ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 08, Issue, 11, pp.24388-24392, November, 2018

ORIGINAL RESEARCH ARTICLE OPEN ACCESS

THE TEACHING OF ENVIRONMENTAL EDUCATION PROPOSED BY JOSEPH CORNELL: AN EXPERIENCE IN BASIC EDUCATION

[1,2]Horst Naconecy de Souza, [1]José Veras de Almeida Filho, [2]Thiago Fragoso Nobrega, [1]Hérika Maria Filgueira Costa, [1]Helen Maria Filgueiras Costa, [3]Lorena de Sousa Cunha, [3]Eugênia da Silva, [4]Bruno Frota Amora Silva, [5]Ariel Gustavo Scafuri, [5]Domingos Antônio Clemente Maria Silvio Morano, [4]ArielGustavo Scafuri, [4]Maria Lucianny Lima Barbosa, [7]Ivan do Nascimento da Silva, [6]João dos Santos Pereira Braga Neto, [6]Helder Binda Pimenta, [1]Lorena Cerqueira Santana, [9]Cristiani Baccin da Silva, [10]António Orcini da Costa Júnior, [10]Roberta Oliveira da Costa and *[9]Ana Paula Fragoso de Freitas

[1]Research Group on Education, Law and Health, Brazil
[2]Family Health Program, Family Medicine, Brazil
[3]Catholic University Center of Quixadá, Brazil
[4]School of Dentistry, University of Fortaleza, Fortaleza, Ceará, Brazil
[5]Department of Morphology, Faculty of Medicine Federal University of Ceará, Fortaleza, Ceará, Brazil
[6]Medical Course, Amazonas State University, Brazil
[7]Federal University of Alagoas and UNIT, Maceió, Alagoas, Brazil
[8]Universidade da Integração Internacional da Lusofonia Afro-Brasileira, Redenção, Ceará, Brazil
[9]Universidade do Vale do Itajaí, Brazil
[10]Faculdade Metropolitana da Grande Fortaleza, FAMETRO

ARTICLE INFO

Article History:
Received 16th August, 2018
Received in revised form
19th September, 2018
Accepted 22nd October, 2018
Published online 30th November, 2018

Key Words:
Environmental Education,
Methodology, Environment,
Medicine, Health.

Corresponding author

ABSTRACT

Environmental education is an educational action that helps to contribute to the formation of citizens aware of the preservation of the environment by turning them into critical beings on social and environmental issues. The objective of this study was to demonstrate the effectiveness of the methodology proposed by Joseph Cornell in the teaching of sciences from the experiences and experiences in the rural school space. A descriptive exploratory research was carried out with a quantitative approach. The sample consisted of 100 students from a public school in the rural area of the municipality of Parnaíba. It was verified that 80% have knowledge about environmental education, 81% know about the importance of environmental education for the environment, 63% understand environmental education, but little, 51% do not benefit from technological resources in the classroom, 41% do not develop 85% suggested using new teaching methodologies for the classes taught in science, 76% considered the methodology used in the classroom by the teachers satisfactory, 50% would like to diversify the class, participating in a field class, 49% today consider the methodology applied by the teacher and / or school as optimal. It was verified that the methodologies currently applied in the classroom are neither sufficient nor effective in order to contribute to the training of students, and it is necessary to carry out some educational actions with the teaching staff.

Citation: Horst Naconecy de Souza, José Veras de Almeida Filho, Thiago Fragoso Nobrega, Hérika Maria Filgueira Costa, *et al.* 2018. "The teaching of environmental education proposed by joseph cornell: an experience in basic education", *International Journal of Development Research*, 8, (06), 24388-24392.

INTRODUCTION

Environmental Education can be understood as an integral, political, pedagogical and social process geared to socio-environmental reality and to the promotion of society's participation in the transformation of environmental conditions as well as to the prevention of environmental degradation (Tristão and Jacobi 2010). According to Carvalho (2006, p. 71), Environmental Education is initially considered as a concern of ecological movements with the practice of awareness, which is able to draw attention to the poor distribution of access to natural resources, as well as to their exhaustion, and involve citizens in environmentally

appropriate social actions. Environmental Education is a much discussed topic today due to the fact of perceiving the need for an improvement in the world we live in, as it is easily noticed that we are increasingly regressing in our quality of life in general, letting ourselves be led by our daily obligations. According to Valle (2002) environmental education is both a process of information and formation of individuals, aiming at improving their quality of life and that of all members of the community to which they belong. According to Carvalho Jr. (2004), the traditional predominant educational model is not adequate for the development of a Transformative Environmental Education, which must be interdisciplinary, integrative and capable of awakening the critical census in the student. Moreover, in the traditional model there is a risk that the theme as broad and comprehensive as possible will be reduced in a way that prevents students from experimenting, questioning, experiencing and perceiving the environment in which they are inserted in a harmonious way.

Thus, in developing sequential learning, Joseph Cornell thought of establishing and providing a better relation of individuals to nature, for throughout his experiences with nature he realized that there was a sequence to be worked out to make the activities more productive, with he concluded that the persons reacted favorably to a sequence determined subsequently by him in order to harmonize himself with certain aspects of human nature. Thus, he saw sequential learning as a simple but powerful teaching system based on universal principles of consciousness and how people learn through experience (CORNELL, 1997). "Sequential learning allows you to create a myriad of experiences with nature, each matched with the circumstances of the moment, none of which is identical to another" (CORNELL, 1997, p. 17). In order for Environmental Education to stimulate actions and affirmations of values that make society more human and fair, it is necessary for the teacher to have a critical view of environmental issues, in order to lead the student to understand that behind environmental degradation there is a logic of an economic system that induces people to consumerism and the unnecessary waste of natural resources. The lack of control over exaggerated consumerism, the degradation of the environment, and climate change are problems that directly guide society. In order to achieve better results regarding the transformation of human beings aware of the importance of preserving the environment, the interest arose to develop research on the subject, aiming to demonstrate the effectiveness of the methodology proposed by Joseph Cornell in teaching science in basic education experiences in the school space.

MATERIALS AND METHODS

A descriptive exploratory research with a quantitative approach was carried out. The research was carried out in a municipal public school, located in the city of Parnaíba-PI, Brazil, in order to measure reactions, habits, sensations and attitudes and to gather general information about the investigations within the educational institution, in which methodologies applied in the classroom in the science discipline. According to PIOVESAN; TEMPORINI (1995), One of the characteristics of exploratory research, as it is usually conceived, refers to the specificity of the questions, which is done from the beginning of the research, as the only way to approach the proposed theme. According to Andrade, (2006), descriptive research is facts described, observed, recorded, analyzed without interference of the researcher. The scenario of the research was in a rural school in the municipality of Parnaíba-PI. The study population consisted of adolescents from a rural school in the city. The school has about 580 students effectively enrolled. For the study sample, 100 students were selected, 25 in the 6th grade, 25 in the 7th grade, 25 in the 8th grade and 25 in the 9th grade. The sample is of the convenient type, being one of the types of non-probalistic samples; where not all elements of the population have the same chance of being selected, which makes the results not generalizable. The volunteers were selected according to the following inclusion criteria, to be a student of the educational institution, to be in the age range of 11 to 16 years and to be attending elementary school between the 6th and 9th year. To collect the data of the selected students, a questionnaire was elaborated and applied, containing 10 questions, all of them objective, and are interconnected with the methodologies applied in the classroom in the science discipline. Data analysis was the type of descriptive study, in order to determine the sociodemographic profile, behavior and consequences regarding the results obtained by the methodologies used in the classroom (Cerqueira *et al*., 2013). It was used to organize the database Excel 2010 computer program, for the statistical analysis of the studies was used relative frequency and the chi-square test with the help of the program Graph Pad Prism version 5.0, being considered significant the data that they present the value of $p < 0.05$., 01. The values obtained for each group will be expressed in mean ± e.p.m. In order to carry out this study, the assumptions of Resolution No. 466/12 of December 12, 2012, of the National Health Council, which deals with research involving human beings, have been taken into account, guaranteeing respect for the research participant in their dignity and autonomy , recognizing their vulnerability, ensuring their willingness to contribute and to remain, or not, in the research, through an express, free and enlightened manifestation (BRASIL, 2012; NOVOA, 2014).

RESULTS AND DISCUSSION

The data obtained from the students of the educational institution reveal that 50% were female and 50% male. Regarding the age group, the sample showed a higher index for adolescents between 14 and 16 years old 57%, the second age group being 43% between 11 and 13 years. The survey shows that the highest number of enrolled students is in the 6th grade, accounting for 28%, followed by the 8th grade with 26%, the 7th grade with 24% and finally the 9th grade with 22%, according to Table 1. For the age group between 14 to 16, the majority of students are enrolled in classes of the 6th grade, which for the model of education that Brazil has, there is a delay in relation to the series they are studying. There are several factors that have influenced this delay, school dropout is considered a pioneer for this difference. Already for the age group of 11 to 13 years there is no significant difference in relation to the series that they are attending.

Table 1. Interviewees, according to gender

Sex	n	%
Mem	50	50
Woman	50	50

It was verified that 80% of the participants have knowledge about environmental education (Table 2). It was observed that

there is no statistically significant difference between the knowledge of environmental education in relation to gender, that is, both sexes have similar knowledge about environmental education.

Table 2. Knowledge about the importance of Environmental Education in relation to gender

	Environmental Knowledge		Education		X^2	Value of P
Sex	Yes	%	No	%		
Men	43	43	08	8	1,21	0,2712
Woman	37	37	12	12		

The interviewees said they did not fully understand the importance of environmental education. This does not mean that they are not aware that it is a serious matter and that they have heard something about it. According to Almeida (2005) it is not enough that the theme Environmental Education be present in textbooks, educational policies, documents and official speeches; it is necessary to take into account the involvement, participation, preparation of teachers, the limits and the real possibilities for a truly effective pedagogical practice. Our studies corroborate with the studies carried out in the city of Campina Grande-PB, where a knowledge of environmental education is observed around 77%. Environmental education is an issue that is always being addressed by the media, and full knowledge can only be understood when we actually get to the subject and train ourselves through the contents that the theme addresses and we always update the issues inherent to the theme through of courses, lectures, seminars, specializations and to add the theme in our lives of definitive form.

Table 3. Relative frequency distribution of students in relation to the importance of environmental education for the environment in the city of Parnaíba, 2015

Importance	n	%
Form citizens	81	81
Helping in knowledge	6	6
Its not important	1	1
It's important, but it should not be shared	2	2

Regarding the importance of environmental education for the environment, the data obtained show a predominance of 81% for the formation of conscious citizens, 6% only helps to acquire knowledge of natural wealth, 1% is not important and 2% considers it important, but its practice should not be collective. Similar data were found in a survey in Santa Maria-RS in 2008, it can be verified that the majority find the discussion of environmental issues important, thus being aware. From this observation, it becomes easy for the teacher to work with environmental themes that demonstrate interest to the student. In a society of risk, Environmental Education is called to raise awareness about the socio-environmental risks that arise from the man / nature relationship. In proposing it, we believe that it is capable of leading individuals to review their conceptions and habits (TREVISOL, 2003, p.93). Environmental education presents itself as an indispensable element for the transformation of environmental awareness and can lead to changing values and behaviors, most considered as important for the formation of conscious citizens, are correct, only with a good training people will have a more harmonious and sustainable relationship with the environment where they are inserted. About the understanding of the subject environmental education 8% answered not knowing what it is for, 63% answered know, but little, 6% answered that they never heard of it and 23% others: we must preserve the environment, with the knowledge of environmental education we can change the forms of life on earth, respect and character, many things and should not throw garbage on the ground, at last were written several sentences of environmental awareness. It is necessary an Environmental Education with an interdisciplinary emphasis that provides a better reading of the reality and promotes another attitude of the citizen facing the socio - environmental problems. And this reflection needs to be deepened insofar as the health and quality of life of this generation, and of the future ones, depend on sustainable development (SOARES *et al*. 2001). It is noted that the theme is still little discussed in the classroom. As it can be observed is a large mass 63% who reports knowing, but little about the importance of environmental education to the environment, environmental education is a branch of education, aims to help us understand the environment and our relationship within it in order to teach us how to preserve and use their resources sustainably.

Table 4. Relative frequency distribution regarding the understanding of environmental education in a public school in the city of Parnaíba

Understanding	n	%
I do not know what it's for	8	8
I know, but very little.	63	63
I've never heard of	6	6
Others	23	23

The data should be at least a lower percentage on the understanding of environmental education, since the subject is always being discussed in all media, with this it is clear that it is not being addressed and nor is the issue being discussed in the classroom how it should be.

Table 5. Frequency distribution in relation to the use of technological resources in the classroom in a public school in the municipality of Parnaíba

Use of technological resources	n	%
No	51	51
Yes	19	19
Sometimes	20	20
Never	10	10

For the interviewees about the use of technological resources in the classroom to learn contents of the discipline of science, the study revealed extremely unpleasant numbers, faced with a technological era, 51% of respondents answered never to have used technological resources, 19% said they used technological resources, 20% answered that sometimes use and 10%) have never used any type of technological resources. The insertion of new technologies in the classroom promotes the opening of a new world to children and young people. The use of important resources such as television, DVD, computer connected to the Internet, will increase the range of opportunities to obtain knowledge on the most varied subjects (DELORS, 2005). The data reported on the use of technological resources in the classroom is very worrying, as the world is increasingly globalized. In the face of the digital era in which the world finds itself, technology is present in almost everything in our lives, its use only brings positive benefits when used correctly in order to extract information to add knowledge and learning in your life. The use of technology enables people of different ages, social classes and

regions to access information and experience content. On the other hand, it is not enough to only provide technological resources and / or digital didactic materials, obviously these resources are seen with good eyes for some teachers, but for others it is necessary to have a formation in order to know how to use them correctly, so that they can in their methodologies to be worked in the classroom.

Table 6. Frequency distribution in relation to the development of activities outside the classroom in a public school in the municipality of Parnaíba

Development of activities outside the classroom	n	%
No	41	41
Yes	14	14
Sometimes	36	36
Never	1	1

Regarding the activities developed outside the classroom, if the school and / or teachers have the habit of doing technical visits and field lessons, the study revealed that 49% indicated no, 14% yes, 36% sometimes and 1% never. It is evident that there is in no way applied methodologies that resemble the methodology proposed by Joseph Cornell. Studies and practices show that environmental education will only be effective if it leads students to perceive the world around them, "involving them in a way that awakens a critical consciousness that seeks solutions to the problem." (KINDEL, 2006). Carvalho (2004) believes that Environmental Education practices are dedicated to disputes over ethical values, lifestyles and rationalities that interfere with social life. The classroom is undoubtedly the place where most students spend most of their lives, so students are limited to learning about and exploring other environments, where they can be critical in gaining information. Any methodology that is applied outside the classroom will favor disciplinary interaction through approaches of diverse subjects, in which it is relevant for a critical and reflective understanding of reality. These classes outside the classroom will enable the student to relate concepts, values and attitudes in relation to everyday practices. These classes tend to be different, interactive and enjoyable, where you can create a bond of trust and friendship between faculty and decent.

Final Considerations

It was found that, in view of the studies, it can be observed that students do indeed have knowledge about environmental education, they know that it is important for their formations as citizens to be aware of the preservation of the environment. However, they consider the methodologies proposed today by the school and / or teacher sufficient for this transformation, at the same time it is expressive the desire to know new methodologies, especially the one proposed by Joseph Cornell. The methodology proposed by Joseph Cornell constitutes tools that when applied can bring significant results in the learning of environmental education. His methodology proposes that through very simple activities, adults and children are inserted in the natural world, making a trip to the heart of nature. According to the results obtained, working environmental education is a great challenge for any school. Many teachers do not seek alternatives to modify the methodology used today in the classroom, and do not seek to join proposals for a new methodology even if they are scientifically proven to be efficient and effective and can bring positive results in relation to the teaching of environmental education. There are several factors that impede the applicability of the methodology, some are due to the lack of resources and specialization of the teaching staff, and it is necessary for the constant participation of all teaching staff in continuing education courses, in order to bring to the teachers new ideas and reflect the respect of their conceptions and practices on environmental education. The data obtained in this research open several opportunities for discussion on the theme environmental education, the intention is not to end these opportunities, but to encourage new questions and reflections on this theme.

REFERENCES

ALMEIDA, F.P. Projetos de Educação Ambiental e seu Desenvolvimento na Escola Pública: Concepções e Práticas de Professores de Ciências. Dissertação (Mestrado em Educação)- Instituto de Biociências, Universidade Estadual Paulista "Julio de Mesquita Filho". Rio Claro: 2005.

ANDRADE, Maria Margarida. Introdução a Metodologia de Trabalho Cientifico. 7º ed. São Paulo: Atlas, 2006.

BERGAMO, M. O uso de metodologias diferenciadas em sala de aula: uma experiência no ensino superior. Disponível em: http://www.univar.edu.br/revista/downloads/metodologiasdiferenciadas.pdf. Acesso em 4 de outubro 2015.

BRASIL. Conselho Nacional de Saúde (Brasil). Resolução n o 466, de 12 de dezembro de 2012. Brasília, 2012 [citado 2014 Mar 11]. Disponível em: http://www.conselho.saude.gov.br/web_comissoes/conep/index.html. Acesso em 24 jun. 2015.

CARVALHO JUNIOR, A. F. Ecologia profunda ou ambientalismo superficial? São Paulo: Arte e ciência, 2004.

CARVALHO, I. C. M. Educação ambiental: a formação do sujeito ecológico. 2.ed. São Paulo: Cortez, 2006.

CAVALHEIRO. J. S. Consciência ambiental entre professores e alunos da escola estadual básica Dr. Paulo Devanier. Artigo (Especialização em Educação Ambiental) Universidade Federal de Santa Maria, Santa Maria, 2008.

CERQUEIRA, G.S. *et al*. Exposição Ocupacional a Gasolina: Um Estudo Transversal. Revista Intertox de Toxicologia, Risco Ambiental e Sociedade, v. 6, n. 1, p. 05-14, fev. 2013

CORNELL, J. A alegria de aprender com a natureza: atividades ao ar livre para todas as idades. São Paulo: Companhia melhoramentos, 1997. 186p.

CORNELL, J. Brincar e Aprender com a Natureza. São Paulo: Companhia melhoramentos, 1996. 121p.

DELORS, Jacques. A educação para o século XXI: questões e perspectivas. Porto Alegre: Artmed, 2005.

DIAS, Genebaldo Freire. Educação Ambiental: princípios e práticas. São Paulo: Gaia, 1992. 399 p.

DIAS, Genebaldo. Freire. Educação ambiental: princípios e práticas. 9.ed. São Paulo: Gaia, 2004.

GUEDES, José Carlos de Souza. Educação ambiental nas escolas de ensino fundamental: estudo de caso. Garanhuns: Ed. do autor, 2006.

IBGE. Instituto Brasileiro de Geografia e Estatística. Disponível http://www.cidades.ibge.gov.br/xtras/temas.php?lang=&codmun=220770&idtema=16&search=piaui|parnaiba|sintese-das-informacoes. Acesso em: 13 de SETEMBRO 2015.

KINDEL, Eunice Aita Isaia; FABIANO, Weber da Silva; MICAELA, Yanina. Educação Ambiental: Vários Olhares e Várias Práticas. 2ª ed. Curitiba: Editora Mediação, 2006.

LOUREIRO, C. F. B. (org.) A questão ambiental no pensamento crítico: natureza, trabalho e educação. Rio de Janeiro: Quartet, 2006.

MASSETTO, M. T. Didática: A aula como centro. São Paulo: FTD, 1997.

NOVOA, Patrícia Correia Rodrigues. O que muda na Ética em Pesquisa no Brasil: resolução 466/12 do Conselho Nacional de Saúde. Einstein (São Paulo), São Paulo, v. 12, n. 1, p. vii-vix, Mar. 2014.

PILETTI, C. Didática geral. São Paulo: Ática, 2002. 258p.

PINO, J. C. D; SILVA, D. R. Um estudo do processo digestivo como estratégia para construção de conceitos fundamentais em ciências. Química Nova na Escola, v. 31, nº 4, p. 257-264. Novembro, 2009.

PIOVESAN, Armando; TEMPORINI, Edméa Rita. Pesquisa exploratória: procedimento metodológico para o estudo de fatores humanos no campo da saúde pública. Rev. Saúde Pública, São Paulo, v. 29, n. 4, p. 318-325, ago. 1995.

RODRIGUES, M. G. S; COSTA, R. S. O. A integração da educação formal e não-formal: participação e cidadania. Congresso Acadêmico Sobre Meio Ambiente e Desenvolvimento. Em: Anais., Rio de Janeiro: Ebape-FGV, 09 e 10 dez. 2004.

SOARES, Felix Alexandre Antunes. Saúde e qualidade de vida do ser humano no contexto da interdisciplinaridade da Educação Ambiental. No. 38 - 05/12/2011. Disponível em: http://www.revistaea.org/artigo.php?idartigo=1143. Acesso em 3 de outubro de 2015.

TREVISOL, J. V. A educação ambiental em uma sociedade de risco: tarefas e desafios na construção da sustentabilidade. Joaçaba: Unoesc, 2003.

TRISTÃO, Martha; JACOBI, Pedro. R. A Educação Ambiental e os movimentos de um campo de pesquisa: entre, através e além do ambientalismo e da educação. In: TRISTÃO, Martha; JACOBI, Pedro. R. (Orgs). Educação Ambiental e os movimentos de um campo de pesquisa. São Paulo: Annablume, 2010, p. 13-2

UNESCO. Década da Educação das Nações Unidas para um Desenvolvimento Sustentável, 2005-2014: documento final do esquema internacional de implementação. – Brasília: UNESCO, 2005. 120p.

VALLE, Cyro Eyer. Qualidade ambiental: Iso 14000. São Paulo: Editora SENAC, 2002.

****