcárate, Navarrete and García, 2012). Others warn about the tendency of teachers to reduce it only to the sporadic and asystemic conceptual treatment of environmental content (Barrón, Navarrete and Ferrer, 2010); This is undoubtedly interpreted, on the one hand, as a limited understanding of environmental problems and, on the other, as a lack of psycho-pedagogical resources to make the educational process effective (Andarcio, Vigil and Mijares, 2021).

What it is about, according to Albareda and Gonzalvo (2013), is to train people who know how to "critically analyze the interrelationships between environmental, social and economic aspects" (p. 143); from an ethic that governs the responsible environmental performance of the subjects.

For this reason, the introduction of environmental education implies a radical change in the educational system (Vilches and Gil, 2012; Ull, 2014), and in the very act of educating to solve environmental problems of regional and local interest in times of pandemic.

As Miranda (2014) points out:

Environmental problems are considered to constitute the basis for the development of environmental education in the teaching-learning process, since it is based on their expression in the community, based on the principle of thinking globally and acting locally, that the different activities in the school must be planned, as well as link the content of the subjects and achieve the active participation of the students for the sake of their prevention or mitigation (p. 3).

To this criterion is added the idea of Pérez and Oviedo (2019), considering that a comprehensive approach is required that allows the coherent and synchronized action of all sectors of society, and they emphasize the need to raise the quality of the act. education in which environmental education is managed by educational agents and agencies of primary education.

In educational research, this phenomenon has been approached from various lines, among which is professional improvement (Companiononi and Rodríguez, 2017; Luis and Jiménez, 2019; Cruz, Pulido and García, 2021); with the purpose of providing primary teachers with the knowledge, skills, attitudes and values to strengthen their environmental culture as a support for educational quality.

Paradoxically, in the unique case of Ghana, researchers and organizations such as Akyeampong *et al.* (2007), Unesco (2014), Alhassan (2014), Afiba (2017), Armah (2017), Mahama and Márquez (2020) and De Pedro (2020) recognize the lack of continuous teacher training as the main theoretical gap. primary for the management of environmental education, due to their limited initial pedagogical training and the instability of the cloisters.

These results were confirmed in the factoperceptual analysis developed by the main researcher of this study, revealing that this problem is exacerbated for primary teachers in the rural area of Dabala, Ghana, due to the growing environmental deterioration of the region; the scant treatment of curricular sustainability as a transcendent criterion of the educational process in schools, the limited institutional participation in the management of environmental development at the local and regional level and the lack of involvement of teachers in the treatment of environmental education in all the educational process.

Therefore, the objective of this article is to characterize the process of professional development in environmental education of primary teachers in Ghana. It is based on the assumption that the primary teacher must pedagogically manage environmental education from a comprehensive, axiological and regional and local sustainability perspective, and for this he must have a high preparation.

DEVELOPING

"The fight against climate change starts at school"

**Laurent Fabius
President of COP21**

Laurent Fabius began his speech with these words, when he chaired the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21), which gave rise to the Paris Climate Agreement, in 2021 (Unesco, 2021a); urging those present to transform the mission of educational, teaching and learning institutions, based on environmental education that becomes a factor of sustainable development and social change.

In reaffirmation of these ideas, UNESCO organized, in cooperation with the German Federal Ministry of Education and Research and with the German Commission for UNESCO, as associate advisor, between May 17 and 19, 2021, in Berlin, Germany, the World Conference on Education for Sustainable Development (ESD), with the virtual participation of eighty ministers and deputy ministers (policy makers and academics), and 2,000 education and environment specialists. There was a general consensus that lifelong learning is key to solving global challenges and that it is through education that social transformation occurs "with the aim of creating more sustainable societies" (Unesco, 2012, p. 33).

In what was called the Berlin Declaration on ESD, the following was concluded:

We are convinced that urgent action is needed to address the dramatic interrelated challenges facing the world; in particular the climate crisis, the massive loss of biodiversity, pollution, pandemic diseases, extreme poverty and inequalities, violent conflicts and other environmental, social and economic crises that endanger life on our planet. We believe that the urgency of these challenges, exacerbated by

the COVID-19 pandemic, requires a fundamental transformation that leads us towards sustainable development based on more just, inclusive, supportive and peaceful relationships between human beings and with nature (Unesco, 2021b, p.1).

It was reaffirmed that education is a powerful facilitator of positive change in mentalities and world views, and can support the integration of all dimensions of sustainable development, of the economy, society and the environment. In such a way that the educational process provides the knowledge, skills, attitudes, ethical values, culture and identity necessary to turn people into agents of change to achieve sustainable development.

In the same source (Unesco, 2021b) it was stated, when referring to the Berlin Declaration, that ESD allows students to develop their cognitive and non-cognitive skills, such as critical thinking and the skills for collaboration, resolution problem solving, coping with complexities and risks, building resilience, and creative and systemic thinking, and empowers them to act responsibly as citizens, realizing their right to quality education as defined in the SDG # 4, of the 2030 Agenda.

The Berlin Declaration concluded by stating that ESD must be based on respect for nature, as well as on human rights, democracy, the rule of law, non-discrimination, equity and gender equality, and promote them. Furthermore, it should promote intercultural understanding, cultural diversity, a culture of peace and non-violence, inclusion and the notion of responsible and active global citizenship.

Similarly, other international organizations have highlighted the criteria of environmental education based on sustainability principles that ensure the present and future survival of the planet. This is the case of the Environmental Training Network for Latin America and the Caribbean (UN, 2017), in whose annual report it states that: "Currently, there is consensus regarding the contribution of environmental education to the improvement of environmental awareness, awareness and environmental conditions in many parts of the region, but there is also clarity regarding the need to continue deepening and improving its performance" (p. 5).

And it is that, this performance must be a concern and occupation of all educational agents and agencies such as the family, community, economic, political and cultural entities, and the mass media, all led by the school, because it is there where "the fight against climate change" wins, as was proposed from the beginning. From this perspective, the responsible professional performance of teachers must be supported by an environmental awareness that generates healthy lifestyles in students for themselves, for others and for the environment.

Thus, educators must become integrating and mobilizing agents of community forces, to achieve their development and the realization of a community and popular education (Freire, 2004) that brings together all factors and institutions, whose coherently organized actions lead the population to education and development of an environmental culture (De la Cruz, Páez and Rodríguez, 2022).

The trend of a school closed in on itself contradicts its very essence, since education must look more and more like life itself, so that it generates lifelong learning. Linked to this is the coexistence and coexistence of

students with environmental problems, which in turn results from two totally antagonistic perspectives: on the one hand, involvement (because they are part of the environmental problem by generating it); and on the other, commitment to safeguarding the planet (because they are the true ideal agents to generate change in favor of environmental sustainability). Undoubtedly, the school must be intrinsically involved in the work for environmental sustainability.

"Education can be a powerful lever to transform our relationship with nature. We must invest in this field to preserve the planet"

Audrey Azoulay

Director General of UNESCO

"Kids need a universally accepted six hours of teacher-student contact. And if they don't go to class because of 'Away,' they will miss out on everything that was taught." This is one of the incredible realities facing Ghanaian school children, revealed to the Institute for Policy Studies (IPS, 2021), by Naa Alhassan Issahaku Amadu, Northern Region Population Officer. And it ensures that the child labor of these children affects their growth and intellectual, social and physical development.

The term "Far", although it may seem so, does not refer to long distances between communities and educational centers. It is a region in the north of Ghana with large extensions of rice and that requires people, in this case minors, who with slingshots (a stone tied to the end of a rope) scare away the birds that definitely affect the crops. "Currently we do not have any other method of scaring away birds, although we know that the education of children is at stake," Robert Owusu, a rice farmer from Nyanpkala, Ghana, acknowledges to this body.

Each child, for working from seven to eighteen hours scaring away birds, is paid ten dollars a month, plus a 25-kilogram sack

of rice or corn, for every half a hectare of land they protect. Some 1.27 million boys and girls between the ages of five and 17 in this country of 25 million people are involved in activities classified as child labor, Emmanuel Otoo, a representative of the International Labor Organization (ILO), told IPS.

Thus: where are the policies and discourses in relation to human sustainability? How, under these conditions, can inclusive and equitable quality education be guaranteed in Ghana and lifelong learning opportunities promoted for all, as advocated by SDG #4 in the 2030 Agenda?

Before the outbreak of the pandemic, data for Ghana from the United Nations Children's Fund (Unicef) showed that 16.9% of children between the ages of 5 and 11, 50.9% of children between 12 and 14 years old and 83.3% of children between 15 and 17 years old did not attend school, had two or more years behind in school or had not reached the appropriate level of schooling for their grade.

Coupled with this negative systematic practice of the Ghanaian school-age population is the impact of the COVID-19 pandemic, which has widened the education gap for rural children, especially in terms of access and quality of education, which has been felt due to the closure of schools without adequate and accessible alternative educational services for all children. This exacerbated existing inequalities in education in the short and medium term, and worsened existing barriers to access, as the disparities between urban and rural areas are significant.

However, the Ghanaian government, with funding from the World Bank, introduced a \$15 million, one-year distance learning system as part of the pandemic response that promotes learning continuity, recovery and resilience in basic education. Its goal is

to reach vulnerable groups of schoolchildren with education and to out-professional teachers to ensure they can effectively deliver lessons through innovative platforms.

However, seventeen-year-old Muniratu Adams is a second-year student at Jeyiri High School in Funsu, in the Wa East district of Ghana's Upper West region, who was lucky enough to be back in the classroom. after its long closure due to COVID-19. She told IPS that, despite these distance learning platforms, the majority of the school population still has many problems getting equitable access to these services, because they do not have access to online learning devices or the Internet at home.

And this is confirmed by the executive director of *African Education Watch*, Kofi Asare, considering that, in his opinion, the Ghanaian government can do more to ensure that vulnerable children, especially those from the most remote and poor communities in the country, have the necessary tools to access quality education (IPS, op. cit.).

These problems affect the effective and systematic management of environmental education, which cannot be interpreted excluding the education of the human being in the criteria and formula of sustainability. So, neglect of the school-age population enhances their inability to appropriate an environmental culture and, consequently, a responsible and friendly performance with the Environment.

The figures presented above are consistent with the negative state of environmental education in Ghana, and are a sign that in many cases the European Union takes poor countries as its main dump. This is the case of Agbogbloshie, a place located just fifteen minutes from the center of Accra, the capital of Ghana, and which receives tons of useless electronic products to be turned into scrap.

"What for many people is a problem, for others it ends up being a way of life in this region." This is confirmed by Father Subash Chittila Opillly, formerly a priest in the Agbogbloshie neighborhood. And he warns that, very close to the area, which has already been considered the largest technological dump in the world due to the presence of metals that exceed 100 times the internationally permitted limits, is one of the most important markets in the capital of Ghana: "Animals graze on the dump and many foods are affected by smoke, that will harm several people."

However, these realities have transcended from previous decades (Gogo, Guzmán and Caballero, 2019). In particular, in 2016, Ghana's National Learning Strategy on Climate Change and the Green Economy was implemented, with the intention of integrating climate change into all subjects in the new primary school curricula. Three years later, in 2019, several activities were carried out, including:

- Identification of topics on climate change and ecological economics for inclusion in pre-university education curricula.
- Analysis to assess knowledge about climate change and green economics among schoolchildren and teachers.
- Preparation of teaching and learning materials adapted to the new curricula of primary education.
- Training of more than 600 primary school teachers.

As part of this strategy, an exhaustive diagnosis was carried out to comprehensively characterize the panorama of the climate change situation and the knowledge about ecological economics of schoolchildren and teachers. It was conducted in 45 elementary, middle, and high school schools, spanning the southern, middle, and northern belts of the country.

The conclusions served as a starting point for the development of the application framework, from whose work the following results were obtained:

"Preparation of teaching and learning materials adapted to the indicators of the new primary school curricula, oriented to climate change.

"Inclusion of various thematic areas from the first basic level to the sixth, as indicated below:

- In Science, it was included: weather conditions (basic 1), common human activities that are harmful to the environment (basic 2), human activities that pollute the atmosphere (basic 3), burning is one of the causes of climate change (core 4), impact of deforestation on climate change (core 5), effects of climate change on humans (core 6).
- In Religious and Moral Education, it was included: reasons to protect God's creation (basic 4-6), care for the Environment (basic 4-6).
- In Our World Our People, the following was included: efficient use of energy (basic 4-6).
- However, and as Unesco (2014) and De Pedro (op.cit.) point out, in order to respond to environmental problems and promote sustainable development contextualized in a locality, it is not enough to incorporate environmental issues in the school curricula, but it is essential that the population knows and understands what the problems are and how to solve them, in such a way that an awareness is produced that leads to a change of attitude towards the environment in which they live (Márquez, Linares and Cage, 2021).

In this sense, the interpretation provided by Miranda (op.cit.) and Fragoso, Santos and Aguiar (2017) is essential, when conceiving environmental education as a permanent educational process in which the different knowledge related to the Environment, as well as the relationships that are reflected between them, which must be developed through the cooperation of the different subjects, in such a way that knowledge is integrated into the contents in order to develop an understanding of the Environment. Environment, its characteristics and the environmental problems that affect it.

"We must focus not only on expanding access and improving learning outcomes, but also on the kind of education our world needs"
Amina Mohammed
UN Deputy Secretary General

Somehow, it is necessary to achieve the reinvention of an education as advocated by SDG No. 4, where everyone, without distinction, lives in a friendly way with the environment, learning from its nature. For this, better-prepared pedagogical groups are needed, where professional improvement is not an imposition or a list of courses to overcome as a demonstration of updating.

According to Chávez (2017), "No matter how guiding and reconceptualized pedagogy and didactics are to face environmental education, it is the teacher who puts them into play, with his pedagogical tact" (p. 2); The pedagogical sensitivity of teachers is necessary to transmit positive feelings to their students, in addition to generating confidence, security and optimism in relation to environmental sustainability.

From the Advanced Education Theory, Añorga (2014) includes in his professional development criteria the set of teaching-learning processes where professional performance is updated and perfected, based on the improvement of the subject's

intellectual development and behavior, by make it more responsible and committed to society.

A more current look, with which Pérez, García and Cuní (2017) agree; Bonilla, Arencibia and Pereda (2020); Cruz, Pulido and García (2021); Lugo, Álvarez and Estrada (2021); Cárdenas, Castillo and Rodríguez (2021), among others, is the one offered by the Ministry of Higher Education (MES, 2019), which includes in professional improvement the term completion of knowledge, skills and values in their professional practice.

From another perspective, Bernaza, Troitiño and López (2018) define professional improvement as a pedagogical process that:

(...) includes other training and development processes closely linked to work activity (...) systematic succession of learning activities in a specific historical-cultural context, of construction and social reconstruction of knowledge through activity and communication (...) is transformative, not only of the learning object and its environment, but of the subjects that are part of it (p. 16).

In correspondence with the previous ideas, and as an educational policy, the Curricular Plan of the Cervantes Institute, and in the *Science Curriculum for Primary Schools*, of the Ministry of Education of Ghana, expressed the need to educate girls and boys for a performance responsible environment. Even so, the reality of the Ghanaian educational system is different, given, firstly, because public schools have very limited material resources, as has been pointed out, and, on the other hand, due to the

insufficient training that teachers receive, derived of the conception of this profession as "a passing job". The demotivation of teachers, the precarious salary and the lack of methodological resources and material means pose great obstacles in this educational system.

It is worth mentioning that, in Ghana, as De Pedro (op.cit.) points out, the profession of teacher is not as valued as it should be and, on many occasions, the lack of training and resources is a great obstacle when it comes to providing a quality education. This, together with the scarcity of ELE teaching materials adapted to this reality, makes the task of teachers extremely difficult.

In addition, a great heterogeneity is observed in the classes due to the great differences in learning rhythms, ages and, therefore, the different levels. As we can see, in any context, but in this one in particular, even to a greater extent, great attention must be paid to the diversity of students in the classroom, attending to their needs individually.

This phenomenon affects all educational agents and agencies in primary education, becoming a requirement for updating and professional development of teachers for the effective management of the educational process. Thus, postgraduate training must enable primary teachers, from the pedagogical point of view, to competently manage environmental education. Thus, the need for professional improvement that provides these teachers with the knowledge, skills, attitudes and values that strengthens their environmental culture is intended.

In this way, the work strategy to support the plan for the education sector in Ghana contains several components grouped by objectives for teachers or for teaching (Government of Ghana, 2012):

- Improving the quality of teaching and learning.
- Improving the management of the provision of educational services.
- The endowment and assignment of teachers.
- The work plan matrix, which links these objectives to goals (outcomes and outputs).
- Summary of the strategy, activities, deadlines and responsible units or agencies.

Finally, analysis of teachers' experiences with the implementation of the inclusive education policy in two districts in Ghana revealed that teachers had limited, and often distorted, concepts of the policy and required innovations in their practice.

For it to be successful, "the policy implementation process should have been clearer and more inclusive, so that stakeholders could understand the purpose of the policy agenda and accept it" (Alhassan, 2014, p. 127).

From the previous evidence, the need for professional development of primary teachers in Ghana is understood, based on the establishment of professional commitments with their social responsibility, and with the conscious appropriation of competencies to pedagogically manage environmental education from an integral, axiological and of curricular sustainability.

It is a process of professional improvement of primary teachers in practice, plagued by deficiencies and shortcomings with regard to continuous training, since those who are in charge of training these teachers are not in charge of continuing with the improvement process, leaving this assignment to the *College of Distance Education (CODE)*, without a system of planned actions to solve this problem.

Universities (*University of Cape-Coast* and *University of Winneba*) offer upgrading courses for these teachers, graduating with a diploma after three years, but cost and nature do not allow many to participate in them. In addition, until now the reform in 2020 has not been incorporated into the curricular adjustments to satisfy an interdisciplinary training at the level required by environmental education. The two universities are located in a single province of the country with no faculties in other provinces, classes are received only during vacations in the summer (Agbogbo, 2022).

In light of the analyzes carried out, the process of professional improvement in environmental education of primary teachers in Ghana means taking into account certain premises that allow us to propose a development strategy for the future. Namely:

- It must be conceived as a developer, systemic, personalized and contextual process.
- Mobilize the social actors involved in its management at the regional and municipal level.
- Ensure the treatment and systematicity of environmental education in the institutional strategy of professional improvement.
- Starting from the individual pedagogical diagnosis of each primary teacher.
- Strengthen the relationship between theory and practice in professional improvement programs in environmental education, aimed at primary teachers.
- Increase the scientific rigor to evaluate the impact of professional improvement in environmental education, aimed at primary teachers, based on the modification of the environmental awareness of students.

- Design improvement actions in the short, medium and long term, according to the legal framework that serves as a platform.
- Take as a starting point the differentiated nature of the improvement activities, according to the current and potential development zone of each teacher in environmental education.

What has been referred to here about the process of professional improvement in environmental education of primary teachers in Ghana reveals the importance of incorporating the environmental dimension as a transversal axis in primary education, but not only from the curricular point of view, but as a method and work style to achieve lifestyles and responsible performance in managers, teachers and students, so that the educational institution is projected in a transcendent way towards the community and involves it in solving regional and local environmental problems.

CONCLUSIONS

Environmental education currently acquires nuances of strategic relevance due to its connotation in education for sustainable development. In the case of Ghana, deep transformations are still required in the training systems of primary teachers, in relation to environmental issues. It is rightly understood that, to the extent that environmental education is improved in primary teachers with a contextualized and developer character, a better preparation of the new generations in relation to the protection of the Environment will be favored.

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The authors declare not to have any interest conflicts.

Contribution of the authors:

Daniel Agbobbo. Conception of the idea, coordinator of authorship, general advice on the subject matter, search and review of literature, translation of terms or information obtained, compilation of information, writing of the original (first version), review of the bibliographic standard applied, review and final version of the article, correction of the article.

Taymi Breijo Worosz . Search and review of literature, translation of terms or information obtained, information gathering, review of the bibliographic standard applied, review and final version of the article, correction of the article.

Jorge Luis Mena Lorenzo. Search and review of literature, translation of terms or information obtained, information gathering, review of the bibliographic standard applied, review and final version of the article, correction of the article.



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