



Conception of public school teachers in São José do Egito, Pernambuco, about Environmental Education

Concepção de professores de escola pública em São José do Egito, Pernambuco, sobre Educação Ambiental

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The inclusion of environmental issues in formal education is recent. In this reality, the present study aimed to analyze the conception that teachers from public schools in São José do Egito, Pernambuco - Brazil, have on relevant issues and actions for Environmental Education. We interviewed 22 teachers through a structured questionnaire consisting of 10 questions focusing on environmental matters. We found that 95.5% of the interviewees showed interest in studying environmental issues and considered themselves as responsible for any environmental damage occurring. They all stated that environmental damage worries them and 72.7% have already tried to change this situation. They (72.7%) believe that there can be economic and social development without causing environmental impacts. Half of them consider the citizens as the main responsible for the damage to the environment and at the same time as the most involved with its protection. In addition, 40.9% said that the school where they work treats environmental issues superficially and 59.1% said the textbook as insufficient material to address environmental issues. The low school performance and the lack of teacher training in Environmental Education compromise the critical education of students regarding environment preservation.

Keywords: environment, formal education, transversal education.

A inserção da temática ambiental na educação formal é recente. Nessa realidade, essa pesquisa objetivou analisar a concepção de professores de escola pública em São José do Egito, Pernambuco, sobre questões e ações pertinentes à Educação Ambiental. Foram entrevistados 22 docentes, por meio de um questionário estruturado constituído por 10 questões que versavam sobre temas ambientais. Verificou-se que 95,5% deles apresentavam interesse pelo estudo do meio ambiente e se percebiam como causadores de algum dano ambiental. Todos afirmaram que esse dano ambiental os incomodava e 72,7% deles já tentaram modificar essa situação. Eles (72,7%) acreditavam que há desenvolvimento econômico e social sem a geração de impactos ambientais. Metade considera os cidadãos como os principais responsáveis pelos danos ao ambiente e ao mesmo tempo os mais envolvidos com sua proteção. Além disso, 40,9% afirmaram que a escola onde lecionam trata as questões ambientais de maneira superficial e 59,1% afirmaram que o livro didático é um material insuficiente para abordar temas ambientais. A pouca atuação da escola e a escassez de capacitação docente em Educação Ambiental comprometem a formação crítica dos estudantes em relação à preservação do meio ambiente.

Palavras-chave: meio ambiente, educação formal, transversalidade.

1. INTRODUCTION

Environmental Education (EE) is a process for reflection on human presence as part of the natural environment. It contributes to the intellectual development of individuals and critical position in face of political, socioeconomic, cultural and environmental discussions [1].

The environmental issue has gained ground in the educational institutions late for fear that the discussions about the losses inherent to human activity could undervalue the economic expansion in evidence since the Industrial Revolution [2,3].

Initiatives such as the book "Silent Spring" published in 1962, in which the author, Rachel Carson, warned about the effects of pesticide use and the Club of Rome, founded in 1966, served as a starting point; however, the Conference on the Environment, held in Stockholm, Sweden, in 1972, brought out the implications of human intervention in the natural environment on a global scale [4,5].

After this time, several events of the same scope discussed ways to prevent further losses and mitigation of the effects of human presence on the planet [6]. Nevertheless, the inclusion of the subject in the school was not dealt with, which only materialized at the beginning of the 21st century due to the intervention of the United Nations [7].

Brazil has several laws that guide regulatory actions related to environmental legislation, included since the 1980s, in the last Federal Constitution [8]. Subsequently, there was the creation of the PCNs (National Curriculum Parameters), which attributed a transversal character to the environment and should receive contributions from all areas of education throughout the educational process of citizens [9].

In addition to these, the Diretrizes Curriculares Nacionais (DCN) were established in 2012, which at its meeting aimed at EE, foresees that the relationship between humans and the environment is better understood and experienced from the complex and interdisciplinary environmental point of view [10].

In this perspective, the school spaces have the human resources needed to put into practice what is stated by the law, once they have the ability to physically bring together professionals from different areas of the curriculum and the community where it is inserted, thus forming multipliers.

The multilateral approach regarding the environment enriches the discussion and subsidizes consistent pro-environmental actions, establishing a relationship of belonging between man and nature, until the feeling of wanting to do something for the benefit of the planet becomes the act of caring for the future [11, 12].

There is an urgency in dealing with environmental issues and reflecting on it in a democratic manner. however, formal education may require a greater share of responsibility [13]. The school takes its point of emphasis in civic education [3] and, associated to this, it is possible to work the critical sense and environmental responsibility of the students through teacher intervention [14].

According Gazzineli [19 p. 176]:

The teacher becomes the key figure in the process of curriculum implementation and, in the condition of an environmental crisis, in which the subjects are included, the curriculum should explore its cultural and imaginary dimensions, offering opportunities to the teacher and the student for the construction and reconstruction of more appropriate representations to a new meaning and role to be played by them.

From this perspective, evaluate the knowledge and actions of the teacher as an environmental educator – he/she being the link between good environmental practices and intellectual training of current and future generations – becomes paramount for better integration of EE at school [5].

The objective of this research was to analyze the conception of public school teachers in São José do Egito, Pernambuco, on relevant issues and actions for EE.

2. MATERIAL AND METHODS

The study was conducted at the School Édson Simões, located in the city center of São José do Egito (7° 28' 44,4"S; 37° 16' 6,4"W). This town is located in the macro-region of the Sertão (backcountry, hinterlands) and micro-region of Pernambuco Pajeú (Figure 1), with a land area of 798.9 km² and population of 31,829 inhabitants [16].

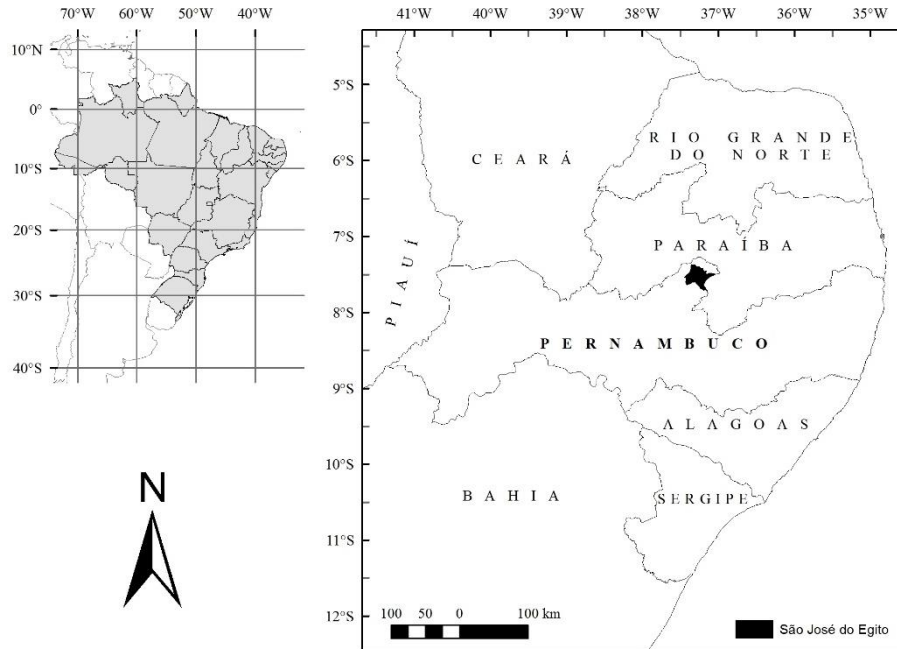


Figure 1: Geographical location of the town where the study was conducted.

The definition of the sample size ($n = 22$ teacher) was according to Rocha [17], considering the total number of students enrolled in that high school and assuming a standard error of 10%. The selection of teachers was random, including teachers from different areas of knowledge.

Data collection was through the application of a questionnaire, consisting of 10 multiple-choice questions (Table 1). The first five questions, adapted from Santos; Garcia-Silva; Correa [18] were binary qualitative questions (affirmative or negative answers), related to the teacher's daily life and his/her relationship with the physical environment. The other questions (02) were about the interaction between different sectors of society and the natural environment and (03) addressed the transversal nature of EE and the adequacy of the textbook to the subject.

Table 1: Questionnaire applied to the interviewed teachers.

Order	Question
P ₁	Do you have interest in issues related to the environment?
P ₂	On a daily basis you consider that causes some damage to the environment?
P ₃	Do you feel uncomfortable with the damage to the environment (noise, deforestation, pollution, etc.)?
P ₄	With respect to such bother, you did something to change the situation?
P ₅	Do you believe that there may be economic and social development without generating environmental impacts?
P ₆	Which segment of society do you attribute as the main responsible for the environmental damage? () government () citizens () Industrial sector () agricultural sector () commercial sector.
P ₇	Which segment of society do you attribute as the most involved with environmental protection? () government () citizens () Industrial sector () agricultural sector () commercial sector.
P ₈	The National Curriculum Parameters (PCN's) bring the proposal of environmental education as a cross-cutting theme that must permeate all areas of the school curriculum, given that you: () I agree to the NCP's () Disagrees with the NCP's and believes that there should be a specific course on EE; () Disagrees with the NCP's but creating a specific discipline not think necessary.
P ₉	Which of these alternatives best demonstrates how EE is taught in schools where you work? Continuously, with educational activities in daily life and the participation of the whole school; With good frequency, but involving only a few students and a few teachers; With uncommonly only in theme days as the day of water, the environment day, Tree Day, among others; The school where I teach does not develop EE.
P ₁₀	Analyzing the textbook you use, answer: Regarding the approach to environmental you consider: () suitable () Reasonable () Inappropriate

This is a quantitative research. The data were analyzed using descriptive statistics, using Microsoft Excel 2016 software. The discussion of the analysis was guided in the light of the knowledge of researchers in the EA area, such as: Boff [11]; Brown [19]; Araújo [20], Dias [21,22]; Trigueiro [23] and Morin [24].

3. RESULTS AND DISCUSSION

We interviewed 22 teachers. Among them, 22.7% (n = 5) were graduated in areas directly related to the natural sciences: 18.2% (n = 4) in Biology and 4.5% (n = 1) in Geography. The others had majors in Languages, 22.7% (n = 5); Mathematics, 27% (n = 6); History, 18.2% (n = 4) and Pedagogy, 9.1% (n = 2). The qualification in postgraduate level was observed in 68.2% (n = 15) of them, who had *latu sensu* specialization.

Most of them (47.1%, n = 16) were high school teachers, 41.2% (n = 14) elementary school teachers and 11.8% (n = 4) were teachers of adult education (EJA). As for the subjects, it was found that 27.3% (n = 6) taught Science, Biology or Geography in their classes. Other 50.0% (n = 11) taught subjects of the exact sciences (Mathematics, Physics and Chemistry) and 22.7% (n = 5) taught other disciplines (Art, Philosophy, History, English, Portuguese and Sociology).

The environment in the Didactic context: Teaching and teacher training

A total of 95.5% (n = 21) teachers reported having interest in environmental issues. However, they (63.6%, n = 14) reported that the school is not very active or rarely addresses environmental issues in the daily school, with only specific actions in specific thematic days. Thus, it was noticed that despite the teachers have an interest in the environmental area, there

was not in school, the inclusion of EE with the development of continuous term projects throughout the school year.

The interests of teachers should be used by the school to motivate them to build capacity in EE and prevent the environmental knowledge to be conveyed superficially and discontinuously. Historically, teacher training has been a one-way activity when working the specific contents of each field of knowledge over the didactic-pedagogic preparation, in which one “learns” to teach. This scenario is no different when it comes to EE [25].

According to Dias [21], the teachers feel harmed by not receiving adequate training, which compromises their teaching practice and makes them unable to promote coherent discussions on the environment and contribute to the construction of critical thinking in students.

Araújo; França [20] found, in a study with graduate students of two federal universities in Recife, Pernambuco, EE predominantly understood as education for sustainability and the environment. However, part of this studied population presents a simplistic view of the EE role, so the authors call attention to the social responsibility of universities in teacher training, since the teaching practice of these professionals is a reflection of concepts built up over the academic education.

EE demonstrates to have a prominent role in formal education environments, providing its participants with a critical position able to turn knowledge into pro-environmental practices [6]. Thus, it is essential that teachers include it efficiently in their lessons.

Therefore, Guimarães; Tomazello [27] argue that EE of education professionals results in improved quality of life and social justice, from the care with the environment.

The teachers participating in this study believed in the need for EE, 22.7% (n = 5) advocated the creation of a specific subject for EE in the school and 59.1% (n = 13) pointed out that the textbook is very limited for this.

By treating the environment as a crosscutting issue, it was found that 72.7% (n = 16) of them agreed with the PCNs and acknowledge the need to work EE in a continuous and integrated manner in all areas of the curriculum.

The Brazilian environmental legislation ensures that EE be inserted in formal and non-formal teaching environments as a priority for the preservation of the natural environment; however, the school is a privileged environment to build this learning [25,28].

Once the discussion of environmental issues has become universal and imminent, the insertion of the theme in the curriculum is justified; thus, the schools should encourage reflection on the attitudes towards the environment [29]. The school that does it will be contributing to the structuring of a world where it is possible to respect the limits of nature and the finiteness of its resources, ensuring the maintenance of human life. [23]

In addition, formal learning environments should be based on the principle that there is no way to study this issue (and any others) in isolation. It is necessary to overcome the fragmentary vision of the teaching model and act in complexity, considering the unity and multiplicity without dissociating them [24].

In this sense, there is the need to adequate the Political Pedagogical Project as this document will, in its various dimensions, guide the educational activities and suggest strategies to make EE an active educational policy [30].

The PCNs emphasize that EE results from the integration across disciplines to its correct approach in school curricula [31].

“Therefore, both the theoretical frameworks and official documents direct to the need for discussion and reflection regarding the implementation of interdisciplinary teaching, either in Basic Education or in initial training of teachers” [32 p. 157].

When EE meet the challenge of interdisciplinarity and is designed from the interaction of different areas of knowledge, it will be possible to realize the completeness of environmental issues and enrich the discussion on the topic [33].

Teacher socioenvironmental education: perception and knowledge

All teachers retorted that they felt uncomfortable when recognizing factors degrading the environment, such as deforestation, noise, etc. In addition, 95.5% (n = 21) stated that they

themselves are agents of damage to the environment in their daily lives, and 72.7% (n = 16) tried to change the situation.

Teachers have an important role in the proper integration of environmental concerns in school curricula [34]. By interacting directly with the student of basic education, he/she is able to promote critical awareness about the environment and transform attitudes to greater respect and environmental protection [35].

According to Silva et al. [36 p. 6]: “Environmental Education depends largely on the teacher's view, the set of perceptions/representations and the ability of teachers to relate it to the environment around him/her, which is favored from the experiences”.

Therefore, the educator who maintains a relationship of belonging to the community where he is has greater authority to discuss, in the classroom, environmental issues present in the reality of students [15].

Half the respondents (n = 11) believed that the environmental damage of today are caused by actions of citizens, followed by industry (41.0%, n = 9) and government (4.5%, n = 1). None of them attributed the environmental damage to commercial activities and 4.5% (n = 1) could not answer. With similar trend, half of them believes that citizens are the social layer with better conditions to carry out environmental protection activities, followed by industry (18.2%, n = 4) and the government (13.6%, n = 3); and 13.6% (n = 3) could not answer.

It is vehement the responsibility of citizens regarding damage to the environment and their attempts to lessen this impact, which most of the time, are still incipient or little, or unsuccessful. However, it is important that the environmental educator understands that everyone should share the responsibilities of environmental preservation and conservation.

According to the National Policy on Solid Waste, the proper management of products throughout their cycle (production, marketing, consumption, and reverse logistics) are rights and duties of the various social sectors [37].

Venâncio [38, p.38] points out that:

The new parameters of shared responsibility combined with various forms of cooperation between the government, business sector and civil society in general, represent the way to effectuate measures that promote environmental quality and reduce the damage and risks to the environment.

From this perspective, EE is designed as a mechanism able to add, to solid waste management, actions for its reuse and decrease of its production, contributing to the environmental balance and preservation of natural resources [39].

“It is essential, therefore, to form an environmental rationality, which is a process of cultural and social innovation that seeks to achieve a coherent way to deal with environmental problems, establishing a genuine rapprochement with nature” [40, p. 92].

The same author argues that when working the environmental issue contextualized in the formal education and promoting greater contact between the school community and the physical environment where it lies, environmental care and preservation is fostered spontaneously.

The act of caring is inherent in human nature but this action has been denatured by selfishness we deal with the environment and with the people, but we need to improve this scenario with behavioral transformation that humanity needs [11].

The importance of environmentally educate citizens lies in the fact that everyone has rights and duties in relation to the environment and that their actions have a direct impact on its quality. For these reasons, EE should consider the environment in its various aspects (social, economic, moral), besides being present in all educational stages with interdisciplinary approach and assess environmental issues (current and historical) shedding light on their effects [22].

In this case it is a re-education not only requires changing habits (small daily actions are valid and necessary), which should be is a global mobilization, economic and social point of view, in order to restructure the production models and consumption, as acting is now possible to preserve the future of humanity. [19]

EE enables the participants to act for the environment now and as they reflect critically on the subject, they may be able to solve future issues [41]. When this awareness is part of school practices, students become multipliers of pro-environmental attitudes that go beyond the boundaries of the school community and ratify the importance of EE [42].

4. CONCLUSIONS

The respondents perceive that they are agents that cause damage to the environment and they worry about it. Nevertheless, they report that EE is treated superficially through inconsistent practices in the school context where they are inserted.

Teacher training must be based on continuity in order to include the due attention to environmental issues in school life. The qualified teacher can do of his/her practice in the classroom a mechanism to include the commitment and care for the environment in everyday attitudes, sensitizing students to become citizens with critical thinking and able to plan and implement environmental initiatives in their society.

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