Capítulo 75

Climate change in the extension curricularization in Higher Education Institutions (HEIs)

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ABSTRACT
Climate change has increasingly worried the world. Official reports (IPCC, 2022) [1] show that the climate crisis becomes more serious with each season. Natural and/or anthropic phenomena provide destruction, catastrophes and irreversible damage to nature and humans. Faced with this reality, because he understands the socio-environmental commitment of heI, and with the regulation of Resolution No. 7 of December 18, 2018, which establishes the Guidelines for Extension in Brazilian Higher Education, the study aims to highlight and analyze the theme of climate change in the curricularization of the extension and elucidate the responsibility of HEIs during a possible global climate chaos. The Research is bibliographic and documentary type. (FILHO,2022); (GOMES, 2020); (IMPERATORE; PEDDE, 2016); (REIS,2017); (GOMES; BRASILEIRO; CAEIRO, 2020); (MERENGO; SOUZA, 2021); (CLIMATE-U, 2020) among others, bibliographically support this research, and the current legislation that deals with the theme. From this perspective, it is expected to contribute to the initial training of future professionals committed to climate issues.

Keywords: Higher Education, Climate Change, Extension Curriculum.

1 INTRODUCTION

The whole world has been on high alert regarding climate change. Environmental phenomena, whether natural or anthropogenic, show urgency and the need for necessary measures for the survival of planet earth.

> One of the characteristics that suggests the complexity of the phenomenon of climate change can be identified in the interaction that takes place between the different natural phenomena that are responsible for causing changes in the climate. These phenomena interact constantly, which characterizes climate change for its non-linearity, instability, irreversibility. At the same time, this complexity is also present in the relationship that human beings establish with the environment, which is not established in a linear way and is influenced by different aspects: economic, political, social, and scientific. (REIS; SILVA, 2017, p.2)

Likewise, the International Project Climate-U: transforming universities for a changing climate, based on official data, points out that "[...] to avoid devastating impacts, the world needs urgent actions in the coming decades, with changes radicals by 2050." (IPCC, 2018 apud CLIMATE-U, c2020).

During this complex reality of transformations, insecurities and environmental collapse are higher education institutions, responsible for training reflective, critical, and active subjects with regard to

environmental issues, and occasionally climate change. These, which are based on interdisciplinarity and committed to the educational process of these individuals, will be HEIs that will implement and develop innovative proposals, engaged with education for sustainability and social vulnerability, arising from climate change.

In this perspective, this study aims to highlight and analyze the theme of climate change in the integration of university extension, and to elucidate the responsibility of higher education institutions, during a possible global climate chaos. Thus, " [...] the university of the new millennium must organize itself for the formation of a critical professional and his awareness of the environmental reality" (STANQUEVISKI, 2019 apud GOMES; BRASILEIRO; CAEIRO, 2020, p. 77016). It is a bibliographical and documentary research, anchored in scholars and theorists who discuss the theme.

In this sense, to ratify the commitment of HEIs, and the involvement of academics with the issues explained above, the National Council of Education - CNE instituted Resolution No. 7, of December 18, 2018, which establishes the Guidelines for the Extension in Brazilian Higher Education defining principles, foundations and procedures for the integration of extension to the curricular components of higher education and postgraduate courses (BRASIL, 2018). Therefore,

> Art. 2nd The Guidelines for Extension in Brazilian Higher Education regulate the academic extension activities of undergraduate courses, in the form of curricular components for the courses, considering them in their aspects that are linked to the training of students, as provided for in the Development Plans Institutional Projects (PDIs), and in the Institutional Political Projects (PPIs) of the educational entities, according to the egress profile, established in the Pedagogical Projects of the Courses (PPCs) and in the other normative documents. (BRASIL, 2018, p.1)

That being said, it is also clear that.

> [...] another important point, to bring more contemporary aspects, is the approximation of the Extension to the 2030 Agenda. The 2030 Agenda envisages guidelines relevant to the world population, which must be accepted by countries and their institutions. The Sustainable Development Goals – SDGs, when activated through Extension, can help universities in promoting sustainable development and optimizing the projects carried out by the institutions, adopting their propositions to guide actions. (FILHO, 2022, p. 75-76)

However, “[...] it is not enough just to contain the commitment to the environmental issue in the documents; it is also necessary to mobilize human, material and organizational resources for its implementation in higher education institutions” (GOMES; BRASILEIRO; CAEIRO, 2020, p. 77018).

Thus, in agreement with the authors, it can be said that university extension is a place of exchange, where the protagonist should be of students and society. It needs to be based on formative foundations, with an educational and revolutionary process, and developed in a critical, dialogic, interdisciplinary, and transforming way. University extension, or extension curriculum, should develop, enhance, and execute projects, actions and activities with socio-environmental impacts at the heart of academic training.

Thus, the following topics on climate change address the urgency of attention to the global climate crisis, a brief historical description of the extension curriculum, climate change in the payment of extension and the socio-environmental responsibility of the higher education institution.

2 CLIMATE CHANGE, PAYMENT OF THE EXTENSION AND SOCIO-ENVIRONMENTAL RESPONSIBILITY OF THE HEI: CHALLENGES IN CURRENT TIMES

The severity of climate changes that affect the entire planet deserves attention from higher education institutions, since this is an organization tasked with providing students with critical reflections and sustainable practices in relation to socio-environmental issues.

With the integralization of the extension, or curricularization of the extension, the HEIs will be able to contribute in the integral formation of the academics, and will give greater visibility to the socio-environmental dimension of the teaching. Therefore, these institutions will promote initiatives in different areas, bringing the theme of the environment, and formulating proposals based on critical environmental education in extension activities (BRASIL, 2018), as well as placing climate change in the cross-sectional axis of the course curricula. and environmental justice.

2.1 CLIMATE CHANGE: THE SPEED OF ATTENTION TO THE POSSIBILITY OF GLOBAL CHAOS

Issues related to climate change have been an undoubted priority in global discussions. The world on alert is increasingly seeking to understand its effects, causes and consequences, as "[...] climate change involves fundamental issues for human existence at all levels – physical, biological, ecological, social and political. [...] it is a task that also involves responses at various levels – personal, local, national, regional and global (TILIO NETO, 2010, p. 55).

Climate changes - of natural or anthropic origin - cause concern with the desolations on planet earth, since,

> [...] climate change is already happening and is already producing impacts, and the greater the warming, the greater the future impacts and risks that humanity will face, including the possibility of irreversible damage to ecosystems, biodiversity, agricultural production and the economy and society in general. (MARENGO; SOUZA JR, 2018, p.2)
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> That said, it is important to clarify the difference between the concepts of greenhouse effect, global warming, and climate change. The said study refers to.
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> [...] the increase in the concentration of certain gases in the atmosphere – the so-called greenhouse gases (GHGs). High concentrations of GHGs cause the global temperature to rise, but they can also have other complex effects, depending on the gases involved. Global warming means the increase in the Earth's average temperature. Some of its possible causes are the greenhouse effect and increased solar activity. Global warming can generate epidemics of tropical diseases, affect rainfall patterns and the balance between the seasons. Among other impacts, it can affect the Earth's climate itself. Climate change is precisely changes in the Earth's climate system, which may result from global warming, changes in ocean circulation or other factors. Each of these three elements (greenhouse effect, global warming, and climate change) can have different causes, and can also have different consequences (TILIO NETO, 2010, p. 37-38).

As explained by the author, the three elements can directly influence or affect the Earth's climate, as,

> [...] anthropic action can affect the climate within the normal limits of natural climate change. In this case, anthropic effects can reinforce or soften natural tendencies, being in any case overshadowed by them. But human action can also generate effects on the climate that transcend these natural alterations. Man can be an important cause of significant, unnatural and abnormal climate changes (idem, p. 41).

Tilio Neto (2010) argues that the human being has a direct participation in factors that make changes in the climate possible when citing the Intergovernmental Panel on Climate Change - IPPC of the UN (2007). According to the study,

> Climate change is abnormal weather changes, both natural and anthropogenic. It is worth noting that the most relevant climate changes in recent debates are anthropogenic. This is because most of the global warming observed in the last fifty years, and predicted for the next centuries, is due to the increase in anthropogenic GHGs, that is, caused by man (IPCC, 2007a, p.10 apud TILIO NETO, 2010 p. 43)

Likewise Marengo and Souza Jr. (2018) highlight the human influence on these changes and assert that:

> Human action is profoundly altering several aspects of the fundamental functioning of our planet, including radiation and carbon balance, water availability, biodiversity, and the transport of moisture to other regions of the continent, as well as the composition of the atmosphere. Understanding the complex terrestrial climate system in all its components, including the socioeconomic one, is a huge scientific challenge for the country. (MARENGO; SOUZA JR., 2018, p.28)

It is important to highlight that climate changes caused by intense human action have occurred in a shorter period. This means that the most diverse consequences such as droughts, extreme rainfall, earthquakes, rising sea levels, melting glaciers, species extinction and forest fires are some of the phenomena that humanity has followed with greater speed in recent decades.

According to Marengo and Souza (2018, p.2) "[...] the human influence on warming is clear and, in fact, it is "highly likely" that human actions, such as fossil fuel burning and deforestation, are the main cause of global warming". They also point out that "[...]reducing the deforestation of tropical forests is an urgent issue in the environmental agendas, especially with regard to their important role in regulating the global climate and their impact on cultural and biological diversity (idem, p. .5)".

Still on forests, Anjos (2017) emphasizes that they are more susceptible to lack of water, more vulnerable to climate change than other terrestrial ecosystems, such as savannahs or open fields, and therefore a tragic scenario is expected for the continent's forests, particularly for the Amazon.

Being the largest tropical forest on the planet, the Amazon has in its biome one out of every four species on earth. The scholar also states that "[...] the conversion of the forest to other uses, in addition to

promoting the loss of a still immeasurable amount of biodiversity, compromises the supply of a vast variety of ecosystem goods and services that are indispensable to society. ” (ANJOS, 2017, p.119).

Continuing the revelations and findings of Anjos (2017), in his doctoral thesis, carried out in the Postgraduate Program in Environmental Sciences of the Institute of Geosciences of the Federal University of Pará, therefore, in the Pará Amazon, the researcher highlights that:

> When the exponential model parameters were compared between ecosystems, the forest had the lowest resistance to climate stress, which indicates a greater intrinsic sensitivity to changes in climate. Studies corroborate this result, indicating that forests are more sensitive to climate variability. Studies corroborate this result, indicating that forests are more sensitive to climate variability [...] mainly as a function of the moisture availability axis [...]. This result reveals the fragility of these ecosystems to climate change, since vulnerability is positively correlated with sensitivity [...]. The forest steady state response curve also points out that a small increment under the climatic stress gradient would be enough for this fact to trigger transformations of great magnitude and on a large scale, if a rupture threshold is reached [...]. This factor can be critical in the short term and with levels of accelerated transformations like the current ones, so it is particularly critical to identify thresholds of rapid forest decline because it can take a few decades for forests to restore the services they provide. (ANJOS, 2017, p. 39-40)

Therefore, such considerations show the need for care that should be taken with forests as a result of climate change, as they may even determine their existence. The author also points out that such transformations are happening at an accelerated pace, and highlights the probability of taking decades to recover the function of forests in the ecosystem.

Another relevant aspect to be emphasized, and which needs global attention, is related to the impacts of climate change on health. Brazil, for example, due to its geographic characteristics, large population, the size of its territory, structural and social problems, infectious and epidemic diseases such as dengue, cholera, leptospirosis, malaria, respiratory and circulatory diseases, among others, it may become an increasingly vulnerable country to the effects of weather events, which will increase the number of deaths. (SOUZA, 2011).

Given this panorama, it appears that there is a need for speed in establishing urgent measures with individual and collective efforts in relation to the climate crisis on the planet. In this way, we have the possibility of avoiding global chaos by 2050.

2.2 FROM THE TEACHING, RESEARCH AND EXTENSION TRIPOD TO THE EXTENSION CURRICULARIZATION: BRIEF HISTORICITY

Teaching, research and extension are inseparable pillars that provide the mandatory participation of the higher education institution in society, as established by the Brazilian Federal Constitution (BRASIL, 1988).

As part of this legal construction, Resolution n. 7, of December 18, 2018, which “Establishes the Guidelines for Extension in Brazilian Higher Education and regulates the provisions of goal 12.7 of Law

No. ,p.1)., HEIs will have until December 2022 to integrate at least 10% (ten percent) of extension activities into the total curricular workload of undergraduate courses.

By understanding the social relevance of the institution of higher education, the regulatory framework has historically been built for carrying out extension acts, such as the curricularization of extension, based on determinations that direct and enable the HEI to practice university extension, as illustrated in the table 1, below:

Table 1 - Chronology and determinations of Brazilian legislation on university extension

Brazilian legislation	Determinations
Constitution of the Federative Republic of Brazil of 1988 Enacted on October 5, 1988	Universities will obey the principle of inseparability of teaching, research and extension
Law of Guidelines and Bases of National Education of 1996 Law No. 9,394, of December 20, 1996	HEIs should provide specific services to the community; promote extension, with the participation of the population
National Education Plan - PNE (2001-2010) Law No. 10,172, of January 9, 2001	Public and private HEIs must create quality extension programs and projects
National Education Plan - PNE (2014 - 2024) Law No. 13,005, of June 25, 2014	Determines that undergraduate courses must pay at least ten percent of the total curriculum credits, with the execution of university extension programs and projects in areas of social relevance
Guidelines for Extension in Brazilian Higher Education CNE/CES Resolution No. 7, of December 18, 2018	Regulates academic extension activities, in the curricular components of undergraduate courses. Defines the principles, foundations, and procedures of the IES extension processes

Source: Elaborated by the author (2023), based on documents from the Ministry of Education (MEC).

Since the creation of the Guidelines for Extension in Brazilian Higher Education (2018), HEIs have gone through a process of discussion and curricular restructuring that favors contact between the academy and social reality, and the reciprocal also occurs between university and community knowledge. About this, Nogueira (2005) apud (IMPERATORE; PEDDE, 2016, p.5) reports that

> [...] the first Extension Policy dates from 1975, centralizes the competence of the MEC in proposing extension guidelines for universities, based on the University Extension Work Plan. The aforementioned plan constituted a milestone, presenting the following innovations: a) change/expansion of the public served by the extensionist action: organizations, other institutions and populations in general (detaching itself from the clientele historically served); b) establishment of the teaching-research-extension relationship; c) establishment of a dialogic university-society relationship through exchanges between academic knowledge and popular knowledge (as opposed to the authoritarianism seen until then); d) expansion of the list of Extension activities: courses, services, cultural diffusion, communication of research results, community action projects; teacher and student participation in the development of extension activities.

The authors continue to show the extensionist historicity and guarantee that

> [...] from the 1980s onwards, however, discussions on extension action, proposal of guidelines and interlocution with the MEC, are led by the National Forum of Pro-Rectors of Extension of Public Universities - FORPROEX, based on the social function of the university from the conciliation of academic and communitarian objectives; in the inseparability of teaching, research and extension; in the interdisciplinary nature of the extension action, in the need for institutionalization of Extension in universities and in the MEC itself; in the recognition of popular knowledge and the appreciation of the university-society exchange of knowledge; in the need for state funding of extension action (idem, p.6).

It should be noted that the authors highlight the interdisciplinary character of the extensionist action, dealt with by FORPROEX, and the impact that interprofessional training can contribute to social issues, provided there is a "[...] curriculum design based on academic activities of research-extension teaching (in addition to juxtaposed contents/disciplines), which enable differentiated and articulated training trajectories" (IMPERATORE; PEDDE, 2016, p.8).

This statement corroborates Art. 7 and Art. 8 of the Guidelines for Extension in Brazilian Higher Education (BRASIL, 2018, p.2), as they decree that:

> Art. 7 - Interventions that directly involve communities outside higher education institutions and that are linked to student training, under the terms of this Resolution, and in accordance with specific institutional rules, are considered extension activities.
> Art. 8 - The extension activities, according to their characterization in the pedagogical political projects of the courses, are inserted in the following modalities:
> I - programs;
> II - projects;
> III - courses and workshops;
> IV - events;
> V - provision of services.

Following such guidelines, the higher education institution will be able to build and develop extensionist actions in different modalities, and with that, provide ways for academics to promote concrete changes in society, in addition to leaving their social commitment recorded in history; and enhance human training during the academic trajectory, as such actions meet the real needs and demands of the communities, and this stimulates and sensitizes the individual who develops the culture of the common good.

In the following topic, we seek to discuss, specifically, the role of university extension in facing the climate crisis, with the purpose of contributing to the integral formation of the student through critical reflection and conscious action, radiated by the educational institution. superior and carried out with external communities.

2.3 CLIMATE CHANGE IN THE INTEGRATION OF UNIVERSITY EXTENSION

The 2030 Agenda (UN, 2015) is a global call that brings together 17 objectives, called Sustainable Development Goals (SDGs), and 169 goals that aim to promote actions that guarantee the life of the planet, of present and future generations. Among its objectives, objective 13 stands out, which highlights action against global climate change. In view of this, the higher education institution, an educational entity present in society, has a crucial role in dealing with environmental issues such as tackling climate change.

According to Gomes (2020, p. 25), "[...] the University institution assumes a strategic role in thinking and producing knowledge in order to achieve a balance in this relationship, thus contributing to fostering commitments to sustainability" . According to him,

> [...] by bringing up the function and role of the university, it is highlighted that the basis of a course, a curriculum and training is not a list of disciplines and syllabi, but the opposite. It is the work of reading, systematic study, teaching, understanding and learning, questioning about the meaning and origin of the world, human beings and their actions, society, knowledge, education, school, and the university itself. As a training institution, the university must prioritize the pursuit of knowledge, questioning the physical and social world in its various aspects. (GOMES, 2020, p.65)

As a strengthening of the author's positions, it is pointed out that the payment of the university extension determined by Resolution nº 7, of December 18, 2018, opens ways for the educational institutions to elaborate their Political Projects of Courses -PPCs, with the articulation guided in the interdisciplinarity in extension activities, teaching and research. These activities in which academics should participate through planning, guidance and institutional deliberation (BRASIL, 2018). Therefore, they will be able to study themes related to the climate, and expand the debate with external communities, which need to know and discuss about the theme.

Considering the above, it is essential that the climate crisis, which causes concern to the scientific community, and the civil community, be included in the payment of university extension, since the agents involved can raise questions and seek solutions in the face of a scenario of serious changes of climate, caused not only naturally, but as a result of human intervention.

In short, it is emphasized that

> Climate change is among the main environmental indicators that link the influence of human activities with changes observed in the Earth system. Observational data indicate in recent decades an increase in annual temperatures that are related to the interaction of natural climate regimes and greenhouse gases linked to anthropogenic processes. It is important to point out that these standards already reach a planetary dimension. Factors such as the high rates of expansion of urban areas, the constant increase in air pollution, the contamination of aquifers, the production of garbage and toxic waste, are the results of an accelerated population growth that began in the mid-1950s of the last century. , after the Second World War. As a result of this dynamic of changing the environment, the process of converting natural areas into anthropized landscapes, aimed mainly at agropastoral activities, is currently the environmental force with the greatest impact. As a direct result of this fact, the pressure arising from the disruption of ecosystems affects, at different levels and with different intensities, natural processes, both ecological and evolutionary, which culminate in the threat to global biodiversity. (ANJOS, 2017, p. 118)

Given this, there is the emergence of intervention by higher education institutions, especially universities, with extension actions that disseminate care for the environment, as its destruction directly influences climate change. About this, Anjos (2017, p.9) states that:

> [...] the climate changes induced by anthropic activities are now a reality [...] and the transformations, carried out at accelerated rates, have put at risk the global biodiversity and all the services provided by it [...]. In this sense, it is fundamental for us human beings to respond quickly, accurately, adequately and up to the challenge, in the sense of understanding, predicting and seeking to control the effects of such transformations that are coming.

For this reason, and as mentioned earlier, the importance of paying in university extension is reinforced. However, the implementation of extension curricularization "[...]challenges Brazilian higher education institutions to rethink their extension concepts and practices, [...] exceptionally aligned with society's demands and curricular dynamics (IMPERATORE; PEDDE, 2016, p.1).

Deus (2021) emphasizes that in the implementation and consolidation of the extension curriculum, there must be clarity in the relationship that will be established between the higher education institution and society, with the intention of avoiding conflicts between institutions and their territories. "It is necessary to be clear that the extension strengthens the action of the university in society and, associated with research, offers support to tackle the big problems [...] aiming at the full exercise of citizenship and integral training of students (DEUS, 2021, p. 21).

The author also endorses that extension activities should be included in the curricula as pedagogical innovations, and not just to comply with what the current legislation establishes, because otherwise, disorganization and frustration may occur, and the proposed actions may not be achieved. She also states that, through strong extension links with society, the HEI will achieve the fulfillment of the Sustainable Development Goals (SDGs) of the 2030 Agenda (UN, 2015), and highlights:

> [...] it is important to consider that, in university extension, the deepening of practices, exchange methodologies, forms of communication, systematization of experiences, joint planning, feedback and evaluation of activities are in permanent debate and improvement, this is "doing" to the extent that it can put undergraduate teaching and research in crisis or innovate (DEUS. 2021, p.40).

Therefore, a transformative university extension will make academics, future professionals, place themselves critically in the face of social realities and cause significant changes in favor of environmental justice. On this topic, Verdan (2016) apud (TORRES et al, 2021, p. 162) "[...] addresses the concept of environmental justice, as well as that of environmental injustice, based on the debate on economic development and the from human rights." Based on this statement, the authors ensure that:

> [..] the recognition of climate injustices in the Brazilian territory, as well as the fragility of the most needy populations from the perspective of human rights and fraternity, needs to happen both by the large polluting economic enterprises and by the public power and social movements. (TORRES et al, 2021, p. 163)

This legitimizes the role of the HEI in enabling undergraduate students to access and obtain new knowledge in dialogic interaction with the community (BRASIL, 2018), and the fulfillment of its socio-environmental responsibility as a training institution, as shown in the following topic.

2.4 THE SOCIO-ENVIRONMENTAL RESPONSIBILITY OF THE HIGHER EDUCATION INSTITUTION

This topic begins with the following reflection: in the HEI, which area should deal with environmental issues? It is argued that all academic areas need to be committed to addressing issues related to the environment in their curricula. Coelho (2016) apud (GOMES, 2020, p. 66) warns that "[...] university education cannot simply satisfy the needs and requirements of the labor market."

On climate change, the Climate-U Project ensures that [...] higher education has a crucial role to play in responding to the climate crisis, not only through conducting research, but also through teaching, community involvement and public awareness." (CLIMATE-U, c2020)

Thus, one can question whether the role of the university is focused on training or on critical and participatory education. Therefore, "[...] one way to resolve the issue [...] is to exercise common sense. Therefore, to transform thinking and form citizens capable of facing current problems, it is necessary to reform teaching in universities" (GARBIN et al, 2015, p. 119).

The authors further assert that

> [...] preservation of the environment, ethics and responsibility, will be able to guarantee a better quality of life in the present and a healthier future for the next generations. Transforming this reality presupposes integrated work among all segments of society, with a view to implementing ongoing environmental education programs (idem, p. 121).

This statement emphasizes the need to implement interdisciplinary extension programs, projects, activities and actions that involve academics and the external community. In this sense, from Resolution No. 7, of December 18, 2018, regarding the design, guidelines and principles, it is highlighted that:

> Art. 3rd The Extension in Brazilian Higher Education is the activity that integrates the curricular matrix and the organization of research, constituting an interdisciplinary process, political, educational, cultural, scientific, technological, which promotes the transforming interaction between higher education institutions and other sectors of society, through the production and application of knowledge, in permanent articulation with teaching and research.
> Art. 4th Extension activities must compose, at least, 10% (ten percent) of the total student curricular workload of undergraduate courses, which must be part of the curricular matrix of the courses;
> Art. 5th They structure the conception and practice of the Extension Guidelines in Higher Education:
> I - the dialogical interaction of the academic community with society through the exchange of knowledge, participation and contact with contemporary complex issues present in the social context (BRASIL, 2018, p.1-2).

Based on these statements, it can be seen that the socio-environmental role of the HEI in the education of students can and should be made explicit in the curricular matrix of the courses, in order to promote a transforming interaction, both inside and outside the institution's walls. This dialogic interaction with the community will allow for the raising of issues, such as the global climate crisis, which could have a direct impact on the struggle for the life of the planet institutional in academics are sensitized and aware of the importance of being active subjects in society, co-responsible with future generations.

In this circumstance, some challenges of university extension aligned with social and academic demands and curriculum restructuring are highlighted:

> - Demolition of the walls, the isolation of education and the university; intermediation with reality, the articulation between theory and practice, respect and appreciation for the diversity of subjects and practices;
> - Interdisciplinary perspective – integration of knowledge (rejection of exclusionary scientism) and the deposition of distance between disciplines, combining the ethical, the aesthetic, the religious, the political, the economic and the social;
> - Redefinition of the university and, consequently, of course projects, based on epistemological-pedagogical criteria and not merely instrumental political-administrative definitions;
> - Curriculum design based on academic teaching-research-extension activities (in addition to juxtaposed contents/disciplines), which enable differentiated and articulated training paths, segmented into "hard"/specific core, general/complementary training core and programs and Extension projects;
> - The appreciation of governance nuclei at the university, with emphasis on course collegiate bodies and structuring teaching nuclei – NDEs. (IMPERATORE; PEDDE, 2016, p. 8)

Based on the previous citation, the following highlights are made: the "demolition of the walls" is necessary. The higher education institution cannot be isolated, indifferent to environmental issues such as the climate. When knowing the reality, the institution will need to respect the subjects who are inserted in its context. Based on an interdisciplinary conception that contributes to the integral formation of the subjects, without moving away from the curricular components. With this, the HEI will have to review its curricular base, not only with a technical vision, but an ethical one, and, therefore, more humane and socially committed. And finally, the importance of collegiate bodies and structuring teaching centers - NDEs in conducting this entire process is highlighted. Once this is achieved, the institution will have fulfilled its socio-environmental responsibility, among others.

Furthermore, Imperatore, Pedde and Ribeiro Imperatore (2015, p.7) show that "[...] the 2014-2024 PNE proposal and the commitment to promote the integration of extension into the curriculum without corrupting its epistemological sense, its critical essence -subversive and its interdisciplinary logic" are basic issues that serve to guarantee innovative and effective actions, programs and extension projects in undergraduate courses.

It is then seen that university extension, in an interdisciplinary way, ensures and favors that the higher education institution participates in the challenging situations that exist in society, such as climate change and its consequences. For this, it is necessary to overcome the HEI's unpreparedness in dialoguing with society, the fragmentation of knowledge on the subject, the concepts and determinations established in institutional documents, as well as knowledge confined to the classroom, methodologies used in a confusing way, and / or disjointed, compartmentalization of the curriculum, gaps in teacher training, commodification of education, corporate management of extension and insufficient funding (IMPERATORE, PEDDE AND RIBEIRO IMPERATORE, 2015).

All these and other factors have made it impossible for the higher education institution to exercise citizen, critical, and participatory training in relation to complex issues such as climate change. On the other

hand, the promotion of socio-environmental extension initiatives by HEIs that dialogue with society has a direct impact on the training of students, who will be future professionals committed to climate issues in their areas of activity.

3 FINAL CONSIDERATIONS (STILL INITIAL), INCLUDING ON THE AMAZON

By making historical, theoretical, and documental approximations with the climate change theme in the extension curriculum, it was verified the relevance and emergence of dealing with the subject in the curricula of undergraduate courses, so that academics from different areas, know and participate effectively in the implementation process of the integralization of the university extension in the HEI where they are inserted.

However, it is challenging to elaborate and execute a proposal for the initial formation of students, which will make possible what the legislation advocates, and the emancipatory writings conceived throughout the educational history in Brazil in relation to the democratization of higher education, and the participation of the academy in the society, through extension actions.

But, with this innovation in dealing with climate-related themes, in the extensionist integralization, in the curricula of bachelor's, technological and teaching courses, not only will academics benefit from knowing and intervening in the reality of different communities/territories, but also, the very institution of higher education, which will discuss university extension, and will give a new meaning to doing extension work.

Based on these considerations, the reflection on the reality of higher education institutions located in the Brazilian Amazon is highlighted, in this study, in the Pará Amazon. It is known that the regions have specific characteristics, which must be observed and respected by the subjects involved. For this reason, the HEIs from Pará have the responsibility to assure the Amazonian communities, through scientific knowledge, feedback and resolution of the different problems raised, among them, socio-environmental problems such as climate change that directly impact the lives of the people of the Amazon.

Amazon which, according to (GOMES, 2020) is known worldwide for its beauties and riches. It contains the greatest biological biodiversity on the planet. Its biodiversity always reveals the grandeur of this region. It has 1/5 of the planet's fresh water. The Amazon rainforest has about 4,000 forest species. Also, it is revered for its sociocultural diversity. In the Amazon there are indigenous peoples and traditional populations such as quilombolas, riverside dwellers and settlers, as well as immigrants from other regions of the country and other parts of the world.

However, the researcher's concern was not only with the “socio-environmental issue, biodiversity, not only that, but its peoples, its people, its history, its culture, [because all of this, emphasis added] makes the Brazilian Amazon, a unique region.” (GOMES, 2019, p.232). On the other hand, the region does face environmental challenges such as the climate crisis, in addition to economic, political, geographic, social and educational challenges.

In view of this exhibition, we can reflect on the Amazon as a “big classroom”, where students learn about changes in the climate, and enable solutions to issues raised with the community. With this, transforming training will give new meanings to the future work of professionals, as they will be aware of their rights and duties in favor of the climate through interdisciplinary socio-environmental practices.

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