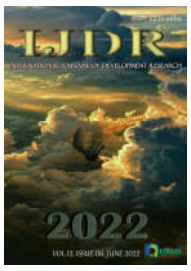
ISSN: 2230-9926

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

IJDR

International Journal of Development Research
Vol. 12, Issue, 06, pp. 56893-56899, June, 2022
https://doi.org/10.37118/ijdr.24740.06.2022



RESEARCH ARTICLE OPEN ACCESS

ANALYSIS OF THE CHANGE IN CONCEPTION ABOUT ENVIRONMENTAL EDUCATION IN STUDENTS OF THE TECHNICAL COURSE IN ENVIRONMENT

Nathana Isabel Mattos Serrat[1], Alanderson Larroza Rodrigues[2], Liciane Oliveira da Rosa[3], Érico Kunde Corrêa[4], Matheus Francisco da Paz[5], Pablo Machado Mendes[6] and Rosangela Silveira Rodrigues[7*]

[1]Postgraduate Program in Science and Technologies in Education, Sul-rio-grandense Federal Institute of Education, Science and Technology (IFSul), Pelotas/RS, Brazil; [2]Alanderson Larroza Rodrigues - University of Pelotas, Post-Graduate Program in Environmental Sciences PPGCAmb, 96010-020, Pelotas, RS, Brazil; [3]Liciane Oliveira da Rosa - Federal University of Pelotas, Postgraduate Program in Food Science and Technology PPGCTA, Department of Agribusiness Science and Technology, Faculty of Agronomy Eliseu Maciel, Capão do Leão, Pelotas, RS, 96010900, Brazil; [4]Érico Kunde Corrêa - Federal University of Pelotas, Center of Engineering, Environmental and Sanitary Engineering Program, Nucleus of Education, Research and Extension in Waste and Sustainability, 96010-020, Pelotas, RS, Brazil; [5]Commercial Learning National Service – Pelotas, RS, Brazil. Doctor of Food Science and Technology; [6,7]Sul-rio-grandense Federal Institute of Education, Science and Technology (IFSul), Pelotas/RS, Brazil

ARTICLE INFO

Article History:
Received 07th March, 2022
Received in revised form
24th April, 2022
Accepted 19th May, 2022
Published online 28th June, 2022

Key Words:
Environment, Teaching,
Training, Education.

****Corresponding author:***
Rosangela Silveira Rodrigues

ABSTRACT

The study of environmental design at different levels of education is an effective measure of the knowledge acquired throughout the training of students. The study of a theme is not always seen with the objective of experiencing conceptions in the general sphere, but in many situations, only as a source of knowledge for the exercise of the profession. The aim of this study is to analyze the change in the conception of Environmental Education in a technical course in Environment, resulting from the training for which the course prepares. This work is part of a field research in which the open answers were collected and later content analysis was performed while the closed questions were analyzed and tabulated. The change in environmental conception was evidenced since the freshmen students demonstrated that the interrelationship between the human being and the environment is directly linked to Environmental Educationand the seniors also encompassed, in this aspect, the professional area. The change occurred in such a way that the EA was recognized in the context beyond the development of students in various areas of knowledge and also in attitudes that involve the relationship with the environment.

Citation: ***Nathana Isabel Mattos Serrat, Alanderson Larroza Rodrigues, Liciane Oliveira da Rosa, Érico Kunde Corrêa et al.*** "Analysis of the change in conception about environmental education in students of the technical course in environment.", *International Journal of Development Research*, 12, (06), 56893-56899.

INTRODUCTION

Environmental Education (EE) considering its holistic, humanist, interdisciplinary and participatory character, begins to contribute and assist the educational process and the development of students in basic and concrete actions to transform the reality that lives inside and outside the academy. This work is developed through an analysis on the conceptions of EE of the students who are starting and senior in the technical course in Environment, an integrated form of the Sul-rio-grandense Federal Institute, Pelotas Visconde da Graça campus.

The Technical course in Environment is of technical level totaling 16 subjects between the first and second year and 17 in the third, and in the latter, the subject of Environmental Education is offered. According to the Pedagogical Project of the course, the course's menu is focused on learning related to the history of EE in Brazil and the World in addition to those traded in AE and political analysis. For the author Reigota (2002, p.82), "the school, the contents, and the role of the teacher and students are placed in a new situation, not only related to knowledge, but to the use we make of it and its importance for our daily political participation". In addition, it stresses that AS can be

understood as "a philosophical and pedagogical proposal that considers the school a center of questioning and production of social, political and cultural alternatives more attuned to its time" (REIGOTA, 2002, p. 58).

Through this positioning it is possible to see the due importance that the school has in the training of students, showing the potential that EE has to transform the environment, in order to cover society as a whole. EE is a revolutionary instrument, there is only a need for it to be present and executed in schools and universities, not only as a discipline, but that projects involving students directly with the social body be explored. Kondrat & Maciel (2013, p. 2) point out that EE "has the important function of reaching the entire population, including the new generations, forming citizens who can account for the process of changes in the current environmental state of the Earth." Moreover, Neto and Amaral (2012, p. 2) succinctly complement that at the moment when the individual is in the process of changing conceptions, "the educational process becomes an essential factor, constituting, predominantly, from educational experiences that facilitate the integrated perception of the environment, perception that human being is nature, and not just part of it."Thus, the environmental problem has caused global changes in social and environmental systems that affect the sustainability conditions of the planet, proposing that there is a need for internalization of ecological bases and legal and social principles for the democratic management of natural resources. For (LEFF, 2010, p. 61-62):

These processes are closely linked to the knowledge of society-nature relationships: not only are they associated with new values, but with epistemological principles and conceptual strategies that guide the construction of a productive rationality on sustainability and social quality bases. Thus, the environmental crisis problematizes the established paradigms of knowledge and demands new methodologies capable of guiding a process of reconstruction of knowledge that allows an integrated analysis of reality. However, we understand that "in the dialectical relationship between conceptions and practices, the conceptions of Environmental Education influence practices, in the sense that they point out paths, base decisions, guide actions" Valentin; Santana (2010, p. 398). But from another point of view, "Environmental Education practices are determined by a multiplicity of factors that reinforce existing conceptions as well as contribute to the generation of new ones" Valentin; Santana (2010, p. 398). In order to start something that leads to change, one of the ways "is to map the conceptions of teachers, students and staff about EE. From these conceptions, it is possible to set more concrete goals and actions in the short, medium and long term Araújo; France (2013, p. 241).

In this case, the evaluation of the change in the design of environmental issues during a Course of Technician in Environment explains much about aspects that can be improved in the training of students so that knowledge is a bridge to behavioral dynamics. Moreover, the EE "has been elaborated from various conceptions and approaches, with different paths and modalities for educational doing", in the same way that "the other areas of knowledge have flaws and can be generalist, without contributing to the objectives, although it represents the change and insertion of environmental extension as a new concept" (FERREIRA; FRENEDOZO, 2021, p. 37600). It is extremely important that in order for EE to be discussed and viewed more critically, the educator is always proposing debates and maturing students to reflect, analyze and put into practice actions linked to EE, either within the school or even in their daily lives. Ubinski (2016, p.58) points out that. Promoting critical knowledge is fundamental in Environmental Education. Knowledge allows citizens to fight for their rights and to owe social injustices, also involving aspects related to the environment in which they live and the factors that impact the quality of life of people and other living beings.

Thus, Environmental Education needs to involve scientific contents that enable this understanding of social and environmental problems. The themes described above show that it is necessary to train being focused on the relationship of knowledge with the reality in which students live and the socio-environmental problems that surround them. Through this vision, EE will have more relevance and can be seen beyond concepts that define only environmental issues being conceived more broadly and critically through the perception of actions and the breadth they can encompass. Education can only be added to the environmental approach, if it is prone to cause in humans new habits and behaviors that can structure the individual to contribute positively to society and the general environment that surrounds it. The analysis of conceptions will contribute to the start of changing habits and to experience EE in our daily lives showing that during our daily lives it is difficult not to share an environmental practice in any context we live in.

Moreover, the view that interdisciplinarity, which is required to understand environmental degradation as a threat to humanity as a maintenance of the species, is portrayed and highlighted within the Technical course in environment itself stands out. The study with freshmen and senior students allows a broader view of the baggage that the student constitutes throughout his academic life and the sum of what is studied in the academy, that is, at the end of the course we can conclude if during these 3 years the students changed/added learning sums with regard to the conception of EE. In addition to these aspects, the reasons that caused students to seek a course that links the EE in their contents was to reinforce its importance and attach in their lives the relevance of environmental practices and to portray in a few words what they would like to be more explored within the discipline. Based on what was mentioned, the objective of this work is to perform the analysis of the change in the conception of EE in a technical course in Environment resulting from the training for which the course prepares.

METHODOLOGY

The methodology includes a questionnaire containing an open and closed question (question 1) eight closed questions (questions 2 to 9) and an open question (question 10) applied in the freshmen and seniors classes (18 students in each class). The questionnaire consists of a data collection instrument consisting of a series of questions, which must be answered in writing" (MARCONI & LAKATOS, 2003, p. 201). Chart 1 shows the questionnaire applied in the research. The type of research to be addressed in this study was the field research that, according to Lakatos (2010, p. 169) "is the one used with "the objective of getting information and/or knowledge about a problem, for which an answer is sought, or a hypothesis, that one wants to prove, or even discover new phenomena or the relationships between them" The open answers were collected and soon after the content analysis was made, a method approached by Bardin (2016, p. 148) describing that "from the moment the content analysis decides to encode its material, it should produce a system of categories" Categorization "is an operation of classification of constitutive elements of a set by differentiation and, then, by regrouping according to gender (analogy) with previously defined criteria" It also stresses that the objective categorization initially provide, in a condensed way, a brief presentation of the raw elements. This way of analyzing the data is composed of two steps: first "the inventory, where the elements are isolated and later the classification that means "to break the elements and therefore seek or impose a certain organization to the messages" (BARDIN, 2016, p. 148). The tables were developed and organized containing the categorization referring to the answers of the open questions from the freshmen and senior students. After data analysis, the tables were done in the Excel 2013 program with the percentage of responses in the classes (freshmen and finalists).

RESULTS AND DISCUSSION

The percentage of answers in the alternative questions expresses the conception of environmental education by the students of the technician course in the environment in freshman and seniors.

Chart 1. Questionnaire applied to freshmen and senior students in the technical course in Environment

1 - In your opinion, which of the images below represents the concept of "Environmental Education"?
- After your choice, write simply why you chose this image

a)

d)

b)

e)

c)

2- Imagine that a company comes to the city of Pelotas in search of installing a landfill to treat the waste (garbage) generated by the population, in addition to generating employment for several people, but the place that it wants to settle is close to an important point of water collection, this water that serves for the population to drink. In your opinion:

a) Bringing the landfill to Pelotas would be a wonderful idea, because in addition to treating garbage, we would have more jobs for the population.
b) It would be a bad idea, since the landfill would be installed near an important water collection point for the population.
c) It wouldn't matter at all, because there's no need to deal with the garbage in our town.
d) A respectable idea would treat our garbage and create jobs, but it would affect an important point for water treatment.
e) None of the alternatives.

3- Within the course of Environment was offered a field day and the focus is environmental education and participation directly of the human being, it would be seen the activities related to the theme that are carried out within Visconde da Graça - Cavg Campus. In your view:

a) It is important to participate because with this activity it is possible to know better the involvement of environmental education with the field and directly with people.
b) It is not necessary to present, because I already know well the structure of the campus and the presence of environmental education, through the classroom (the classes given by teachers) and the projects executed in Cavg.
c) Even if I'm a student of one of the campus's environmental courses, I wouldn't be a point, since the subject doesn't get my attention.
d) I would certainly, because this activity would add directly to my personal and professional. I see that there is a great connection between environmental education and human beings.
e) I see that environmental education and actions related to human beings are not directly linked, but would participate because I am interested in knowing better the structure of the Campus in this area.

4 - If a teacher asked you to do a paper, where the themes would be the ones described below, which one would you choose?

a) The importance of the relationship: human beings vs. environmental education.
b) Environmental education today.
c) Environmental education and the relationship with waste reuse.
d) The link between environmental education and social activities.
e) The activities carried out in the environmental course and environmental education

5 - From the options below, which of the alternatives best represents for you, human actions related to the care of the environment:

Separate the waste (garbage) properly and reuse rainwater. Partner with cooperatives.
Assemble a team and together go clean the Patos Lagoon (Laranjal Beach). Distribute a pamphlet talking about the importance of keeping the Lagoon clean. To hold together with colleagues and teachers an event focused on environmental practices and the importance of environmental education in people's daily lives. Composting the soil, providing nutrients to the plants and planting new seedlings. Donate seedlings of plants in an event related to the preservation of the environment.
When buying a product, check if it is environmentally worth your purchase, if it is not a great generator of waste and if it has good quality.

6 - According to the World Commission on Environment and Development, created by the United Nations, The most accepted definition for sustainable development is development capable of meeting the needs of the current generation, without compromising the ability to meet the needs of future generations. It is development that does not exhaust resources for the future. For you, which of the alternatives below best represents a Sustainable Development action.

a) Controlled fishing, mainly of marine species that are at risk of extinction. This practice is already being carried out in some places.
b) Preservation of springs, combating the illegal occupation of these areas, that is, not building residences near the areas from which water is taken to drink.
c) Extraction of natural resources from forests (peaches, bergamots, etc., for example) so as not to harm the fauna and flora of the region.
d) Use of renewable and clean energy sources: these energy sources, in addition to avoiding air pollution, cause little environmental impact. Solar (generated by the Sun) and wind (generated by wind force).
e) Development and use of new technologies capable of reducing pollution emitted by motor vehicles. The electric car and the hybrid (works with electricity and fossil fuel).

Continue ….

7 - In your opinion, environmental education should be offered, through: a) Through public awareness for the preservation of the environment. b) Proposal of projects within the campus, involving all courses. c) Workshops and disciplines only in courses involving the environment. d) Meetings that involve only people who are interested in the subject. e) Through meetings and projects that involve the whole school and the community.
8 - Environmental education should be considered a practice that integrates (unites) people and the environment. For you, which of the following alternatives best represents the form of integration between the environment in which we live and society in general. a) Attitudes and actions b) Knowledge c) Ethics and values d) Politics e) Integration of courses (technical and higher) and society
9 - For you, the inclusion of the environmental education subject is important only: a) Only in courses that are related to the environment because in the other courses students would not understand the proposal. b) In no course, why environmental education is not so important. c) It should be embedded in all courses as a compulsory subject, since it is a very important theme. d) In courses in the environmental area, but as an optional discipline (the student chooses to do or not). e) None of the alternatives.
10 - After answering the previous 9 questions and reflecting a little on environmental education and its practices, describe in a nutshell what practices you would like to perform in the classroom, in your life, or even involving the community at large.

Source: Developed by the authors.

Table 1. Percentage of answers (alternatives A, B, C, D, E and None/Null) in questions 1 to 9 in a questionnaire applied to freshmen and senior students from the environmental technician coursein freshman (F) and seniors (S)

Answer (%)	A		B		C		D		E		None Null	
	F¹	S²	F¹	S²	F¹	S²	F¹	S²	F¹	S²	F¹	S²
Question												
1	-	11,11	66,67	44,44	27,78	22,22	-	-	-	22,22	5,55	-
2	-	5,55	22,22	22,22	-	-	72,23	72,23	5,55	-	-	-
3	55,56	44,44	-	-	5,55	-	33,34	55,56	5,55	-	-	-
4	11,11	27,78	38,89	27,78	16,67	16,67	27,78	22,22	5,55	5,55	-	-
5	38,89	33,34	-	5,55	44,44	55,56	16,67	-	-	5,55	-	-
6	-	-	11,11	27,78	-	-	72,23	66,67	11,11	5,55	5,55	-
7	66,67	27,78	22,22	-	-	-	-	-	11,11	66,67	-	5,55
8	61,11	66,67	11,11	11,11	16,67	5,55	-	-	11,11	16,67	-	-
9	11,11	-	5,55	-	55,56	88,89	16,67	-	11,11	11,11	-	-

Source: Research Data.

Table 2 - Categorization of practices described by students entering and graduating from the Environment course

Freshman/ Categories	Practices	Seniors/ Categories	Practices
Awareness	-"Awareness on campus, how to teach how to recycle plastic cups, everything that is discarded)..." -"Talk to people from other schools to make people aware that we can do to reduce the garbage thrown on the ground..." -"Awareness (greater dissemination of the theme)..."	Environmental education	-"Pass on knowledge about Environmental Education to those who do not understand the "importance and concepts..." -"Ideas about Environmental Education and Sustainable Development..." - "Understand what is Environmental Education and how it is in practice through basic attitudes of our daily life..."
Teaching	-"Play in the neighborhoods for children and adults to participate, as a way to preserve things and take care of the environment..." -"Practices involving schools, especially elementary school..."	Awareness	-"Carry out the practice of raising awareness of the population in more humble communities..." - Awareness through sustainable actions..." - "Promote the awareness of society, seeking to reach all age groups..." -"Awareness throughout the city about what really happens on Laranjal beach..." - "The awareness of my family and friends, who are not yet concerned about the waste generated..." -"Promote some public incentive with the community at large..." -"CAVG be participatory together with other courses, in order to generate knowledge to the population and students..."
Projects	-"Material reuse projects..." -"Recycling projects..."	Projects	-"Community awareness projects..." -"Proposals of projects with the aim of raising awareness about impacts of the current lifestyle of society..." - "Projects involving Environmental Education in the environmental environment..." -"Projects involving students (technical and superior) and the community in a public place..." - "Projects where there is exchange of knowledge between people..."
Practices	-"Practical lessons for development with the environment and interaction..." - "Practical lessons with questions to help the planet..." -"Practices in environmental issues to better delve into the subject..." -"Practices that ancient cultures practiced in the environment and the way they had to live with nature..."	Field area	"That the course would provide more the use of practical classes and enable us to act more effectively in the area..."
Events	-"Participate in events aimed at educating society of all ages..."	Recycling	- "Making furniture and toys from recycled materials..." - "Recycling of materials in CAVG, and its reuse..." - "How to reuse waste in our own home..." - "Segregation of household waste..."
Preservation	-"Show the importance of preserving..." - "Do something to clean the streets..."	Practices	-"Practices that can be applied on a day-to-day and pass on..." -"Practices that aggregate several courses..." -"Practices through lectures and conversation wheels..."
-	-	Lectures	- "Achievements of lectures related to the area, putting into view damage that may harm the environment..."

Source: Research data.

Table 3. Categorization of the answers to question number 1 obtained by students entering the Environment course, through the answers obtained in question number 1

Images	Alternatives (Question 10 of the questionnaire)	Categories
	B	EE Forms
		Experience
		Vital relation (Man x Nature)
	C	Presence of waste
		Consequences
		Subjects
		Preservation

Source: Research Data.

In the aspects related to questions 5, 6 and 8 (Table 1) the more recurrent approach to environmental issues had little variability among the freshmen and senior classes. The aspects related to questions 3, 4 and 7 had clearly different approaches between the two groups studied and in the aspect related to questions 1, 2 and 9 there was similarity between the choices in both classes. In questioning the representative image of EE (question 1) the image that presented two children having contact with the natural environment had higher levels of choice, both among freshmen and for seniors, highlighting that the greater evidence for this choice is represented by the idea that the human being in contact with nature represents the imaginary of the study of environmental education for students. The offer on a field day focused on EE and the direct participation of the human being (question 3, table 1) had as an alternative that obtained 55.56%, for the freshmen: "it is important to participate because with this activity it is possible to know better the involvement of environmental education with the field and directly with people", however for the seniors, with 55.56% it was: "surely it would, because this activity would add directly to my personal and professional, I see that there is a great connection of environmental education and the human being". It is noted that in both alternatives we can point out that the EE, through its "critical approach, allows discussing aspects related to the environment and, mainly, issues related to the social environment, with the concern for the formation of conscious citizens to act and positively transform society" Galvão, et al., (2018, p. 988). The change of conception was evident when the seniors included the personal and professional aspects as an idea of binding the profession in the perception of EE constituting the sum of the student's daily life together with what the academy seeks to develop.

The change observed in the previous response occurred since the seniors showed a focus in the professional scope since they are about to complete the course and raise concern with activities aimed at the union of daily living and application in professional practice. Since "In the school space, the student complements their socialization, therefore, they must experience daily the practice of good social and environmental habits", besides this, teachers should seek to develop the awareness that they are not the holders of knowledge and seek together with other professionals subsidies so that EE in the institution is a daily and constant practice, becoming a habit to be incorporated into everyday life (FERREIRA, et al., 2019, p. 202-203). The themes for performing a study referencing the EE (question 4, table 1) had as response of the freshmen (38.89%) the alternative "environmental education nowadays", and, for the senior students, the alternatives "the importance of the relationship: human being x environmental education" (27.78%) and "environmental education today" (27.78%).

The freshmen students focused on working on current themes aimed at EE, while for the seniors, in addition to this theme, the human focus and environmental education were chosen. The expansion in the view referring to EE was evidenced when it was combined with current themes added to the relationship between man and the environment. The work developed in class can provide a debate in which diverse methods and readings are encompassed contributing to the development of EE as a whole and with this "the individual begins to realize that the environment needs his or her look and how important its role is in the struggles for global awareness, in which the population is dedicated to disseminating the advantages of a well-kept environment, of an improvement in quality of life "SILVA; JUNIOR (2019, p. 807). The question about the way EE could be offered (question 7, table 1) presented the alternative for freshmen with 66.67%: "through public awareness for the preservation of the environment" and for the seniors with 66.67%: "through meetings and projects involving the whole school and the community". The change in the conception of EE between freshmen and seniors is evidenced because the seniors noted that EE occurs through projects and meetings that may involve the whole school and also the community realizing the importance of the union of projects and with the community in a participatory position.

For Couto, et al., (2017, p. 39) when there is insertion of EE, in formal education "through research, the development of environmental projects articulated between different disciplines, triggered an expressive interaction in the school community, in the stages of planning and execution of collective actions based on dialogue". It is in this type of pedagogical practice "that it distances itself from a traditional teaching and enables greater involvement of actors in the educational space" (COUTO, et al., 2017, p. 39). Awareness can be explored through projects involving the school and the community, at this point the students' responses are complemented by this, it is noted that there is a caveat in relation to meetings that provide practices in seeking to take care of the environment. In addition to these aspects we must point out the development of projects linking the harmonious interaction between the human being and nature in order to guide how everything that surrounds us should actually be preserved. For Tagliapietra; Carniatto (2019, p. 87), this relationship "will enable greater cooperation between people with the search for the preservation of the environment and with the development of a more just and egalitarian society". The authors conclude that the critical positioning of "Environmental Education provides the creation of attitudes towards the lack of care for the environment and the social problems that are increasingly aggravated". The importance of The EE in all courses shows how transdisciplinary and important it is for the development

of the human being as part of nature relating its formation with the environment that surrounds it, with the preservation of the environment and the other beings with whom it shares it. The practices they would like to perform in the classroom, in their life, or even involving the community at large is a methodological strategy for academics to reflect on what they think and hope that EE can contribute to their personal and professional training since "the practice of environmental education is part of a complex and innovative thinking, it is a concept to be thought and inserted in our teaching and research actions.", since schools spread a space of formalization and application of these fragoso formator concepts; Birth, (2018, p. 179). The categories of the freshmen were: awareness, teaching, projects, practices, events and preservation, already for the seniors, the categories represented: environmental education, awareness, projects, work area, recycling, species, conservation, practices and lectures such as they are represented in table 2. In the category that deals with awareness category (Chart 2) the students expressed that they would like practices that involved both teaching and their daily lives (importance of carrying activities involving the community in general and their families) so that EE would be more explored and discussed. The example related to the presence of their experiences when they report on the events in "Laranjal beach" that were taken to the whole city besides showing concern to raise awareness of friends and family about the correct disposal of the waste generated. According to Almeida, et al., (2018, p. 495).

The EE awareness activity "carried out at school shows an effort in changing students' attitudes about food and water waste, due to the importance of these elements, as well as in contributing to strengthening the correct disposal of waste and the esteem for healthy habits." Students, when they describe the projects they would like to carry out, refer to the importance of recycling/reusing materials, activities with schools and community awareness. The importance of projects that make people reflect on the impacts that the current lifestyle causes, in addition to knowledge exchange and work involving students with the community in a public place are other aspects noticeable in the approaches. The authors Sammarco, et al., (2020, p. 335) highlight that "The School, in the face of the socio-environmental crisis needs to be, in the educational walk and educator of a human being and his community, a place of reference for a healthier and fairer world" The school is one of the determining factors for our critical formation, this research sought to analyze the change in environmental conception and one of the dominant reflexes that is noted is that, when quoting the projects, the students show the importance they have for their conception to be formed, since, through the union of their knowledge (academic and their experiences) they notice the reflection that both have in their construction in order to explore and see the breadth of EE. In the category called "practices", the students described activities that they would like to perform in a technical way, the importance of experimental classes that involve the interaction and development of the environment, environmental issues to deepen the theme, activities and practices possible to be applied in our daily life.

In a study conducted by Menezes et al., (2018, p. 194-195) the authors realized that most of the research participants have conceptual knowledge about EE but this was not enough for them to be practitioners of social acts with regard to the environment because they do not see the school as a practitioner of EE and, thus, this question corroborates the low grade they gave to the school for conducting few practical classes, teaching projects and excursions. The categories such as environmental education, recycling, work area and lectures were represented only by the seniors. In the categorization (towards recycling) there is a relationship between the segregation/reuse of household waste and the recycling of materials as well as the reuse thereof. In addition to making furniture and toys from recycled materials (practices that students would like to perform) once again note the union of their academic environment with family coexistence. The practices described show that, during the course, they perceived that the waste generated in their homes could go through the recycling process and, therefore, the need for practices that involved this conception. The senior students also reported the importance of the course providing a greater number of practical classes. This category was called "work field", since they showed interest in effectiveness within the area they are attending. Such practices would corroborate that, when they left the world of work, they could develop their activity with more aptitude. The EE, through its numerous possibilities, allows the opening of a space where social practices can be reflected and executed in which "the role of teachers as intermediaries and transmitters of a necessary knowledge is very important so that future professionals in the most diverse areas of knowledge", in which they can acquire a necessary support and can understand critically and consciously the numerous realities of the environment and present possible solutions and environmentally sustainable strategies (PITA, et al., 2021, p. 7). In addition to the category mentioned above, another term "lecture" was obtained, the seniors also showed interest in conducting lectures related to EE. The role of the educator is crucial in the EE and it is important that it abandons the conventional paradigm of transmitting content "to adopt new research tools, different techniques inside and outside the school, such as social media, trails and debates, with a view to sensitizing students to the protection of the environment" (FERREIRA; FRENEDOZO, 2021, p. 37601).

In the category "environmental education" the students recorded the ideas of EE and sustainable development, the passage of knowledge from EE to those who do not understand the importance of concepts and how to put it into practice through daily attitudes. Authors such as Costa et al., (2017, p. 829) reinforce that something important to highlight is the need to recognize the "weight" of the spontaneous concepts of students "in their conceptual elaborations, because the school institution is not solely responsible for the process of socialization and cultural formation, and it is necessary to consider the influence of other educational bodies to think about didactic-pedagogical action". Table 3 (categories of responses of freshmen and conclusions students) shows the options for choosing an image that best represents the As and succinctly describing the reason for the choice in question 1. The freshmen students chose only image B and C (Chart 3) that presents two children interacting with the environment and justified the choice through the representation of forms of AE and the experience of contact with the environment with the consequent awareness of the importance of its preservation. The interaction of people in the image shows the experience of sharing moments in the environment that surrounds us and the representation of the vital relationship between man and nature. The results corroborate that "The EE is an area in wide expansion, even if in its complexity it is configured as the possibility of reconnecting nature and the human being, society and nature, the subject and the object" (MACIEL; UHMANN, 2020, p. 122). The freshmen reported that the presence of waste generated consequences and that there should be a discipline that involved the importance of preservation because they understood that EE also represents change since the environment was "dirty". According to Soares et al., (2019, p. 58)

The EE "should stimulate the critical awareness of students about the environment and contribute, together with the entire local community, to the discussion and search for solutions to these issues, becoming an important tool for the search to understand the complexity that involves the relationship between the environment and human beings and the importance of their actions and attitudes in the reality to which they are inserted." The choice of alternative B, by the category "coexistence", was justified because the image portrays the coexistence of two children with the environment since the As for these students is the fact of living with the environment and with other people. The choice of the image of the landfill, alternative C represents the lack of awareness by citing the presence of many "plastic bags" which could be avoided if recycling of this material had been considered. The choice of alternative E advocates a positive conception for the idea of environmental awareness because it represents a place in the pollution-free nature. The EE is capable of "opening doors to dialogues necessary for the emancipation of the meanings of being, so that it plays its role as an agent of transformation of reality, in promoting a critical reflection on its

posture of life" (AIRES & SUANNO, 2017, p. 45). "This is why guidance on spaces and societies in transition is fundamental, since there are no stable societies (AIRES & SUANNO, 2017, p. 45).

CONCLUSION

The students entering the Technical course in Environment have a view that EE is directly related to the inter-relationship between human beings and the environment that surrounds it while for the seniors it is also linked to the professional area. The change of conception occurred in such a way that the EE began to be recognized in the school context, in the development of students in the areas of knowledge, skills and attitudes towards the environment. The vision of the offer of EE through meetings and projects involving the whole school and the community represents the change in relation to the approach of this theme, noticeable in the fact that for the freshmen students, EE should be offered through public awareness for the preservation of the environment. The inclusion of the school and the community, in the approach of EE by the senior students, shows that the course contributed to the expansion of the conception of EE by involving other segments that have a leading role in environmental issues and therefore should be included as a target audience of this theme. The study allowed one of its bases to have information on how students are elaborating their thinking in the approach of EE and the possible praxis to be adopted in pedagogical planning in order to expand critical thinking during the academic journey.

ACKNOWLEDGEMENTS

To the Graduate Program in Science and Technology in Education (PPGCITED) of the Campus Pelotas Visconde da Graça of IFSUL. To the students participating in the research and all collaborators who contributed to the work being developed.

REFERENCES

ALMEIDA, N. C. C; JUNIOR, C. F. S dos; NUNES, A; LIZ de, M. S. M. 2019. Educação ambiental: a conscientização sobre o destino de resíduos sólidos, o desperdício de água e o de alimentos no município de Cametá/PA. Revista Brasileira de Estudos Pedagógicos. Brasília, v. 100, n. 255, p. 481-500, maio/ago.

ARAÚJO, M. L. F; FRANÇA, L. T. 2020. de. Concepções de educação ambiental de professores de biologia em formação nas Universidades Públicas Federais do Recife. Educar em Revista. Disponível em: https://www.redalyc.org/articulo.oa? id= 15502938 2014. Acesso: jul

BARDIN, L. Análise de conteúdo. São Paulo: Edições 70, 2016.

CONRADO, L.M.N; SILVA da, V. H. 2017. Educação ambiental e interdisciplinaridade: um diálogo conceitual. Revista Gestão e Sustentabilidade Ambiental, Florianópolis, v. 6, n. 3, p. 651-665, out./dez.

COSTA, L. S. O; ECHEVERRÍA, A. R; RIBEIRO, F. L. 2021. O Processo de Tomada de Consciência e a Formação de Conceitos da Educação Ambiental na Formação Inicial de Professores de Ciências/Química. Revista Brasileira de Pesquisa em Educação em Ciências. Disponível em: https://periodicos.ufmg.br/index. php/rbpec/article/ view/4525/2979. Acesso: jan..

COUTO, M.S. D. da S; GUIMARÃES, C. S; PEREIRA, M. 2017. de F. Contribuições de uma experiência pedagógica em educação ambiental. Pesquisa em Educação Ambiental.v.12, n.1. p. 26-41.

FERREIRA, E.; FRENEDOZO, C. R. de. 2021. Ambientalização - desenvolvendo a Educação Ambiental em espaços formais de aprendizagem. Brazilian Journal of Development, Curitiba, v.7, n.4, p. 37591-37604 abr.

FERREIRA, L. C; MARTINS, L, da C, G, F; PEREIRA, S.C.M; RAGGI, D, G; SILVA, J. G. F. 2019. Educação ambiental e sustentabilidade na prática escolar. Revista Brasileira de Educação Ambiental, São Paulo, v. 14, n. 2, p. 201-214.

FRAGOSO, E.; NASCIMENTO, E. C. M. 2018. A educação ambiental no ensino e na prática escolar da escola estadual cândido mariano – Aquidauana/MS. Ambiente & educação Revista de Educação Ambiental. v. 23, n.1 ,p.161-184.

GALVÃO, I.C.M; SPAZZIANI, M. L; MONTEIRO, I.C.C. 2018. Argumentação de alunos da primeira série do Ensino Médio sobre o tema "Energia": discussões numa perspectiva de Educação Ambiental. Revista Ciência & Educação, Bauru, v. 24, n. 4, p. 979-991.

KONDRAT. H; MACIEL, M. D. 2013. Educação ambiental para a escola básica: contribuições para o desenvolvimento da cidadania e da sustentabilidade. Revista Brasileira de Educação. v.18, n.55, p. 825-846.

LAKATOS, E. M.; MARCONI, M. A. 2003. Fundamentos de metodologia científica. 5. ed. São Paulo: Atlas.

LEFF, H. Epistemologia Ambiental. 5ª ed. São Paulo: Cortez, 2010.

MACIEL, E. A; UHMANN, R. I. M. 2020. Concepções de Educação Ambiental no ensino de Ecologia em atenção às estratégias de ensino: uma revisão bibliográfica. Revista Eletrônica do Mestrado em Educação Ambiental, v. 37, n. 1, p. 109-126.

MENEZES, J. B. F; NOGUEIRA, A. P; PAIXÃO, G. C; PONTE, F. L; PEREIRA, L. M, G. 2018. Conceitos, práticas de educação ambiental e formação cidadã na escola. Ambiente e Educação. v. 23, n. 1, p.185-197.

NETO. A. L. G. C; AMARAL, E. M. R. 2011. Ensino de ciências e educação ambiental no nível fundamental: análise de algumas estratégias didáticas. Ciência & Educação, v. 17, n. 1, p. 129-144.

PITA, J. D; PINHEIRO, K. A. O; CARNEIRO, F. da S; D'ARACE, l. M. B; DE LIMA, A. C. R; FRAZÃO, A. S. 2021. Educação Ambiental no currículo técnico profissionalizante: Uma ferramenta para valorizar o meio ambiente e promover a consciência do aluno sobre a situação do planeta. Research, Society and Development, v. 10, n. 2, p. 1-8.

REIGOTA, M. 2002. A Floresta e a escola: por uma educação ambiental pós-moderna. 2ª ed. São Paulo: Cortez.

SAMMARCO, Y. M.; RODRIGUEZ, I. B; FOPPA, C. C. 2020. Educação Ambiental, Educação do Campo e Ambientalização Escolar: Diálogos entre diversas paisagens escolares. Ambiente & Educação. v. 25, n. 2, p. 310-340.

SILVA, A. P; JUNIOR, R. P. dos S. 2019. Educação ambiental e sustentabilidade: é possível uma integração interdisciplinar entre o ensino básico e as universidades?.Ciência & Educação, Bauru, v. 25, n. 3, p. 803-814.

SUANNO, B.F.C; J.H. 2017. A Educação Ambiental numa perspectiva transdisciplinar: uma articulação entre a Educação Superior e a Educação Básica. Revista Eletrônica do Mestrado em Educação Ambiental. Rio Grande, v. 34, n. 2, p. 42-56.

TAGLIAPIETRA, O. M; CARNIATTO, I. 2019. A interdisciplinariedade na educação ambiental como instrumento para a consolidação do desenvolvimento sustentável. Revista brasileira de educação ambiental, São Paulo, V. 14, No3:75-90.

UBINSKI, J. A. S. 2016. Análise de atividades de complementação curricular na área de Educação Ambiental e suas contribuições à Alfabetização Científica. 2016. 207 f. Dissertação (Mestrado Educação) - Universidade Estadual do Oeste do Paraná, Cascavel.

VALENTIN, L.; SANTANA, L. C. 2010. Concepções e práticas de educação ambiental de professores de uma escola pública. Ciência & Educação, v. 16, n. 2, p. 387-399.

****