

## Environmental Education and Sustainable Consumption: Teachers' Concepts and Practices

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### Abstract

The present study aimed to characterize teachers' environmental education practices and the possibilities of applying the theme "consumption" in several subjects. In-depth interviews were conducted with 18 teachers from a technical school linked to the University Federal of Piauí. The results, interpreted through qualitative content analysis, show that the environmental education insertion (subjects with environmental contents or interdisciplinarity) or absence of such practices (overvaluation of subject contents or insufficient knowledge). It is verified that "consumption" in the teaching practice as a transversal theme occurs with emphasis on economic aspects or aiming to reduce environmental impacts. The absence of the theme in teaching practice occurs due to ignorance of means to apply it or due to the lack of knowledge in the extent of the environmental issue. It was highlighted the need for continuing teacher education and public policies that invest in teacher education.

**Author Keywords.** Environmental Education, Consumption, Teaching Practice.

**Type:** Research Article

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### 1. Introduction

In a capitalist society, subject to constant changes, education aims to promote changes in individuals who contribute to the integral development of man and society. Therefore, Education has the power to form and transmit values. Thus, "it is necessary for educators to be prepared to consider their own individual dimension and that of their students" ([Carvalho 2008, 42](#)). From Education is that individuals and society as a whole will deepen their knowledge of the Environment and will become aware of the need to lay the foundations for a quality life.

In this perspective, Environmental Education is included, which should be understood as a permanent and continuous process, in favor of the development of skills necessary to solve environmental and social problems ([Portero 2010](#)). Environmental Education should be guided to social transformation, having as its main focus an interdisciplinary action that relates man, nature and the universe, based on the principle that natural resources run out and that the main responsible for their degradation is the anthropic action. Thus, EE is considered an essential educational process to meet the new demands of contemporary society, through the development of attitudes, habits, and values directed to environmental conservation and respect for nature, based on school and social reality ([Antoni 2005](#)). Its main axis of action

“should seek solidarity, equality and respect for difference through democratic ways of action based on interactive and dialogical practices” (Jacobi 2005, 4).

Therefore “Environmental Education has a fundamental role for the future of living beings because it is through this path that changes and environmental awareness actions can be made viable” (Oliveira and Rizzo 2007, 2). It is an education focused on the construction of new habits and behaviors (Pedrini 1997). Thus, it should be a permanent and continuous process, with a view to developing the necessary skills to solving environmental problems.

In Brazil, according to Federal Law nº9.795/99, Environmental Education is declared as a right of all and an essential component for National Education. Its objective is to provide knowledge of sustainability, “greening” the social methods and commands of traditional instruction, collaborating with the socialization of individuals and the constitution of the citizen (Machado, Chiamonti, and Sermann 2007). With this Law, the National Policy for Environmental Education is created, with the purpose of educational commitment and integrating all levels and modalities of education. From the emergence of this theme as a problem of the political schedule, several public policies were elaborated, aiming to attend the environmentalist demands.

In the area of Education, the National Curriculum Parameters (NCP) were implemented throughout the national school system, with the inclusion of the following transversal themes: environment, ethics, cultural plurality, health, sexual orientation and work and consumption. The proposal of these parameters conceives the incorporation of the transversal themes in the school curriculum, due to the urgency of the implantation of real issues. By including issues that enable understanding and critique of reality, it offers students the opportunity to appropriate them as instruments to reflect and change their lives (Brasil, Secretaria de Educação Fundamental 2000, 23). Within this context, Environmental Education appears as a tool to foster environmental values in current and future generations.

Also, it is important to understand how the teacher, who is directly responsible for the application of the transverse theme 'consumption' and the practices of Environmental Education, has the necessary knowledge about environmental issues and is adequately prepared to perform such task in their daily life school. In this sense, there is a concern regarding the change of attitude of the education professional, since teaching, learning and research deal with two moments: that of learning existing knowledge and that of working with knowledge production that does not yet exist (Freire 1996, 14). Thus, the National Curriculum Parameters propose the inclusion of transversal themes for a more meaningful learning-teaching process.

One of the functions of the school is the preparation of the exercise of citizenship, so it is not possible to achieve this goal without conscious work on social issues (Neves 2009). An education project committed to the development of capacities that allow intervention in reality in order to transform it must be developed (Brasil, Secretaria de Educação Fundamental 2000). In this context, consumption is a theme that needs to be worked with the collaboration of several subjects to promote the enrichment of ideals and questions.

The National Curriculum Parameters, when referring to the theme “Labor and Consumption”, emphasize that “directly or indirectly, explicitly or implicitly, school works with values, representations and positions related to the world of work and consumption” (Brasil, Secretaria de Educação Fundamental 1998, 345). According to these parameters, “citizens are still unaware of their strength as consumers, their condition as subject in consumer relations, their rights and their ability to intervene in these relations” (Brasil, Secretaria de Educação

Fundamental 1998). Thus, it is evident the importance of conducting a study on the performance of teachers as regards the application of the theme "consumption" and proposing suggestions for approaching the theme for teacher practice.

## 2. Materials and Methods

The research was developed at the Technical School of Teresina, linked to the University Federal of Piauí, Brazil, which offers basic, technical and technological education. To investigate the insertion of the theme "consumption" in the teaching practices of the school, a qualitative methodology of an exploratory nature was used. This methodology is increasingly common in human sciences, allowing researchers to increase their experience around the problem, seeking greater knowledge (Gil 2002).

The sample was classified as intentional non-probabilistic, characterized by non-random selection. Thus it was decided to work with teachers, since besides being consumers they are also opinion makers and play a strategic role in building an environmental awareness. Therefore, they are educators of the citizens who will, in the future, manage our world in the most diverse areas and who will be able to participate in the decisions of the human/nature relationship. Another factor that deserves attention is the importance that education has in facing the environmental crisis and for being a powerful instrument of environmental policy. Teachers have no choice but to be environmental educators, as provided by the National Environmental Education Policy and the National Curriculum Guidelines for Environmental Education (Brasil 1999).

Interviewed Teacher	Group 1 (High School)				
	Gender	Age Group	Education Level	Training Area	Teaching Time (in years)
P1	Female	40 to 49	Specialization	Letters	21
P2	Male	30 to 39	Master	Mathematics	8
P3	Female	50 to 59	Specialization	Biology	20
P4	Female	50 to 59	Doctorate	Biology	35
P5	Female	30 to 39	Specialization	Physical Education	2
P6	Male	30 to 39	Master	English	17
P7	Female	30 to 39	Specialization	Spanish	9
P8	Male	30 to 39	Master	Physics	12
Interviewed Teacher	Group 2 (Farming)				
	Gender	Age Group	Education Level	Training Area	Teaching Time (in years)
P9	Female	40 to 49	Doctorate	Agronomic Engineering	12
P10	Female	40 to 49	Doctorate	Veterinary Medicine	8
P11	Female	40 to 49	Doctorate	Agronomic Engineering	5
P12	Male	40 to 49	Doctorate	Veterinary Medicine	6
Interviewed Teacher	Group 3 (Nursing)				
	Gender	Age Group	Education Level	Training Area	Teaching Time (in years)
P13	Female	18 to 29	Specialization	Nursing	1
P14	Female	50 to 59	Master	Nursing	29
P15	Female	30 to 39	Doctorate	Nursing	12
P16	Female	50 to 59	Master	Nursing	25
Interviewed Teacher	Group 4 (Informatics)				
	Gender	Age Group	Education Level	Training Area	Teaching Time (in years)
P17	Male	30 to 39	Master	Computer Sciences	7
P18	Male	18 to 29	Doctorate	Computer Sciences	3

Table 1: Profile of teachers interviewed

The school's staff is made up of 41 teachers, however, only 34 teachers are in-service and work in three technical courses from different areas, namely: Farming (Concomitant with High School and subsequent), Nursing (subsequent) and Informatics (subsequent). In order to ensure intergroup heterogeneity, 18 teachers were selected. Table 1 presents the teachers' profile.

Teachers' participation was voluntary and the Informed Consent Form was obtained, obeying Resolution N° 466/12 (Brasil 2012). The interviews were recorded and lasted an average of 30 minutes. The method for data processing was based on the qualitative approach through Content Analysis (Bardin 2009), which allowed the construction of categories as well as the creation of variables. The Content Analysis thematic consists in discovering the nuclei of meaning that make up a communication whose presence or frequency means something to the pursued analytical objective (Minayo, Deslandes, and Gomes 2003; Bardin 2009).

### 3. Results and Discussion

#### 3.1. Environmental education practice

To understand this theme, it is initially essential to know if the teacher considers himself/herself an environmental educator, to, next analyze and characterize his/her teaching practices. Thus, the theme was explored from the question about the recognition of oneself as an environmental educator and the practices/activities that they develop and consider as promoting practices of Environmental Education. Next, Figure 1 presents the categories and variables of the theme "Environmental education practices".

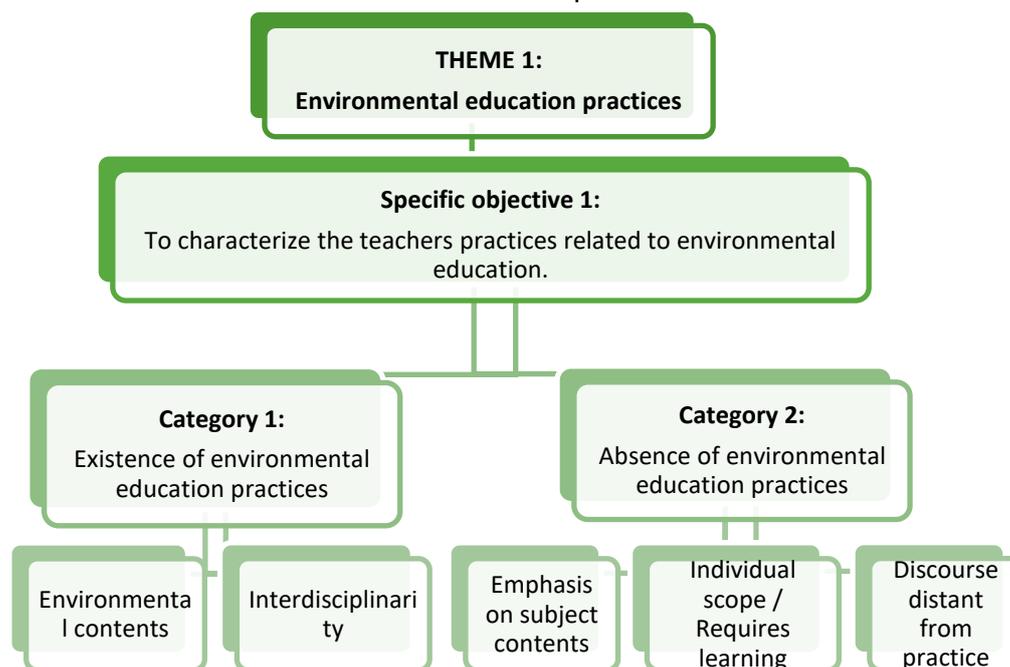


Figure 1: Categories and variables of the theme "Environmental education practices"

The category **Existence of environmental education practices** is divided into two subcategories (variables): (a) environmental contents and (b) interdisciplinarity. Regarding variable (a) **Environmental contents**, we highlight environmental issues that are addressed every so often in the subjects, such as: garbage, e-waste, sustainability, environmental awareness, landscaping, recycling, pollution. The teachers in the Farming area also mentioned: agro-ecological practice, reuse of materials, slaughter of animals, phytosanitary management.

The teachers of this study perceive themselves as environmental educators, by inserting environmental themes in the curricular subjects, since “I **have been trying to do this work** with my students” (P1, emphasis added). Environmental education has been worked “within my syllabus of the subjects that I minister [...] every context I approach has a little environmental education” (P3). “Mainly, focused on the farming area, agronomy, food production, then I insist keenly on the issue of agro-ecological practice, and the students can incorporate it correctly” (P9).

Environmental issues are worked with students trying to make them aware “that they are part [of the environment]” and “they have to be careful because future generations may not benefit as they are being benefited” (P3). Such awareness, by P5, is limited to aspects of “not using too much disposable cups [...] because we cannot change people's conception so drastically”.

There is a narrowing in the view of what environmental education is, as it is worked in school subjects. By having a subject “Environmental education and landscaping” in the curriculum of the Technical Course in Farming, it is clear that teachers may be working on the subject, due to the fact that it is specific to that subject. “In this sense of being today [with the subject], yes, I consider myself, right now [an environmental educator]. Before it was more an individual attitude, in which one had some opportunity” (P11).

Being an “environmental educator” is linked to demonstrating attitudes that involve reductionist environmental concerns in teaching practice, trying to raise students' awareness or even encouraging them to worry about the environment. “Whenever possible, I try to help students and even colleagues or friends to be environmentally conscious because I see that we have a dirty place because people are the ones who make dirty”. Thus, “I always try to talk and help them to become aware that they should not pollute, throw garbage, waste water” (P6, emphasis added).

Environmental education practices are reductionist as they are linked to pollution, waste, water waste. “I brought a documentary [...] about the turtles, because the food, the plastic, the straw, a simple straw will end up at sea, they confuse it with food and end up choking and dying. So, these are things that we can do little by little that help” (P1).

Also, more specific aspects about the garbage, such as e-waste is worked and it is noticed that the students “did not know what e-waste was, so when they started reading they realized the importance of doing this e-trash selection, of really taking it to places. They didn't even know that the CD is a kind of electronic waste” (P1).

The works involving the problem of garbage seemed routine in the activities developed by the teachers. “Although it is an important theme and that allows the development of various practices, care must be taken not to treat it aseptically and in a fragmented way, which, like all knowledge treated in this way, crystallizes” (Barizan, Daibem, and Ruiz 2003, 9). Teacher P14 states that “although I do not work with these issues in my subjects, **whenever an opportunity arises**, we are talking to students about these environmental issues” (emphasis added). Likewise, “I **already taught a class about garbage** when the school implemented these collectors. Then I went to explain how important it is, that I sort the garbage at home, that there are trash containers in the squares to collect, **but it is an every so often thing**” (P15, emphasis added).

Other ways of addressing environmental issues, specifically waste, involve “working towards a health, education, and health development program”. Regarding an attempt to prevent and educate the population about dengue, “they understand the issue of dengue, how we have to

take care, ***distributed the garbage bag*** [...] explain the importance of ***not leaving accumulated garbage*** and they always take information home as well” (P13, emphasis added).

In the Informatics course, again there is a return to the contents of the garbage. “We know that they [students] like to chew a candy, eat chocolate and leave accumulated garbage near the computers. So, ***we always ask***, there is the trash can in the room, ***that they throw this trash***” (P18, emphasis added). For P18, the practice of civilly throwing trash in the trash can, should “come from the student's house”. According to this view, the student acts inappropriately “because ***the student already brings it from home*** and we [teachers] try to change something that we know it is from their origin” (P18, emphasis added).

In the Nursing course, “we did an activity with the students in public health, which was the subject I taught, I gave them an activity for them to know the reality of a basic unit” (P13). It is noticed that there is here an expansion of environmental issues when the teacher asked the students to identify the problems of the neighborhood connected with aspects of disease incidence, “like, more hypertensive, more diabetic” (subject aspects); as for aspects related to “environmental” problems, “how is the landfill, how is the basic sanitation” (P13). When the teacher works on such environmental issues in the subjects, it seems to be in doubt whether they should work, since the students “saw in the subject [collective health], so I wrote a script where they had to check ***even this environmental issue***” (P13, emphasis added). As if such aspects of the environment were not inherent to health.

In the Farming area, a practice of environmental education related to pollution, more specifically linked to the issue of animal slaughter, is also worked in a subject and curricular way. It is sought to inform about this, so that students realize “that clandestine slaughter is a slaughter that harms both the quality of meat and the environment, because as the slaughter is done outdoors, there are remains of viscera, blood, so ***it is a very large contamination***” (P10, emphasis added). There is no work on the impact of meat consumption, but an emphasis on the consequences of inadequate work for human health itself. Students, future professionals, learn that the important thing is that “they work properly, ***sacrificing the animal*** in a suitable place, where there is an appropriate destination for blood, viscera” (P10, emphasis added). There is an ethical consideration linked to the satisfaction of their interests (anthropocentric ethics). Blood and viscera are treated coldly, aiming at the ultimate destiny (meat) attached to profit. At no time does it refer to animal ethics.

Another noteworthy aspect is the reduction of consumption “in the matter of rural construction”, to take advantage of existing natural resources in the region itself. “If I have an area that has a lot of cat's claw, without causing genetic erosion, without taking it until that species disappears from that ecosystem, I use cat's claw, ***it makes costs cheaper*** and I don't have to buy cement, buy bricks” (P9, emphasis added). However, the reduction in consumption is apparent, since the main concern is to lower costs aiming at savings. Environmental issues, even mentioned, are not in the foreground. For this reason, it is imperative that the teacher is always updated, in addition to being able to adapt to the transformations that occur daily in societies, and to direct their goals to a permanent education in order to respond to the new educational needs that the globalized world and technology have demanded (Souza 2006).

The teachers of this study work with the insertion of environmental education in their subjects randomly, “with the experience ***I will see where I can fit***” (P9, emphasis added) or it is “just ***informal conversation*** in the classroom” (P7, emphasis added). It is noticeable that continuing education, in addition to being urgent, it is a challenge that can be overcome if each teacher

begins to rethink their work on a daily basis, bearing in mind the responsibility at hand, which is to form responsible people for social transformation, “showing by example and also modifying my practices” (P4).

In this aspect of continuing education, there is a project that is being developed in Brazilian schools, entitled “Sustainable and Living Schools”, which aims “to qualify high school and elementary school teachers and develop intervention projects in the school itself” (P4). However, such a project is available to teachers in inner cities and not to the teachers of the surveyed school. In this reality, again is emphasized the ability “to work the issue of environmental education in both subjects”.

Regarding the variable (b) **Interdisciplinarity**, it is noteworthy that environmental education is approached more broadly, with fairs/projects involving various subjects in favor of the same theme. “**At the fair**, we worked on this sustainability issue. So, I showed them how important it is that you work in an environmental conscience” (P1, emphasis added). Occasional and non-continuity activities lead to questioning the effective awareness of the students, leaving a gap to be filled. The practice of Environmental Education must be continuous and permanent.

Other teachers in the present study did not identify themselves as environmental educators, considering that environmental themes should not be inserted in the subjects, not valuing their importance in the educational context. The category **Absence of environmental education practices** is divided into two subcategories (variables): (a) Subject contents; (b) Individual scope / requires learning and (c) Discourse distant from practice.

As for the variable (a) **Subject contents**, it is related to a perception that the contents of the subject should be given priority, therefore not seeing the possibility of connection with environmental issues. “We talk about the environment on the matter of the material, the electronic waste, that it is made by the computer, but **it is very little**. Thus, the student **cannot have a conscience**” (P17, emphasis added).

The justification for not working on these aspects also goes through a view that companies do not prioritize a worker with an environmental view. So, “**we prioritize other things** and get lost with that. **The priority is more in the scientific-technical knowledge** for the student to be able to work. So, the student does not leave here with that conscience and even because the company where he/she is going to work also does not claim it” (P17, emphasis added). In this sense, the Cartesian paradigm makes us see things without connections (Layrargues 2009). By analyzing the world, the dimension of the whole is lost, and the context in which the environmental problem in question is inserted is disregarded.

As for variable (b) **Individual scope / Requires learning**, is related to a lack of environmental education practices in the school environment, since “the only environmental education I give is to my niece who lives with me [...] **it is to save water** and not throw trash anywhere, throw **trash only in the trash can**” (P2, emphasis added). “The audience I reach is not yet big enough to consider myself an environmental educator. It's more for the public that is more often with me, like family, and students, but still in small proportion” (P16).

The teacher P8, for example, considers that to be an environmental educator, he would have to “explain and study to teach afterwards, no, I don't do that”. It is noticed that since there is no specific training for this, the teacher believes that he is not able to pass on to students such knowledge. On an individual level, linked to selfish aspects, “if **I don't think about consuming correctly**, I won't tell anyone to do it” (P8, emphasis added).

Regarding variable (c) **Discourse distant from practice**, there is the knowledge on how to act environmentally, however, there is still missing the practice in daily professional practice.

Once again, selfish aspects prevail over the environmental practice. “I would really like to turn on half the power in this room, but ***I think it's good that the four [lamps] are on***, you know? So, for me to only think of a thing but not put it in practice, so I am not an educator. ***An educator is when you do and practice*** what you think and teach” (P12, emphasis added). Given this, it is urgent to think of environmental education practice as one which, along with other social practices, “is actively involved in the social-historical making, produces knowledge, values, attitudes and sensitivities and, par excellence, is constitutive of the public sphere and politics” (Carvalho 2008, 188).

### 3.2. Possibilities of applying the theme “consumption” in the teaching practice

It is essential to know if the teacher works on this theme in his professional performance and how. Then, we analyze the possibilities of application of the theme “consumption” in the various subjects. Next, Figure 2 presents the categories and variables of the theme.

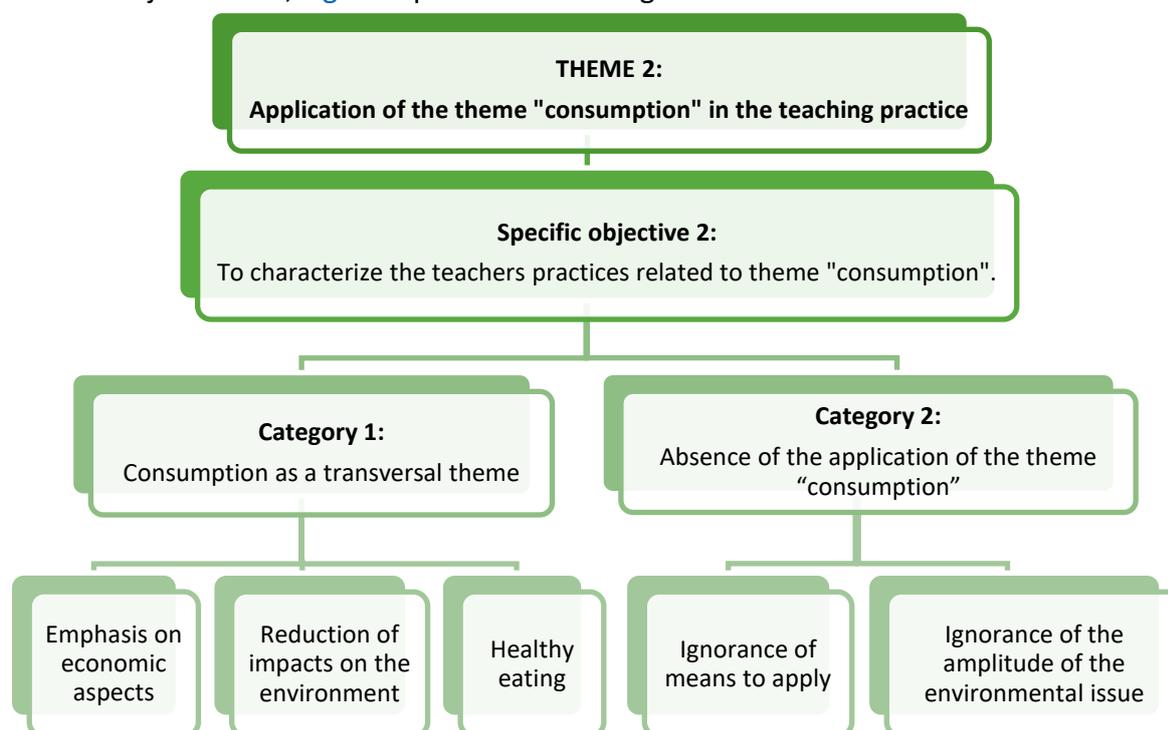


Figure 2: Possibilities of applying the theme “consumption” in the teaching practice

The category **Consumption as a transversal theme** is divided into three subcategories (variables): (a) emphasis on economic aspects; (b) impacts on the environment and (c) healthy eating. Regarding the variable (a) **Emphasis on economic aspects**, it is emphasized that consumption is linked to aspects of cost reduction, and consequently to avoid waste of water and energy. The theme “consumption” is addressed in the teaching performance, for example, in relation to the “issue of ***not wasting water***, because the waste is very large today” (P1, emphasis added). Also “asking them (students) how do they do at home, how is the practice of home consumption, in relation to water, ***in relation to energy***” (P1, emphasis added).

Similar discourse is related to a concern about saving, which directly has an impact on the person. For example, “to use the material as few times as possible, ***because we are saving financially*** with the establishment we are going to work with” (P13, emphasis added). There is a subtle concern “also with nature, generating less waste [...] also the issue of garbage separation which is also very important [...] I work a lot on this issue of the selective collection” (P13, emphasis added). In the case of paper reduction in the school environment, with

attitudes like, printing “tests that can be used **double-sided**. And I often ask students to also do scientific work using double-sided [...] so they can save material” (P4, emphasis added).

However, care must also be taken not to fall into clean and efficient technicality, that is, to recycle or reuse, but neither production nor consumption is reduced, and debates about ‘why’ are within these limits. In other words, “hegemonic ideology allows criticism of unsustainable consumption because there is sustainable consumption today; however, criticism of consumerism is not allowed, for frugality represents too dangerous a subversion to the dominant economic system” (Layrargues 2005, 186).

Regarding variable (b) **Reduction of impacts on the environment**, the teacher realizes the importance of working on the theme “consumption” because it is linked to a large amount of garbage. “[...] from the examples I see, which I saw a lot in the countryside, a lot of bags, very dirty settlements, with plastic bags” (P9). Students are asked questions about consumer habits, to “later talk about the various types of **pollution**, and to what extent this impacts” (P3, emphasis added).

When we talk about consumption, we don't talk about reduction, but about garbage, since “this **garbage** is produced and then, this **garbage**, how will it be released into the environment? Will it be reused?” (P3, emphasis added). And, consequently, such a problem affects animals, because they end up “eating the bags, which they love, they find them very tasty. The bags are running and the cows are chasing after them, it looks like a movie. They all die. They give indigestion to these animals, the belly swells and they die (P9). Here there is an extension of animal care. However, it must be considered that concerns about the welfare of domesticated animals cannot be considered purely a preoccupation with the environment, as livestock is an economic activity exercised by humans.

The debate about “unrestrained consumption” (P6) is not often discussed in the classroom. Although “we observed that they (the students) fit a lot, because they are teenagers [...] they are more pro consumerism, they are wanting just for wanting and not consuming by conscience, because I need, for necessity” (P7). “Now I'm working more with students on the issue of **using what you need**. Do not use it because you see it in advertising” (P11, emphasis added).

Another aspect that ends up reducing environmental impacts refers to the enhancement of local culture, since “if I **use local products**, I reduce CO2 emissions with transportation”(P9, emphasis added).The possibility of working on the subject of consumption in teacher practice allows even a self-reflection about their practice of consumption, demonstrating the distance between theory and practice, when P9 states “I'm devastated, because **I don't do what I preach**” (P9, emphasis added). Formerly, according to P11, “we wanted to take everything from nature, destroying it and today the great search is balance. You must survive, feed, clothe, but also preserve. That is the big challenge”.

In the technical Informatics course, consumption is linked to the use of “software, hardware”. Teacher P18 “encourages the use of **open and free technologies**” (P18, emphasis added), because “the companies that make this free software are concerned not with the profit itself, and with the aggression of the environment in return, but yes that people can have free access”. In the mathematics subject, for example, “we do calculations [...] we could even have interdisciplinarity with subjects such as biology, geography, to calculate some things, how long it will take, among others” (P2).

Regarding variable (c) **Healthy eating**, food consumption is presented in the school environment “due to eating disorders”. The dietary orientation demonstrates a concern with

aspects of one's health. "What are the problems that the future will entail? What are the diseases that they may develop?" (P5). Even "explain what frozen food is, cold food. Always differentiate this and make sure that they (students) always buy food that is inspected, because it is important" (P10). The meat inspection service guarantees, according to teacher P10, that "the food is fit for consumption. It is better than buying some meat, which you do not know the origin of, do not know how this animal was slaughtered. [...] soon after slaughtering, the vet makes several cuts and detects if there is any type of alteration such as tuberculosis, cysticercosis".

The category **Absence of the application of the theme "consumption"** is divided into two subcategories (variables): (a) ignorance of means to apply and (b) ignorance of the amplitude of the environmental issue. Regarding the variable (a) **Ignorance of means to apply**, it is noteworthy that the teacher does not work with the theme because "the subject as mathematics, I think *it does not expand so much to the consumption theme*" (P2, emphasis added). There is a lack of knowledge of ways of working with the theme in the subject in question, since "I do not know in my area of mathematics, *I do not know what it would be like*" (P2, emphasis added).

Regarding the variable (b) **Ignorance of the amplitude of the environmental issue**, it is clear that the teacher has a reductionist practice, in which he/she excludes from his/her subject all knowledge that he/she thinks is not intrinsic to that area, since "our *subject is extremely technical*, it works the production part [...] So, I don't know, *I can't see it*" (P12, emphasis added). In other words, "I don't work the theme consumption because it's not the focus of my course. So, as *it is not the focus of the course* we do not have this theme in the course, in teaching" (P17, emphasis added). There is also a view that even if there is a subject to deal with the theme, it should be about recycling so that students can "know what possible actions could be taken for this type of *product that deteriorates*" (P17, emphasis added).

Even not working on consumption in teacher practice, P14 sees a possibility "regarding **food**. Try to check the issue of packaging, how food is being packaged, look carefully at packaging to check *the substances that make up that food*" (P14, emphasis added). Here again there is a relationship between consumption and food consumption, with emphasis on health concerns, because "people do not pay attention to this and in the future comes the issue of hypertension and other diseases resulting from excessive use of sodium, heart problems and everything else" (P16). Teacher P16 believes she can "encourage students to at least do what I already do. *It is to try to see the most natural foods*, to look for foods that have packaging that can be more easily degraded [...] it is to pass to them, because we have the opportunity" (P16, emphasis added).

Generally speaking, the teachers in this study expose the reuse of materials as a means capable and sufficient to reduce environmental impacts "because nowadays there is a lot of disposable things and *these disposables go all the way to waste*, accumulating in our seas, polluting our waters, decreasing the oxygenation of fish" (P14, emphasis added).

The theme "consumption", erroneously, in the view of the interviewed teachers, should be approached by a specific subject. Because of this, there is a practical difficulty in relating this theme to their subject. For example, in the case of the technical nursing course, "it is much more focused on the disease itself and *not on environmental awareness*" (P15, emphasis added). Thus, the themes are not inserted in practical contexts, lacking suggestions on how to integrate the theme into the subject. In their training, the teacher does not have information that enables them to perform this integration to their satisfaction.

There is a consensus that Environmental Education should not be a subject. Given the complexity of the environmental theme “no one else dares to propose Environmental Education as another subject of the school curriculum, let alone to imagine it being developed by a single teacher” (Fracalanza 2004, 72). Nevertheless, there is a consensus among people linked to the environmental area, either by environmental activism or academically. For the teacher, the doubt persists.

The position of not being involved with this theme indicates that it is related to the teacher's insecurity caused by their specific training, which does not contemplate the broad aspects of the environmental theme. Also, the organization and management of the school as well as its curricular structure cut into subjects represent obstacles to be overcome. Given the above, Table 2 presents a summary of the application of the theme “consumption” that was mentioned by the interviewed teachers.

Teacher	Area	Application of the theme “consumption” for the teacher
P1	Humanities/ Portuguese	“Texts so that students can reflect and then produce their own text (about the theme)”.
P2	Mathematic	“We could even have interdisciplinary with subjects like biology, geography, to calculate some things, how long it will take.”
P9	Farming	“We can use what is in the region. If I have an area that has a lot of ‘cat's claw’... without causing genetic erosion, without removing until that species disappears from that ecosystem [...] it makes costs cheaper and I don't have to buy cement, buy bricks”.
P11	Farming	“We work towards quality [of food] [...] It's the quality of honey, quality of vegetables [...] we are going back to what our grandparents used: organic fertilizer, agro-ecology [...]”
P12	Farming	“Drug consumption, implement consumption [...]”
P13	Nursing	“Since we consume a lot, we generate a lot of garbage, professionally, we have to preserve, try to reduce, for example, we will make a puncture, try to get it right first time, if we make mistakes we will discard”.
P17	Informatics	“Topic just talking about electronic waste, which has an environmental impact”.
P18	Informatics	“We encourage the use of open and free technologies”.

**Table 2:** Application of the theme "consumes" by teachers

Therefore, the decisive factor of the degree of insertion of a theme in a given area of knowledge will depend, at least initially, on the affinity and preparation that the teacher has about it. Therefore, “the development of the exercise of the teacher's citizenship involves the transformation of the informative school into a formative school” (Penteado 2010, 69). The Ministry of Education, in Brazil, through the publication “Sustainable Consumption: Education Manual” (IDEC 2005), explains the relationship between eight themes (citizenship and sustainable consumption, water, food, biodiversity, transportation, energy, waste, and advertising) and environmental sustainability, and Table 3 presents the themes emphasized by the interviewed teachers.

Themes	Possibilities for applying “consumption” according to the Sustainable Consumption Manual
Food	The manual proposes a model of sustainable agriculture, which involves a range of factors such as maintaining biodiversity in contrast to monoculture production, balancing nutrient flow, conserving soil surface, efficient use of water and light, also includes social factors such as the generation of work and income, the promotion of education, the technical improvement and the quality of life.
Energy	Energy savings are related to the acquisition of “Procel” seal equipment, the removal of equipment from the socket, the replacement of incandescent lamps with fluorescent lamps, the use of natural light and the encouragement of stairs instead of elevators. Recommendations are also geared to using the electric shower, like using in the “summer” position on hot days can save 30% of the energy consumed by the appliance, turn on the washing machine only with its full capacity and accumulate the clothes so that they can be ironed together, turn off the TV when no one is watching, and properly maintain and use refrigerators, like not opening them for long or avoiding the proximity of this equipment to the stove and heaters, as well as being exposed to the sun.
Water	To maintain this resource, it is necessary to show its importance to society, like its use in agriculture, industry, navigation, fishing and leisure, as well as domestic use.
Waste	The manual suggests three key actions: reduce, reuse and recycle. Reducing means consuming fewer products and preferring those that offer lower waste generation potential and that have longer durability. Reusing is, for example, reusing packaging. Recycling involves the transformation of materials. Buy only the products you need - avoiding the waste of natural resources - purchasing sturdy and durable products - avoiding their replacement - deploying compost at home, using rechargeable batteries until you reuse the packaging.

**Table 3:** Possibilities of applying the theme "Consume" according to the Sustainable Consumption Manual (IDEC 2005)

The possibilities of applying the theme "consumption" in teacher practice are diverse, but it requires a structure that allows and encourages this to occur. Sporadic and easy actions that do not change the pace of life, whether in the private or professional sphere, are the most eligible to become routine (Queiroz 2012).

#### 4. Conclusions

The training of teachers, of course, is a decisive factor in the improvement of teaching, therefore, with serious repercussions in society. Considering the importance that the theme *Environmental Education and Consumption* represents in teacher practice, this research proposed a reflection about the need to expand studies and discussions about teacher professionalization, arguing that the professionalization process disarticulated of the current themes, precisely, of the transversal themes, has been one of the major obstacles to the collective advancement of education.

Because of the foregoing, and above all from the analysis carried out on the results of this research with teachers, the concern in establishing, in the educational context, the understanding and the suggestion of respect for the society to be built is reiterated. The search for a solid training of education professionals is about rethinking the teaching work, reviewing the way knowledge is produced, creating new relationships with the external and internal environment in the educational field, rethinking the relationship between theory and practice in the current teaching and learning process.

The reports obtained show that the current educational model of teacher education has proved to be very deficient in practice, especially in the treatment of social issues such as environmental education. Therefore, it is extremely important to perform actions that expand professional development and provide teaching quality, with real learning. This possibility can be achieved with contents that emerge from the work with generative or transversal themes, to achieve improvements in the Brazilian scenario that is submerged in an education system still with many problems, mostly caused by initial and continuing poor teacher training.

Thus, teachers must encourage students to think and position themselves critically about the reality and the given knowledge, especially regarding the environmental issue. The interaction of Environmental Education with other subjects provides a vision of awareness regarding the environment, greatly assisting in the development of citizenship and in achieving good subject pedagogical successes, enabling students in technical schools an education towards environmental responsibility. This could be achieved through spaces and projects of interdisciplinary articulation which encourage the extension function, while promoting the overcoming of self-indulgence, indifference, and of disengagement created by individuals themselves in the teaching and learning process. A school with an organized curriculum based on environmental education needs to announce this option in its daily routines and experiences; in its forms of organization and development of pedagogical practices and its curricular proposal; in its administrative decisions and resource management mode; finally, it needs to demonstrate itself through its daily activities.

## References

- Antoni, S. 2005. "A relevância da educação ambiental em nossos dias". <http://www.pdf-search-engine.com/resumo-historia-dariqueza-do-homem-pdf.html>.
- Barizan, A. C. C., A. M. Daibem, and S. S. Ruiz. 2003. "As representações sociais de meio ambiente e de educação ambiental e as potenciais práticas pedagógicas de alunos do curso de licenciatura em Ciências biológicas da UNESP de Bauru". Paper presented at II Encontro Pesquisa em Educação Ambiental: Abordagens epistemológicas e metodológicas, São Carlos, Anais São Carlos: UFSCar, July 2003.
- Bardin, L. 2009. *Análise de conteúdo*. Lisboa: Edição 70.
- Brasil, Secretaria de Educação Fundamental. 1998. *Parâmetros curriculares nacionais: terceiro e quarto ciclos: apresentação dos temas transversais/Secretaria de Educação Fundamental*. Brasília: MEC/SEF.
- Brasil, Secretaria de Educação Fundamental. 2000. *Parâmetros curriculares nacionais: A apresentação dos temas transversais e ética*. Rio de Janeiro: DP&A.
- Brasil. 1999. "Lei nº9.795/99: Política Nacional de Educação Ambiental". Planalto Federal. [http://www.planalto.gov.br/ccivil\\_03/Leis/L9795.htm](http://www.planalto.gov.br/ccivil_03/Leis/L9795.htm).
- Brasil. 2012. "Resolução nº466/2012: Diretrizes e normas regulamentadoras de pesquisas envolvendo seres humanos". Ministério da Saúde/Conselho Nacional de Saúde. [https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466\\_12\\_12\\_2012.html](https://bvsms.saude.gov.br/bvs/saudelegis/cns/2013/res0466_12_12_2012.html).
- Carvalho, I. C. M. 2008. *Educação ambiental: A formação do sujeito ecológico*. 4<sup>th</sup> ed. São Paulo: Cortez.
- Fracalanza, H. 2004. "As pesquisas sobre educação ambiental no Brasil e as escolas: alguns comentários preliminares". In *Pesquisa em Educação Ambiental: pensamentos e reflexões de pesquisadores em Educação Ambiental*, edited by J. E. Taglieber and A. F. S. Guerra, 55-77. Pelotas: Editora Universitária/ UFPel.
- Freire, P. 1996. *Pedagogia da autonomia: saberes necessários à prática educativa*. 25<sup>th</sup> ed. São Paulo: Paz e Terra.
- Gil, A. C. 2002. *Como elaborar projetos de pesquisa*. São Paulo: Atlas.
- IDEC - Instituto Brasileiro de Defesa do Consumidor. 2005. *Consumo sustentável: Manual de educação*. Brasília: Consumers International, MMA/MEC/IDEC.
- Jacobi, P. 2005. *Sociedades sustentáveis - educação, meio ambiente e cidadania*. São Paulo: Palestra UNIFESP.

- Layrargues, P. P. 2005. "O cinismo da reciclagem: O significado ideológico da reciclagem da lata de alumínio e suas implicações para a educação ambiental". In *Educação ambiental: repensando o espaço da cidadania*, organized by C. F. B. Loureiro, P. P. Layrargues, and R. S. de Castro, 179- 219. São Paulo: Cortez.
- . 2009. "Educação ambiental com compromisso social: o desafio da superação das desigualdades". In *Repensar a educação ambiental: Um olhar crítico*, edited by C. F. B. Loureiro, P. P. Layrargues, and R. S. de Castro, 11-31. São Paulo: Cortez.
- Machado, C. C., C. Chiaramonti, and L. I. Sermann. 2007. "Educação ambiental como proposta para a sustentabilidade: caso Bom Jesus da Aldeia". Paper presented in 2º Seminário sobre Sustentabilidade UNIFAE, Curitiba, Brazil.
- Minayo, M. C. S., org., S. F. Deslandes, and R. Gomes. 2003. *Pesquisa social: Teoria, método e criatividade*. 22<sup>nd</sup> ed. Rio de Janeiro: Vozes.
- Neves, S. 2009. "A matemática no contexto da educação ambiental: Relações de aprendizagem". Master's thesis, Instituto de Educação Matemática e Científica, Universidade Federal do Pará. <http://repositorio.ufpa.br:8080/jspui/handle/2011/2044>.
- Oliveira, E. C., and M. R. Rizzo. 2008. "Educação Ambiental também é coisa de gente grande - uma análise do uso dos Rs". Paper presented in IV Fórum Ambiental da Alta Paulista, Tupã - São Paulo, July 2008.
- Pedrini, A. G., org. 1997. *Educação Ambiental: Reflexões e práticas contemporâneas*. Petrópolis: Editora Vozes.
- Penteado, H. D. 2010. *Meio ambiente e formação de professores*. 7<sup>th</sup> ed. São Paulo: Cortez.
- Portero, R. A. R. 2010. "Avaliação do conhecimento do tema transversal meio ambiente e das práticas de educação ambiental de professores do ensino fundamental de uma escola pública em Santa Ernestina - SP". Master's thesis, Universidade de Araraquara - UNIARA, Brazil.
- Queiroz, T. P. 2012. "Na pegada do ambientalismo: Discursos e práticas de consumo". Master's thesis, Instituto de Ciências Humanas e Filosofia, Universidade Federal Fluminense, Brazil.
- Souza, J. R. S. 2006. "Formação continuada em serviço: ressignificando a prática docente". In *Seminário Nacional de Pedagogia Universitária*, organized by M. E. A. Engers. Porto Alegre: PUCRS.