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Environmental Education for Sustainable Development: everyone's commitment to Mother Earth

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Abstract
This article is an excerpt from the research "Curriculum, Environmental Education and Sustainable Development: knowledge necessary for human and citizen formation of members of the academy" and brings reflections on the role of Environmental Education in the curricula of undergraduate courses at UNIVASF – Universidade Federal do Vale of São Francisco, as an important strategy in the ethical, critical and civic education of young university students, as well as for the continuing education of teachers in the perspective of sustainable development. The research that gave rise to this text was descriptive of an exploratory documentary character, whose data were obtained through the course website on the Univasf page and with their coordination. Pedagogical Project of the courses, the academic activities that make up the curriculum, such as the programs of each discipline and the internal documents consulted in the confrontation with the pertinent legislation and the 2030 Agenda, with which UNIVASF assumed a commitment for its execution.
Key Words*: Pedagogical Projects; SDGs/UN; PDI/UNIVASF; Agenda 2030;*

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I. Introduction

This article is an excerpt from the research entitled "CURRICULUM, ENVIRONMENTAL EDUCATION AND SUSTAINABLE DEVELOPMENT: knowledge necessary for human and citizen training of members of the academy", which addresses environmental education as one of the factors responsible for the critical training of young students for the preservation of the environment and poverty reduction.

Environmental Education comprises the processes through which the individual and the community build social values, knowledge, skills, attitudes, and competences aimed at the sustainable conservation of the environment, a natural good for common use by the people and essential to a healthy quality of life (BRASIL1999:03).

Society's interest in the well-being and protection of the planet stems from the action of human beings with nature in the face of forest fires, deforestation, social inequality, the expansion of exaggerated consumption, and the unbridled production of material goods, social injustices , inequality, and hunger, which de-characterize the natural landscape. Hence, in the Brazilian legal system, the Federal Constitution of 1988 included Environmental Education as a rule so that the environment can be observed with greater consideration and used with responsibility and respect.

As Leff (2003:18) states:

Such a way of understanding nature led to the depredation of the environment with the aim of providing the energy that men needed for the production process. Depredation became chaotic in the 19th and 20th centuries, in the face of the growth of industry and urbanization. The development model defended by societies, especially western ones, favored profit, the accumulation of capital, albeit to the detriment of the loss of quality of life and the deterioration of nature and society. This situation has worsened to such an extent that environmental and society analysts do not hesitate to say that we are experiencing a crisis of civilization. (LEFF, 2003:18)

Scientific and technological development that increases the quality of life endangers the environment and human existence itself, justifying the need for individuals to understand socio-environmental changes in order to act critically, prevent natural and physical problems, and the very human exclusion from the social context. Within this vision, education must play the primary role of creating attitudes and improving the understanding of the problems that affect the environment since the role of HEIs is to build values and strategies that enable students to determine what is best to conserve in their cultural, natural, and economic heritage in

order to reach sustainability in the local community while contributing to the objectives on a national and global scale (TRISTÃO, 2008:51).

Currently, the seriousness of environmental issues is so intense that concerns with the preservation of nature are no longer just utopias and romanticism as they were long ago in ecological environmentalism (NEDEL, 2004:11). Instead, its dimension took over all social areas, for which the quality of life came to have greater value than production. The issues of environment, articulating economy, ecology, and politics in an integrated vision have become central in debates on economic policies and international relations among the various nations of the planet, becoming a landmark in citizenship through which more and more people understand that abandoning the secondary luxury of consumption is fundamental and access to the goods produced must be for everyone (BOLIGIAN, 2005:44).

In this context, a true Environmental Education seeks to satisfy the civil, economic, social, spiritual, and cultural rights of the populations while requiring changes from the ethical, ecological, economic, social, and environmental perspectives, demanding the construction of new interdisciplinary objects of study through the problematization of dominant paradigms, teacher training, and the incorporation of emerging environmental knowledge into new curricular programs (LEFF, 2003:18).

This statement is supported by the National Curriculum Parameters, which state that the inclusion of the environment as a transversal theme in school activities can contribute to the principles of human dignity, highlighting the active participation of citizenship, co-responsibility, and equity, which are fundamental to the basic objectives of Environmental Education. However, in order for this to occur, the teacher and the HEI must establish pedagogical actions that seek interdisciplinarity aiming at the emergence and implementation of new attitudes, with the formation of relevant and modifying socio-environmental values (PESTANA, 2010:221).

Therefore, one of the great challenges for 21st century teachers is the full training of their students with values and attitudes about environmental awareness through the transformation of their own paradigms. Undoubtedly, professionals who aim to build a new pedagogical look at the environment need to provide students with a new way of seeing the world.

As stated by Weid (1977 apud FLICK, 2010:108), "it is necessary to intervene in training processes that allow teachers to base their work on solid concepts, so that actions are not isolated and/or distant from the principles of Environmental Education". Betting on this thesis, Pestana (2010:223) says that the teacher who works with Environmental Education must enable their students to wake up critically, possess self-confidence, develop citizenship, and participate in current debates on the environment since the teaching/learning of Environmental Education with a view to sustainable development became mandatory with the promulgation of the National Environmental Education Policy for all levels and teaching modalities.

It is known, however, that despite the obligation, initiatives of this nature are still very isolated in formal education, and it can be said that it was from the Rio 92 - United Nations Conference on Environment and Development that projects focused on this theme began to emerge.

The research that guided this article proved that in more than 20% of the PPC - Pedagogical Projects of Courses at UNIVASF - Universidade Federal do Vale do São Francisco, education for environmental sustainability is not represented by any discipline in the curriculum or in its academic programs, even though it is a function of the HEI to train individuals to understand the reality where they live and take a stand in the face of world challenges, treating the environment as a matter of their daily life since life on the planet depends on it, according to the references of the published Curriculum Parameters by the Ministry of Education of Brazil and the Law of Directives and Bases of National Education.

The 60s and 70s of the last century were fundamental for the rise of social movements in defense of the environment, constituting a powerful political pressure on national states and international organizations andresulting in the First World Conference for the Environment and Development in Stockholm, Sweden, promoted by the United Nations - UN in 1972. This event resulted in numerous studies and documents, from which there was a succession of initiatives of this type, including recommendations for the insertion of Environmental Education in formal education, emphasizing that education is important in promoting sustainable development and in increasing people's capacity in matters of environment and development. While basic education serves as the foundation for teaching on the environment and development, the latter must be incorporated as an essential part of learning.

Based on these internationally agreed recommendations, the National Congress of Brazil instituted the National Policy on Environmental Education through Law No. of public and private education, encompassing early childhood education, elementary school, high school, college education, special education, professional education, and the education of youth and adults. Therefore, environmental education for sustainability is a way to train individuals in essential issues for the quality of life and for constructing citizenship through solidarity, health, ethics, nature, cultural diversity, and ideas.

From Ecosystem Recovery to Sustainability Market

In the last two decades, the sustainability discourse has become dominant in the debate that involves environmental, social, economic, and cultural issues, taking on multiple meanings, among which the ability of ecosystems and even the environment to recover from human aggressions in the search for a balance between the supply of human needs and the preservation of natural resources, thus ensure the population's quality of life.

The concept of sustainability officially emerged in 2002 at the Conference known as Rio +10 or the World Summit on Sustainable Development, which took place in Johannesburg, South Africa, and covered not only the issue of economic development but above all ecological and social perspectives, pointing to the encounter with social equality. Thus, within this vision, sustainability is the goal and sustainable development is the means to achieve it considering three dimensions: environmental sustainability, social sustainability, and economic sustainability.

Environmental Sustainability focuses on preserving the environment, seeking a balance between the rational use of resources and meeting human needs.

Social Sustainability refers to the active participation of the population in proposals aimed at the well-being and equality of all in line with the preservation of the environment.

Economic Sustainability seeks to adopt a development model that ensures this and future generations the use of natural goods in order to guarantee a dignified life for all.

Etymologically, the word sustainability derives from the Latin sustentare, which means to sustain, defend, favor, support, conserve and/or care. Agenda 21, a document that, in a way, committed all countries to the solutions of socio-environmental problems, greatly stimulated the creation of a new civilizing organization, bringing to the table issues such as social inclusion programs, income distribution, access to health and education, the preservation of natural resources, ethics, = gender, sexual and cultural diversity, and social protection systems, among othe alternatives for the collective well-being.

In 2020, a team of researchers led by Dr. Christoph Rupprecht of the Research Institute for Humanity and Nature in Kyoto, Japan, proposed a new definition of sustainability that expands the concept to non-human species and their needs, correcting a mistake in the original concept that stymied efforts to global transformation. In this new formulation, sustainability is defined as a mechanism to meet the interdependent needs of living beings while increasing the capacity of future generations of all species to meet their own needs.

International bodies have lately suggested a change in the term sustainability to education for sustainability as they understand that there is a close relationship between the foundations, values, and interests of education and sustainability, although this is still little disseminated in Brazil in practices that relate education and environment, probably because it is still a recent discussion. In this text, sustainability is addressed from the point of view of Michel Foucault (2001), in the genealogy of knowledge – power, where every society selects what can be said at a certain time, who can say it, and under what circumstances as a means of filtering or removing the dangers and possible subversions that may arise (FOUCAULT, 2001:69). For him, there is no neutral or disinterested discourse, and knowledge and power do not exist apart from each other, the language of all discourse expressing a will to domination (FOUCAULT, 1974; CARVALHO, 1991).

In the case of postmodern society, true discourse is identified with scientific knowledge, which produces effects of power due to the objectivity attributed to science and the institutions that promote it, elevating it to a position of social hegemony in relation to other forms of knowledge.

From another perspective, the discourse of sustainability emerged in the last century as a substitute for the discourse of economic development, produced and disseminated by the central countries of capitalism, especially the United States, to the rest of the world in the context of the crisis of their own capitalism and neoliberal policies, incorporating into the debate the multiple aspects that constitute the relationship between society and its environment and the resources on which the survival of the planet depends as part of the global strategy of restructuring the system.

Carvalho apud Ribeiro (1991:79), reflecting on this process, observes that, since the Stockholm Conference in 1972, the concern of international organizations was to actually preserve a model of accumulation of wealth in which the natural heritage became a good, lending a humanist concern to less noble intentions considering that development could not follow the models of the industrialized north without extremely negative impacts on nature.

In the same direction, Drysek (1997:126) adds that, in a scenario of transnationalization of capitalism and governments committed to privatization, the discourse of sustainability only succeeds if environmental conservation promotes growth in business and in the economy, which is currently the appeal of Ecological Modernization, defended by a group of scientists from countries such as Sweden, Holland, Germany, Norway, and Japan. This market sustainability, defended by the richest countries on the planet, deconstructs the discourse of environmental sustainability, making the discourse of rational harmony between humans and nature absolutely unfeasible and jeopardizing the replacement of the use of non-renewable energy and resources with other renewable ones, the maintenance of the environmental quality of water, air, and soil, and the recovery of degraded ecosystems that transcend market action.

Market sustainability certainly does not meet the social crisis that is universal today since the rationality of the market is oriented towards concentration and not towards the distribution of wealth and opportunities. When the invisible hand of the market is left free from the regulation of the State and society, human and social development tends to sacrifice. How to solve this situation seems to be the confrontation of society for a viable future where the different social forces can print their values and interests, imposing a legitimate vision of sustainability where economic growth and environmental preservation can adapt to the new demands while increasing production and reducing the consumption of natural resources and the volume of industrial waste (VIOLA & OLIVIERI, 1997: 212-3).

The Brundtland Report (1991) defines sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". In the same direction, the final document of the XIX Meeting of the Council of the Solidarity Community on the same subject points out as a consensus the idea that regions and localities must develop an endogenous capacity to exercise their interdependence through the construction of inter-organizations and the generation of other conditions that allow the emergence of basic economic communities (1998), a new way of promoting development through which communities themselves find ways to meet their needs by investing in their vocation, promoting external exchange through cooperation and integration of chains productive sectors, and economic and social networks, thus expanding local opportunities for income and work generation.

It is what has been called social capital, whose values such as solidarity and partnership, among others, form a specific environment of coexistence capable of contributing to the improvement of people's quality of life, both individually and collectively, supported by the degree of trust between social actors, the level of associativity, and the norms of civic behavior that, when practiced, strengthen the internal fabric of society.

Within this vision, sustainability must be understood as a process by which societies manage the material conditions of their reproduction, redefining the ethical and socio-political principles that guide the distribution of environmental resources, which presupposes that the notions of sustainability and development cannot be defined in abstract, but in social constructions.

The idea of sustainable development seeks to emphasize specific institutional mechanisms capable of mobilizing productive energies that the functioning of markets ends up inhibiting and that the mere presence of certain infrastructures proves to be incapable of awakening. It is the quest of improving the population's quality of life, greater participation in power structures, understanding the environment, and building new ethical paradigms that point to more sustainable development models that contribute to happiness and human fulfillment.

SOME RESEARCH FINDINGS

For the analysis of data in each course, the following indicators were defined on a scale of 01 to 05:

1. Number of courses offered;
2. Mandatory subjects that address the theme Environment and Sustainable Development;
3. Optional subjects that address the same topics;
4. Catalog events in the course that deal with the topics studied;
5. Sporadic events in the course that deal with the same topics;
6. Commitment of the course collegiate to the study themes, evidenced by the presence of subjects in the curriculum and the promotion of events related to the subjects;
7. Presence of the SDGs – Sustainable Development Goals in the course syllabus;
8. Explanation of objective 4, goal 4.7 of the UN SDGs in the Program/menu of disciplines.

The interpretation of the scale to quantify the indicators was as follows:

Scale 1 – Absence of the indicator in the program and in the course syllabus;
Scale 2 – Explanation of the indicator in the program, but not in the menu;
Scale 3 – Up to 03 programmed activities on the environment in the disciplines;
Scale 4 – Between 04 and 05 activities programmed and carried out on the environment and sustainability in the disciplines;
Scale 5 – Cross-cutting activities on the environment and sustainability in all disciplines.

Based on these indicators, the highest average was that of the Collegiate of Biological Sciences, located at the CCA – Centro de Ciências Agrárias, with 22 compulsory subjects in the course that address the themes of sustainable development and environmental preservation.

Next is the Ecology course collegiate, addressing the subject in 21 compulsory subjects and transversalizing the subject in 80% of the subjects of the course. In descending order, the collegiate bodies of the Agricultural and Environmental Engineering courses; Agronomic Engineering; Natural Sciences at the Senhor do Bonfim campus; Veterinary Medicine; animal husbandry; Geography and Archeology and Heritage Preservation; Drugstore; Electrical engineering; and Nature Sciences at the São Raimundo Nonato–Piauí campus.

In these collegiate courses, either through the disciplines offered or through the events/activities programmed, there is a concern with the construction of the collective subject, the valorization of natural resources and environmental sustainability, even in a differentiated way.

The Paulo Afonso Medicine, Psychology, Nursing, Computer Science and Visual Arts courses do not have any compulsory or optional subject whose themes of the environment and sustainable development are addressed, nor do they fully comply with the UN SDG goal 4.7. The other courses have at least 01 discipline that addresses the environmental issue.

The curriculum model taken as a reference was the Social Reconstructionist, which focuses its actions on the critical formation of the subject, where humans and nature merge, allowing students to acquire awareness of the sociocultural reality, transforming it, believing that the university must to be a space of freedom that instigates thinking and acting on behalf of minorities, breaking the dehumanizing structures that control the status quo, maintaining the systems established by the country's political and economic elites.

Students need to believe that they can lead their lives through the learning that the university has given them. As Freire (1967:27) well informs in his book "Education as Practice of Freedom", the objective of education does not consist in the accommodation or adjustment of students to the social system, but in their liberation from the servile adherence to it. From this perspective, courses whose curricula do not address the issue of environmental sustainability, in addition to failing to comply with a requirement of the PDI and the agreement signed between UNIVASF and MEC for the execution of practical actions related to the SDGs - Agenda 2030, impoverish the training of students , subtracting from them the understanding that environmental and sustainable education is a political act, which when exercised with an interdisciplinary and holistic approach, can form critical and innovative subjects, capable of mobilizing for a socially fairer society.

In the same line of reasoning, researcher Teixeira (2007:33) adds that environmental education is "(...) a set of theoretical and practical teachings with the objective of leading to understanding and awakening the individual's perception of importance of actions and attitudes for the conservation and preservation of the environment for the benefit of the health and well-being of all". Therefore, the university cannot evade this truth, building with its young people an ethic of valuing and respecting diversity and strengthening democracy, citizenship and taking a position in favor of preserving nature as a collective good.

The National Curricular Parameters (BRASIL, 1997) determine that the student must perceive himself as an integral, dependent and transforming agent of the environment. How to achieve this attitude, without the educational institution acting in this direction, worth remembering here that at Rio + 20, the Brazilian government presented a proposal that had the support of the UN, that society as a whole needs to commit to the environmental sustainability, in order to build a new world, for these and future generations.

In this Conference, which included ten Dialogue sessions, 30 representatives from universities and research centers from all over the world, more than 63 thousand people from 193 countries, according to the Ministry of the Environment, the priority themes were: water; oceans; forests; sustainable cities and innovation; sustainable energy for all; food and nutrition security; the economics of sustainable development, including sustainable patterns of production and consumption; sustainable development as a response to economic and financial crises; sustainable development to fight poverty; and unemployment, decent work and migration.

The following recommendations emerged from these ten dialogues:

• Implement the right to water.

• Adopt global policies that affirm the importance of planning and integrated management of water, energy, sanitation and spatial planning, with the full and effective participation of civil society, and taking into account gender issues and specific cultural needs.

• Propose a global agreement to protect marine biodiversity in the open sea.

• Take immediate steps to develop a global network of internationally protected marine areas.

• Restore 150 million hectares of deforested and degraded areas by 2020.

• Promoting science, technology, innovation and traditional knowledge, as a way of facing the main challenge facing forests: making them productive without destroying them.

• Zero deforestation by 2020, respecting the rights and knowledge of people who live in the forest and the forest and responding to their sustainable development needs.

• Thinking ahead about sustainability and quality of life in cities.

• Channel resources to develop sustainable cities, with planned and measurable goals.
• Take concrete steps to eliminate fossil fuel subsidies.
• Set ambitious targets for switching to renewable energy.
• Increase investment and political will to ensure universal, equitable and affordable access to sustainable energy services for all for the next decade through clear strategies and actions.
• Promoting food systems that are sustainable and contribute to improved health.
• Eliminate malnutrition-related misery and poverty.
• Include environmental costs in the Gross Domestic Product (GDP).
• Promote fiscal reforms that encourage environmental protection and benefit the poor.
• Create a tax on international financial transactions to form a Green Fund responsible for promoting decent jobs and clean technologies.
• Promote global education to eradicate poverty and achieve sustainable development.
• Ensuring universal health coverage to achieve sustainable development.
• Placing education at the heart of the Sustainable Development Goals agenda.
• Commit to the goal of decent work for all by 2030 (Federal Senate/ Study and Research Centers, 2012).

The fact that Brazil is a signatory to this conference and has made commitments to reduce poverty, malnutrition, eliminate deforestation and fires, restore degraded areas, make water available to all (a) and place environmental education in all curricula of at all levels, does not guarantee its short-term effectiveness. All these actions depend on public policies to be implemented, which are dependent on agreements between congressmen and interests that are not always focused on the needs of the community. However, the importance of these themes appearing in official international documents cannot be disregarded, whose responsibilities can be questioned in these forums. Therefore, the inclusion of Environmental Education via a transversal theme in the disciplines, prepares the student for the future, taking into account its main focus, which is sustainability. As stated by Silva et al (2019:151):

The concept of sustainable development presupposes, among other aspects, an integral education, i.e., one that is not restricted to scientific knowledge (of physics, mathematics, chemistry, biology, or languages, etc.) but encompasses the formation of human values. Thus, an education focused on sustainability, when recognizing the needs of future generations, must be concerned with changes in habits and sustainable practices that contribute to awareness and concrete actions in the relationship between human beings and nature in search of balance in the environment (Silva et al., 2019:151).

Therefore, solid teacher training based on the principles and fundamentals of sustainable environmental education, including social relations applied to society, is essential so that the teacher can master the content based on the reality of the students' daily lives, which is meant to be discussed with them.

Without this condition, the question arises: how can HEIs provide interdisciplinary teaching-learning that guarantees the development of the practice of environmental conservation? How to discuss selective garbage collection with students, recycling of waste to form new products and materials, excessive and unnecessary consumption, the advantages of conserving rivers, seas, oceans, the importance of air care, the importance of agroecological production devoid of agrochemicals, the inclusion of poor communities in the productive system for the generation of work and income, and education as a tool to improve the quality of life of vulnerable populations and other issues?

This information contributes to training both professionally and for life as it makes people more humanized and concerned with others.

This reflection raises concern about why so many undergraduate courses offered by UNIVASF present low quantitative averages in relation to the topics studied.

The Biological Sciences, Agronomic Engineering, and Ecology courses reached scale 05, with practices in their curricula of at least 05 actions/events aimed at some SDGs more related to their specificities.

The Civil Engineering, Animal Science, Agricultural and Environmental Engineering, Veterinary Medicine, Geography, Pharmacy, and Natural Sciences courses at the Senhor do Bonfim Campus reached scale 04, prioritizing at least 04 SDGs in the actions/events of the disciplines.

Scale 03, with the execution of up to three actions/events related to the SDGs, was obtained by the Degree in Physical Education, the Bachelor in Physical Education, the Administration Course, Psychology, Computer Science, Chemistry Course, Archeology and Heritage Preservation, Nursing, Electrical Engineering, Mechanical Engineering, Computer Science, Production Engineering at Campus Salgueiro, Visual Arts, Medicine at Campus Petrolina, Medicine at Campus Paulo Afonso, Visual Arts, Computer Engineering, and Natural Sciences at the São Raimundo Nonato Campus.

The gravity of this situation is that the SDGs - Sustainable Development Goals represent a global action plan to eliminate extreme poverty and hunger, provide a lifelong quality education for all, protect the planet, and promote peaceful and inclusive societies until 2030. They represent the continuity of the Millennium Development Goals, including 17 goals and 169 targets to be achieved by 2030, whose approval took place during the United Nations Summit on Sustainable

Development in 2015, as follows:
01. Eradication of poverty in all its forms and places;
02. Zero hunger and sustainable agriculture, with food security and improved nutrition;
03. Health and well-being, ensuring a healthy life and well-being for all, at all ages;
04. Inclusive, equitable and quality education that promotes lifelong learning opportunities for all;
05. Gender equality through the empowerment of all women and girls;
06. Clean water and sanitation for all homes;
07. Clean, accessible, cheap and renewable energy for all; and all;
08. Decent work and sustained, inclusive economic growth and full employment for all:
09. Innovation and resilient infrastructure;
10. Reduction of inequalities within and between countries;
11. Sustainable cities and communities, inclusive, safe and resilient human settlements.
12. Responsible consumption and production;
13. Action against global climate change and its impacts;
14. Life on the water and conservation and sustainable use of oceans, seas, and marine resources for sustainable development;
15. Protect, restore and promote the sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, halt and reverse Earth degradation and halt the loss of biodiversity;
16. Peace, justice and effective institutions for all and at all levels;
17. Strengthen partnerships and means of global implementation for sustainable development.

The SDGs are grouped into four categories:
• Social: related to human, health, education, quality of life and justice needs.
• Environmental: deals with the preservation and conservation of the environment, with actions ranging from reversing deforestation, protecting forests and biodiversity, combating desertification, sustainable use of the oceans and marine resources, to the adoption of effective measures against climate change.
• Economic: addresses the use and depletion of natural resources, waste production, energy consumption, among others.
• Institutional: concerns the capacities to put the SDGs into practice.
In the case of Brazil, the greatest commitment in this convention was with the eradication of extreme poverty, a fact that occurred with the implementation of social projects, such as Fome Zero, Bolsa Família, PRONAF and others. More recently, the country re-integrated the world hunger map, with 12,000,000 Brazilians with an income of less than $2.00/day (IBGE, 2020).

It is worrying that UNIVASF has nine courses that do not work on any SDG, considering that in 2017, at the I Interdisciplinary Congress of Rural Extension, held in Juazeiro - Bahia, , a cooperation agreement was signed between UNIVASF and MEC - Ministry of Education and Culture so that the objectives of sustainable development could become part of the curricula of the courses, thus contributing to fulfilling the goals established at the United Nations Conference for this purpose.

With the same understanding, it appears that objective 4 and goal 4.7 of the SDGs/UN have not been fulfilled in their entirety by all courses.

The following courses reached scale 5, fully fulfilling the requirement of objective 4 and goal 4.7 of the SDGs/UN: Biological Sciences, Agronomic Engineering, Ecology, Archeology and Environmental Preservation, Animal Science, Veterinary Medicine, and Agricultural and Environmental Engineering.
The Natural Sciences Courses at the São Raimundo Nonato Campus, Natural Sciences at the Senhor do Bonfim Campus, and Geography and Civil Engineering reached scale 04.

Scale 03 includes the courses of Electrical Engineering, Mechanical Engineering, Computer Engineering at Campus Salgueiro, Production Engineering at Campus Juazeiro, the Degree in Physical Education, Bachelor in Physical Education, Anthropology, and the Degree in Social Sciences.

The courses of Medicine at Campus Petrolina, Visual Arts, Pharmacy, the Bachelor of Social Sciences, Chemistry, Nursing, Computer Science at the Juazeiro campus, and Medicine at the Paulo Afonso campus are in disagreement with the legal requirements established in the PDI the courses, representing 25.17% of the researched universe.

The considerations to be made about the defaulting courses in this regard is that the PDI - Institutional Development Plan is an instrument that seeks to guide the trajectory chosen by the Institution, presenting its identity and, above all, establishing the guidelines for its development It is, therefore, an important tool for the evaluation process determined by the National Higher Education Evaluation System – SINAES - Law No. 10,861, of April 14, 2004. On page 15 it says that, once approved by the University Council, the highest instance of the institution, the university must institute collective ways of monitoring the execution of the new plan, so that the community is permanently involved in the process of joint construction of the future of the IES since the growing demand for the excellence of the public service and the good management of resources have demanded new skills and abilities from each and every one to carry out public interest and serve the common good.

Therefore, it is necessary to make bureaucracy more flexible and stimulate creativity, innovation, and the participation of society to overcome problems and better serve society. The Federal Public Universities are required to offer quality education, preparing students for the job market and for the scientific and technological development of the country, providing those who are outside this context with useful knowledge to improve their quality of life and work.

UNIVASF's Institutional Development Plan, prepared for ten years, is the document that identifies the HEI with regard to its work philosophy, the mission it proposes, the pedagogical guidelines that guide its actions, its organizational structure and the academic activities that it develops and/or that it intends to develop, hence the obligation of course collegiate to be attentive to its proposals.
In the Strategic Theme - Undergraduate and Postgraduate Education of the PDI, the following text appears in objective 07: "Encourage the implementation of disciplines focused on the principles of environmental sustainability in UNIVASF undergraduate courses, with the following goals:
7.1. Implement, in the next 10 years, in 100% of the Pedagogical Projects of the
UNIVASF Courses, contents aimed at environmental sustainability.
7.2. Implement, in the next 10 years, at least one Thematic Nucleus per Campus,
which addresses the environmental problems of the Semi-arid Region.

Also, to reinforce the importance of environmental education and sustainable development taught in higher education institutions via a transversal theme, it is worth bringing to attention the latest IPCC Report - Intergovernmental Panel on Climate Change, in which about 100 scientists participated and analyzed how the world can meet the 1.5˚C target as well as the impacts associated with rising temperatures.

This initiative was created by the United Nations Environment Program (UN Environment) and the World Meteorological Organization (WMO) in 1988 with the aim of providing policymakers with regular scientific assessments of climate change, its implications and possible future risks, as well as to propose adaptation and mitigation options. Currently, the IPCC has 195 member countries, including Brazil (BRASIL. IPCC, 2021).

Through its assessments, the IPCC determines the status of knowledge on climate change, identifying where there is consensus in the scientific community and in which areas more research is needed. Presented at the body's 54th session, titled "Climate Change 2021: the physical basis science," the paper examines how human-caused emissions are driving fundamental changes in the planetary climate system.

Organized by the WGI, the summary of the report brings as main results:
• Scientists have no doubt that human activities have warmed the planet. Rapid and widespread changes have taken place in the planet's climate and some impacts are now coming to fruition.
• Improved attribution science finds evidence of humanity's impact on the entire climate system. Man-made emissions are now responsible for an altered and less stable planet.
• The planet will warm by at least 1.5°C under all scenarios. On the more ambitious emissions path, we reached 1.5°C in the 2030s, surpassing 1.6°C, with temperatures dropping back to 1.4°C by the end of the century.

• Scientists are clear about the need to combat greenhouse gases other than CO2 in the short term. Emissions of methane – a powerful greenhouse gas – are of particular concern.
• The natural world will be harmed by further warming and therefore terrestrial and ocean ecosystems have a limited capacity to help us solve the climate challenge.
• Decision makers need to implement net zero emission plans if we are to stop warming. Removing carbon dioxide is a crucial tool, but it will only be useful when accompanied by rapid and profound emission reductions.
• Estimates of the remaining carbon budget – a simplified way of assessing how much more CO2 can be released – have improved from previous reports, but the carbon budget remains largely unchanged.

The Paris Agreement sets a target for a temperature increase by the end of the century of no more than 2°C, and preferably not more than 1.5°C, however, the WGI report states that both global warming limits 1.5°C, as well as 2°C will be exceeded during the 21st century, unless CO2, along with other greenhouse gas emissions, are reduced to net zero by or after 2050 (BRAZIL. IPCC, 2021).

At the current juncture, only 54% of emissions are absorbed by natural sinks, leaving the rest to be removed by carbon dioxide removal technologies, so it is vital not to add more emissions for future generations and, from that perspective, it is the paradigm shift in production and consumption that could stop global warming. It is the educational institutions that will have the ideal conditions to instill in the youth the urgency of creating new patterns of behavior towards life, through solidarity, humanity and social responsibility with the community.

If the emission level of greenhouse gases is confirmed to 2º C, the most visible impacts on the planet can be observed: melting in the arctic; sea level rise; extinction of vertebrate animals and insects; plant extinction; change in ecosystems; reduction in agricultural production; decline in fisheries and corals, among others.

II. Methodology

For the study on environmental education from the perspective of sustainable development in the undergraduate courses offered by UNIVASF, the variables of environment, sustainable development, institutional development project, transversal themes, and the UN 2030 agenda were considered. Within the methodological procedure of quantitative– and qualitative research as a data collection technique, we resorted to the analysis of the PPC - Pedagogical Projects of undergraduate courses the six campuses of the institution.

The option for this methodological path was the opportunity to consider not only the system of relationships in which the learners are inserted but also the social representations that constitute the experience of their daily lives and their relationships with society (GAMBOA, S.S. & SANTOS FILHO, 1996:36).

Also based on Minayo (2016:18), the research was concerned with a sociocultural dimension, beliefs, values, opinions, representations, forms of relationship, uses, customs and behaviors as a process to help understand these relationships generated by human beings in the interpretation of reality. In the search for knowledge of the meanings about the environment and the teaching practices experienced in the classroom or outside it, the quantitative-qualitative research was applied to work both the subjective and the objective, the social actors, the facts and their meanings, as well as order or conflicts.

After collecting the documentation, a categorization and analysis of the pedagogical projects of the courses and the teaching plans were carried out to investigate how the disciplines are organized. Subsequently, the programs of the disciplines were analyzed and all the documentation was compared with two other guiding documents aiming to verify whether the undergraduate courses at UNIVASF contemplated article 7 of the PDI - Institutional Development Plan with regard to education environment from the perspective of sustainable development and with objective 4, specifically target 4.7 of the 2030 Agenda of the ODS/UN - United Nations Sustainable Development Goals, which deals with Quality Education.

For the analysis of the PPC and the programs of the disciplines (PD), a careful and detailed reading of the referred documents was initially carried out and, from there, the codification of the units of analysis and the categorizations that were necessary were established, followed by data collected in a specific form created for this purpose. The subjects were organized into categories and, when necessary, subcategories of analysis were proposed, all based on a detailed study of the documents (PPC, PD, PDI and Agenda 2030). A comparison was also made between the curricular matrix present in the PPC with the one extracted from the course page in order to verify whether there were divergences in relation to these documents.

For the analysis of the results, the documents were subjected to content analysis of as suggested by Sá-Silva, Almeida, Guindani (2009:89). In the analysis and discussion of the data, the analytical approach of Ball's Policy Cycle was used as a theoretical-methodological perspective (apud MAINARDES, 2006:35).

The research approached 100% of the existing courses, evaluating the content of the pedagogical project of the same, covering the compulsory and optional subjects, through the menus and bibliography of the subjects, in order to identify the approach of the content recommended by the PDI and by the National Policy of

Environmental Education. In addition to these, supplementary materials, content from websites and digital media, and publications that deal with the subject were also consulted, in the printed and/or electronic media of UNIVASF.

The collected data were analyzed with the help of the SAS software (Statistical Analysis System), where the variables were placed in the columns and the observations in the rows. Softwear SAS is a generalized modeling technique used to test the validity of theoretical models that define causal, hypothetical relationships between variables. These relationships are represented by parameters that indicate the magnitude of the effect that the so-called independent variables have on other so-called dependent variables, related to patterns of associations between the variables in the model. Built-in customizable tables and graphs guarantee clear and consistent statistical results so that the analysis results are easy to understand, and their reliability is attested by the Chi-Squared test.

III. Some Considerations

The discussion on the environmental crisis has gained relevance and a new dimension with the realization of climate change that threatens life on the planet, specifically in the IPCC Report - Intergovernmental Panel on Climate Change, which presents global warming as the greatest existential threat to humanity.

In view of this, a paradigm shift is necessary, through which the holistic world view can be built from environmental education, as an instrument capable of sensitizing society, articulating education with citizenship, taking the latter as an indefinitely perfectible space in which humanity can become an authentically human community, considering that the aggravation of environmental problems has brought as consequences ecological disasters of a severity never identified in the recent history of humanity, revealing the perversity of the hegemonic capitalist system, which in the search for profit at any price, degrades the natural resources in an intense way, acting based on the inappropriate appropriation and exploitation of nature, creating consumption needs propagated by the media as human satisfaction, excluding the vulnerable, and generating an unprecedented crisis of civilization between rich and poor nations and between the populations of the countries themselves.

Given this reality, Environmental Education gains relevance as an effective mechanism to change this situation, implementing studies and continuing education programs for teachers, most of whom working today as educators did not have the opportunity, as students, to discuss environmental issues and sustainable development in their courses. Therefore, training trainers to face the challenges required for the transformation of conceptions, values, consumption patterns and well-being in the society-nature relationship is something at first too complex but a cause to be taken over by the academy based on the understanding that it is possible to re-signify the curriculum of educational institutions, reorganizing its often technicist matrix for a proposal for a multicultural curriculum, directing pedagogical practices to overcome decontextualization, inequities, social injustices and inequalities, which are related to environmental problems.

With this, teaching professionals will be able to launch themselves into the debate and build a new concept of education where pedagogical practices go beyond teaching and learning, fostering liberating actions capable of making subjects political agents who think, act, and use the word and the knowledge acquired as a way to transform the world.

In this new model, other possibilities can be created, keeping in mind that when implementing technological networks, HEIs also take on the challenge of building collaborative networks, decentralized cooperation that can interact with other networks of units in order to better take advantage of the existing potential in the understanding that, for the subject to produce knowledge the environment, whether face-to-face or virtual, should enable the construction of knowledge and not the reproduction of information produced by others (NASCIMENTO et al, 2019:21) .

The results obtained in this study point, albeit indirectly, to the need for UNIVASF to invest in teacher pedagogical training since most teachers/researchers, given their technical training, demonstrate little familiarity with pedagogical issues, not transversalizing the contents of their subjects, and other information that can contribute to the integral formation of the student, a presupposition verified in relation to environmental education as more than 20% of them do not even mention this theme as the content of their practices.

From the history of UNIVASF professors, as of course that of other universities, especially those whose training followed Cartesian, disciplinary criteria, this scenario directly influences their pedagogical practice, which is worrying given that they are interdisciplinary actions in higher education that allow implementing contextualized education, teaching the student to learn, respect others and nature, being ethical, and to practicing citizenship while preparing them for sustainable development, which in the view of Silva et al. (2019:14) implies changing their daily lives, e.g., controlling the waste of water, energy, consumption, and aggression of nature with a view to a new procedure.

It is worth remembering that environmental education is an instrument for preventing degradation and recovering degraded areas which, due to its commitment to sustainable human development, generates harmony between man, the environment, and global development. According to this logic, it is evident from the research carried out that environmental education at UNIVASF is necessary for everyone, teachers, students, and technicians, so that effective solutions can be proposed and carried out for the sustainability of their actions. Not just any proposal for environmental education but a critical and reflective environmental education that can lead the academy and especially students to citizen actions.

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