

Teacher training oriented towards Sustainable Development Goals: An analysis of Postgraduate Programs in Administration in Brazil

Formação docente orientada aos Objetivos de Desenvolvimento Sustentável: Uma análise dos Programas de Pós-Graduação em Administração no Brasil

Rebecca Thaffenne Santos Oliveira Nunes
Jaluza Maria Lima Silva Borsatto
Aracy Alves Araújo
Ananda Silva Singh

ABSTRACT

This study analyzed the challenges faced in training professionals who are aware of the Sustainable Development Goals (SDGs) in light of the 2030 Agenda, from the perspective of representative authorities in Graduate Programs in Administration in Brazil. Using a qualitative exploratory approach, the study included Higher Education Institutions (HEIs) offering stricto sensu master's and doctoral programs as a criterion for inclusion in this research. Through an online questionnaire sent in 2023, the data were processed using the Atlas.ti software, which aided in the data analysis for this study. The results showed that the main challenges highlighted by the HEIs were the incorporation of the SDGs into their Graduate Programs through courses and activities; faculty resistance; a general lack of understanding of the 2030 Agenda; and the disconnect with students' research topics. This research also compared the findings with the study by Acevedo-Duque et al. (2023), which investigated the challenges of sustainable education in Graduate Programs in Latin American and European countries.

Keywords: HEIs; 2030 Agenda; Graduate Programs; Administration.

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Rebecca Thaffenne Santos Oliveira Nunes 
rebecca.thaffenne@ufu.br
Master's
Universidade Federal de Uberlândia – FAGEN/UFU
Uberlândia / MG – Brazil

Jaluza Maria Lima Silva Borsatto 
jaluza.silva@ufu.br
Ph.D
Universidade Federal de Uberlândia – FAGEN/UFU
Uberlândia / MG – Brazil

Aracy Alves Araújo 
aracy@ufu.br
Ph.D
Universidade Federal de Uberlândia – FAGEN/UFU
Uberlândia / MG – Brazil

Ananda Silva Singh 
ananda.singh@ufu.br
Ph.D
Federal University of Paraná (UFPR)
Uberlândia / MG – Brazil

RESUMO

Este estudo analisou os desafios enfrentados na formação de profissionais conscientes aos Objetivos do Desenvolvimento Sustentável (ODS), à luz da Agenda 2030 na visão das autoridades representativas nos Programas de Pós-Graduação em Administração no Brasil. Usando uma abordagem qualitativa de caráter exploratório, o estudo abrangeu Instituições de Ensino Superior (IES) *stricto sensu* com cursos de mestrado e doutorado como fator de inclusão para esta pesquisa. Por meio de um questionário online enviado no ano de 2023, os dados foram processados por meio do software Atlas.ti que auxiliou no desenvolvimento do tratamento dos dados para este estudo. Os resultados demonstraram que os principais desafios ressaltados pelas IES foram a inserção dos ODS em seus Programas de Pós-Graduação por meio das disciplinas e atividades; a resistência docente; a própria falta de compreensão sobre a Agenda 2030 e, o distanciamento com os temas de pesquisas dos estudantes. Esta pesquisa também comparou os resultados encontrados, com o estudo dos autores Acevedo-Duque et al. (2023), que investigaram os desafios de uma educação sustentável nos Programas de Pós-graduação nos países da América Latina e na Europa.

Palavras-chave: IES; Agenda 2030; Programas de Pós-Graduação; Administração.

Introduction

Higher Education Institutions (HEIs) are organizations that generate knowledge for society through teaching, research and extension activities, working in the most diverse areas of knowledge and developing initiatives to improve the individuals' life quality. As part of this triad, HEIs aim to educate qualified professionals for the job market and prepare them to transform the community through innovative and sustainable activities (Savegnago et al., 2022).

In this context, the 2030 Agenda, prepared by the United Nations (UN) in 2015, is seen as a means of encouraging all institutions, including HEIs, to strive to achieve the Sustainable Development Goals (SDGs). Thus, the trajectory of these SDGs in Brazilian higher education is, therefore, an initiative of this agenda to incorporate the 17 global goals in the social, economic and environmental dimensions, indicating the participation of different actors to fulfill their commitments (UN, 2015).

The participation of these stakeholders, such as public and private institutions, civil society organizations, government and the academic community, aims to promote global awareness of the objectives proposed by the Agenda. In this study, SDG 4 is highlighted as essential for promoting quality education and providing lifelong learning opportunities for all. This objective is fundamental, as it seeks to ensure that everyone acquires the necessary knowledge and skills. Its strategic role enables access to continuing education from primary school onwards, resulting in the achievement of the other objectives of the 2030 Agenda (Boeren, 2019). In particular, target 4.7 plays an essential role in training professionals so that they are more aware of sustainable development, through the incorporation of curricula that address these topics in educational institutions (Institute of Applied Economic Research, [IPEA], 2018). However, the implementation of these objectives faces challenges in raising awareness and participation of all stakeholders in the process, as highlighted by Santos & Nascimento (2019).

Menezes et al. (2021) highlight the conceptual, practical, and theoretical deficiencies from the perspective of managers and coordinators regarding the role of HEIs in achieving the SDGs. Although there is substantial literature on the implementation of these objectives in HEIs, assessing the challenges to achieving them is still incipient, making it difficult to understand the barriers to professional training (Schafer & Silva, 2022). Bautista-Puig & Sanz-Casado (2021) add that the difficulties faced by institutions in becoming transformative agents in the practice of sustainable teaching deserve attention, since they directly impact the effectiveness of education for sustainable development.

In this context, based on the research by Acevedo-Duque et al. (2023), which investigated the challenges of training human talent in Higher Education Institutions (HEIs) focused on sustainable development in Europe and Latin America, this study proposed to adapt and replicate this research in Brazil. The objective was to explore the challenges faced in Administration Postgraduate Programs of at Brazilian HEIs, contributing to the advancement of national research on the implementation of the 2030 Agenda in higher education. Based on the same central question as the original research, this study focuses on the particularities of the Brazilian context, maintaining the investigative structure of the research by Acevedo-Duque et al. (2023), but adjusting it to the local reality.

In view of this, this research seeks to answer the following question: *what are the challenges faced in the training of professionals who are aware of the SDGs in Administration Postgraduate Programs at Brazilian HEIs, in light of the 2030 Agenda?* To this end, the general objective of this study was to analyze the challenges in the training of these professionals, considering the vision of the authorities representing Administration Postgraduate Programs of Brazil. Although the original research followed a specific model, the Brazilian version was based on the adaptation of this framework, with data collection adjusted to the national context.

The contribution of this study lies in identifying and analyzing the challenges faced by coordinators of Administration Postgraduate Programs of Brazil in incorporating the SDGs of the 2030 Agenda. By examining the perceptions of these academic leaders, the study highlighted obstacles such as the need for better integration of the SDGs into curricula, the lack of specific courses and resistance of the faculty. These findings corroborate previous studies and point to the urgency of curricular updates and greater awareness of the importance of the 2030 Agenda in training professionals prepared to face contemporary global challenges. In addition, the study contributed to the academic debate by comparing its findings across regions, highlighting both points of convergence and regional peculiarities in the implementation of the SDGs in higher education.

Structured with this introduction, the article is based on a theoretical framework on the 2030 Agenda and Higher Education and is complemented by a topic on Challenges in the integration of the SDGs in Postgraduate Programs. The research, of an exploratory and qualitative nature, used the Atlas.ti software as support to identify and analyze the challenges mentioned by the coordinators contacted, testing the primary categories. The final considerations, alongside with the bibliographical references cited, complement this study.

Theoretical Foundation

2030 AGENDA AND HIGHER EDUCATION

The search for global sustainability and improving the population quality of life is an ongoing and essential journey in the current scenario. From the Millennium Develop-

ment Goals (MDGs), which were in force from 2000 to 2015, to more recent efforts, such as the SDGs, the international community has been committed to tracking challenges such as extreme poverty, gender inequality, access to health and education, and environmental preservation (Schafer & Silva, 2022).

The creation of the 2030 Agenda in 2015 by UN member states emerged as a global response to building sustainable development over the next 15 years, starting in 2016. Unlike the MDGs, the 2030 Agenda is applicable to all countries and individuals, establishing nine additional objectives in addition to past obligations to promote a broader understanding of national growth and development (Soares et al., 2023).

To achieve the purpose of the 2030 Agenda, 17 objectives were formulated, containing 169 targets and 231 indicators. These objectives seek to guide society towards the most urgent challenges, addressing issues such as the pursues of sustainability, eradication of extreme poverty, protection of the environment, health and prosperity for individuals; access to education for all and the pursues of social peace (SDSN Australia/Pacific, 2017).

In the specific context of this study, SDG 4 (Quality Education) of the 2030 Agenda highlights ensuring equitable and inclusive access to education for all in society (UN, 2015). Achieving this goal contributes to a more sustainable society, involving various agents, as highlighted by Murillo-Vargas et al. (2020). One of the goals of this goal is directly related to the promotion of sustainable development in the educational field, aiming to “ensure that all students acquire the knowledge and skills necessary to promote sustainable development” (IPEA, 2018, p. 127).

According to Blanco-Portela et al. (2018), the SDGs represent an active commitment to global sustainable education, and various actors need to be involved in these actions. For Ristoff (2019), the debate on these goals strengthens the fight for equality in education systems and promotes sustainable development at different levels of education. However, as in other countries, Brazil faces challenges in implementing programs and measures that promote sustainable development in higher education, aligned with the perspective of SDG 4 (Pinto & Cangue, 2022).

In this scenario, the Civil Society Light Report on the 2030 Agenda (GT Agenda 2030) prepared by civil society organizations in 2021 stands out, which indicated a delay in the implementation of the SDGs in Brazil, due to the lack of research that demonstrates the relevance or applicability of the topic. The result is less investment

in public policies for the implementation of the SDGs, which can hinder the country's progress towards sustainable development.

Under these circumstances, HEIs are considered important actors in the dissemination and promotion of sustainable development practices and in the fulfillment of the SDGs, contributing to a strategic and transformative society in the educational field. The 2030 Agenda, through SDG 4, plays a significant role in higher education, especially in reducing dropout rates (Schafer & Silva, 2022).

In his study, Chasek (2024) reinforces the importance of the SDGs as a tool for curriculum structure and guiding universities in relation to their mission and social impact, through collaborative learning based on real problems. This methodology not only contributes to the training of students in sustainable development, but also enhances their problem-solving skills and preparation for professional challenges, and allows academics to develop projects that align with specific goals in the academic environment.

By promoting inclusive, equitable and quality education, and by offering life-long learning opportunities, this objective seeks to ensure that everyone acquires the necessary knowledge and skills. Accessibility and inclusion policies, increased scholarships, improved educational infrastructure and alignment of academic training with the demands of the labor market are also essential aspects that encourage students to remain in school. Furthermore, global partnerships for sustainable development strengthen support for students, contributing to a more favorable, inclusive and accessible educational environment, reducing the factors that lead to dropout in higher education (Silva & Sampaio, 2022).

CHALLENGES IN INTEGRATION THE SDGS INTO POSTGRADUATE PROGRAMS

HEIs play a relevant role in economic and regional development, promoting the transfer of knowledge to ensure improved quality of life. Acting as agents of social transformation, HEIs, according to Acevedo-Duque et al. (2023), work on sustainable dissemination, qualifying future professionals to promote changes aligned with the SDGs (Gazzoni et al., 2018).

Studies, such as those by Cardoso, Dos Santos and Ávila (2014) and Pereira, Carneiro and Gonçalves (2015), indicate that HEIs are progressing in integrating

sustainable practices into university systems. However, Willats et al. (2018) highlight persistent challenges in training engaged professionals. Savegnago, Gomez and Dalla Corte (2022) add that HEIs need to train citizens who are aware of social and environmental issues in their Postgraduate Programs and emphasize the importance of discussing the SDGs in the classrooms to raise global awareness.

García-Arce et al. (2021) highlighted in their research that for the implementation of the SDGs in HEIs, it is important to have adequate financial, human and technological resources to achieve these objectives, with one of the main challenges being the effective and sustainable integration of these principles into curricular structures, considering the difficulty in promoting an academic culture focused on sustainability.

Although adherence to the SDGs varies between institutions, rigid academic structures and the voluntary engagement of university students limit the effective incorporation of the SDGs into the curricula of Postgraduate Programs, impacting professional training (Menezes et al., 2021). The SDSN Australia/Pacific report (2017) highlights ways to promote sustainable development in HEIs, encompassing research, learning, governance and outreach. However, the lack of integration between these functions persists (Willats et al., 2018).

To develop professionals aligned with the SDGs, government and agency support is needed, not only financially, but also to foster sectoral partnerships and meet the regional 2030 Agenda (Owns, 2017). Participation in the SDGs is not mandatory, but inclusion in outreach projects is encouraged in some calls for proposals. However, bureaucratic barriers and inflexible leadership limit voluntary participation and the expansion of projects committed to the SDGs, as well as the lack of awareness by institutions among professionals, in raising awareness about the importance of addressing the 2030 Agenda in curricula and course syllabi, making it necessary to understand the challenges that permeate this training (Gazzoni et al., 2018; Blanco-Portela et al., 2018).

Another challenge faced by HEIs is the lack of awareness, lack of knowledge about the SDGs and lack of administrative support (Leal Filho et al., 2019). These factors limit the inclusion of the objectives in the curricula of Postgraduate Programs in Brazilian HEIs, as observed by Avila et al. (2019). In short, for some HEIs, the benefits of participating in the SDGs are mostly related to the impacts they will have on

the world and the population, since they have a moral responsibility to contribute to the societies on which they depend.

Kok et al. (2021) highlight three fundamental pillars for the implementation of the SDGs in Higher Education Institutions (HEIs): promoting diversity and inclusion, establishing effective facilitators, and developing public policies that foster transformation in management. These pillars are essential to ensure that universities can fulfill their role in the 2030 Agenda. However, Tribeck & Stefani (2024), when analyzing 24 studies, point out that it is necessary to incorporate more concrete and specific actions related to the SDGs in university curricula, research, and extensions, in addition to highlighting challenges such as the financial vulnerability of HEIs and the lack of engagement of legal guardians. Another significant obstacle is the difficulty of communication between the university and academics, as noted by Mawonde & Togo (2021), who also highlight the lack of student engagement in sustainable practices and the need for joint actions to promote effective changes within universities.

A study by Boafo et al. (2024) noted optimism regarding the SDGs aimed at quality education, but also an urgent need to improve educational strategies to foster student engagement with sustainable goals. The study emphasized that universities have an important role, not only in the discourse but also in the actions to achieve the SDGs, by acting as facilitators of this transformation.

In this context, to ensure successful implementation of the SDGs, it is essential that HEIs integrate these issues more deeply into their curricula and practices, encourage active student participation, and overcome the financial and management barriers that still hinder more significant progress. In conclusion, implementing the SDGs in HEIs requires a coordinated effort that involves adapting educational policies, strengthening communication, and encouraging the involvement of the entire academic community.

Methodological Aspects

Since the objective of this research was to analyze the challenges faced in training professionals aware of the SDGs, in light of the 2030 Agenda from the perspective of the authorities representing Administration Postgraduate Programs of Brazil, the

study adopts a qualitative approach of an exploratory nature, aiming at an in-depth understanding of the phenomenon in question and the description of the characteristics of the population studied (Creswell, 2007).

Using this methodology, the study was conducted in three stages to achieve its main objective: initially, the Graduate Programs of the HEIs were selected, followed by data collection, which involved obtaining secondary information from the websites of the selected HEIs and the application of a questionnaire for primary data. In the first stage, 34 Administration PostGraduate Programs of Brazil were selected, among the 105 available in the database of associated programs of ANPAD, considering inclusion criteria such as the presence of Masters and PhD courses. In the second phase, in addition to analyzing the syllabuses of the disciplines to verify the integration of the SDGs, a questionnaire with closed questions on demographic data was used to ensure the validity and reliability of the research, segmenting the responses according to different population groups, and an open-ended question, adapted from the study by Acevedo-Duque et al. (2023): *“What are the challenges faced in training professionals aware of the SDGs in Postgraduate Programs in Administration at Brazilian HEIs, in light of the 2030 Agenda?”* The decision to adopt a questionnaire was influenced by the adaptation of the study by Acevedo-Duque et al. (2023), which also used this technique to collect data more effectively and represent a greater diversity of postgraduate programs.

After the questionnaire was developed, the research instrument was made available on Google Forms for a pre-test, involving the participation of two individuals. Based on the feedback received, no changes were considered necessary. The questionnaire was subsequently distributed electronically via e-mail to the coordinators of the Administration Postgraduate Programs of Brazil during the months of August and September 2023, resulting in 19 responses.

Of the 19 participants, 11 were female and 8 were male. Regarding ethnicity, 10 identified themselves as white, 8 as mixed race, and 1 as black. The age range of the respondents varied between 34 and 60 years. The responses predominated in the southeast region (8 responses), followed by the South (5), Northeast (3), Central-West (1), and North (1), with one participant not reporting their region of origin.

After collection, the data were exported from Google Forms to Excel and later converted into Word documents for analysis of the results. The third phase, data

analysis and interpretation, followed Bardin's (2016) methodology for content analysis, divided into three stages: data pre-analysis, exploration of the material and processing of the results for interpretation.

In the pre-analysis phase, the data from the questionnaires were organized to systematize the initial ideas, carrying out a fluent reading and selection of the material to be analyzed. During the exploration of the material, the characterization of the elements found for coding began, aligned with the research theme. Words and phrases that reflected similar reports on the challenges faced by the coordinators were identified, grouping these elements into recording units to define the categories of analysis.

The *a priori* categories defined for the study were extracted from the theoretical basis (Blanco-Portela et al., 2018; Gazzoni et al., 2018; Leal Filho et al., 2019; Menezes et al., 2021; Acevedo-Duque et al., 2023), addressing topics such as the inclusion of the SDGs in postgraduate curricula, lack of government and administrative support, as well as teaching resistance and integration of the SDGs in the curricula. After coding the registration units as proposed by Bardin (2016), the categories defined for the discussion of the results were: difficulties in integrating them into the research theme; lack of understanding of the 2030 Agenda and how it applies to the disciplines; teaching resistance and integration of the SDGs in postgraduate curricula.

With the categorization completed, the quotes were grouped to begin data interpretation, combining the theoretical analysis with the empirical data collected. At this stage, after the initial data categorization, the Atlas.ti software was used to assist in coding and organizing qualitative data. Coding was carried out in an exploratory manner, aligned with the categories predefined in the content analysis phase, according to Bardin (2016). The recording units identified in the questionnaires were associated with the previously established codes and grouped according to the challenges identified by the coordinators of the Administration PostGraduate Programs. Atlas.ti allowed for the detailed segmentation of the responses, facilitating the creation of links between the different units of meaning (quotations) and providing a structured view of the content (Silva Junior & Leão, 2018).

Furthermore, the software enabled a more in-depth data analysis, with the creation of visual semantic networks that illustrated the relationships between the

different categories and subcategories emerging from the respondents' statements. These networks helped map the main challenges, such as resistance to implementing the SDGs in curricula and difficulties related to understanding and applying the 2030 Agenda.

As for the validation of the process, a verification strategy was adopted through continuous review of the codings carried out, ensuring that the recording units were correctly categorized and that there was no overlap or inconsistency in the categories. The consistency of the codings was guaranteed through comparison and cross-analysis of the responses, which was also facilitated by the software, which allowed the review and validation of the categories interactively.

The use of Atlas.ti not only streamlined the coding and organization of the information but also made it possible to visualize emerging patterns in the participants' discourse, contributing to a more informed interpretation of the qualitative data. With the integration of semantic networks and continuous analysis, the research was able to map, in a clear and detailed manner, the dynamics related to the training of professionals aware of the SDGs in Administration Postgraduate Programs.

Results

This section presents the results of the analyses of respondents from Brazilian HEIs, divided according to the stages previously demonstrated.

SDG APPROACH IN SELECTED HEIS

The selection of HEIs and associated PostGraduate Programs was based on the ANPAD program. Initially, 105 PostGraduate Programs were identified through this association, however, during the analysis phase of the course syllabuses and the 2030 Agenda, a refinement process was necessary, since not all HEIs had complete information about the data and the syllabuses were not aligned with the specific objectives of the research. After a more detailed evaluation, it was found that only 34 programs fully met the criteria established to achieve the proposed objective. Thus, these were the postgraduate programs here analyzed and their respective coordinators were contacted.

The analysis began with documentary research and was conducted by evaluating each institution selected within the scope of the PostGraduate Program, both in the Master's and Doctorate courses in Administration. This involved a thorough review of the syllabi available in each program, followed by a count to determine how many institutions in each region addressed the SDGs and identify which ones were most frequently addressed (Table 1).

Table 1. Approach to the SDGs in the course syllabuses by region of the .

Region	Number of HEIs selected	% of SDGs addressed in HEI syllabuses	SDG contribution
South	9	45%	SDG 4; 9
South Est	15	53%	SDG 9; 11
Midwest	3	33%	SDG 8
North East	6	50%	SDG 8,9
North	1	100%	SDG 4

Based on the information in Table 1, the distribution of the SDG approach in the syllabuses of Graduate Programs in Administration by region can be seen. In the South, 45% of HEIs address the SDGs, with an emphasis on SDGs 4 and 9. In the Southeast, this percentage is 53%, with SDGs 9 and 11 standing out. In the Central-West region, 33% of HEIs include the SDGs in their syllabuses, with a focus on SDG 8. The Northeast has an approach rate of 50%, with an emphasis on SDGs 8 and 9. In the North region, all HEIs address the SDGs, with special attention to SDG 4.

These data indicate how Graduate Programs in Administration in the different regions of the country are addressing SDGs in their syllabuses. The percentage of institutions that include the SDGs varies from region to region, with some regions having a more significant inclusion than others, which suggests a disparity in the emphasis given to the SDGs in different parts of the country.

In addition, identifying the SDGs most frequently addressed in each region provides information on the thematic priorities of Graduate Programs in Administration in each geographical area. For example, some regions may focus their efforts on specific areas of sustainable development, such as education (SDG 4), industry,

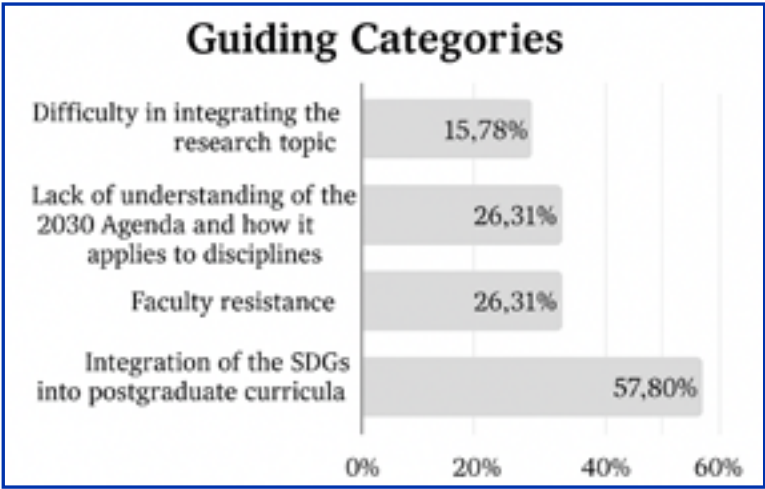
innovation and infrastructure (SDG 9) and reduction of inequalities (SDG 10), while others may have a greater diversity of SDGs addressed. For example, in the South region there is a greater emphasis on the SDGs related to education (SDG 4) and industry, innovation and infrastructure (SDG 9), which suggests that Postgraduate Programs in this region may be focusing more on these specific areas of sustainable development.

Meanwhile, in the Northeast region, SDG 10 is mentioned more frequently, which may indicate that postgraduate programs in this area are prioritizing initiatives to combat local socioeconomic disparities. This variety of perspectives reflects the complexity of the country’s development issues, highlighting how different regions are facing specific challenges and adapting their approaches according to their needs and local contexts.

CHALLENGES OF GRADUATE STUDIES

With the data collected through the questionnaire applied to the coordinators, the responses were transcribed into the Atlas.ti software, which in turn helped in the analysis and interpretation of the data. After coding the responses obtained, four categories of challenges were found that guided this study, with the help of the Bardin method (2011), as well as the percentage of citations for each category (Figure 1).

Figure 1. Challenges identified from the data collected.



Of the respondents, 11 were female and 8 were male. 10 respondents declared themselves as white, while 8 as mixed race and 1 as black. The average age range varied between 34 and 60 years, and the predominant regions were: 8 responses from the Southeast, 5 from the South, 3 from the Northeast, 1 from the Midwest and 1 from the North. One participant did not identify his/her region of origin.

The analysis of the data presented in the image reveals fundamental aspects about the challenges and advances in the integration of the 2030 Agenda into postgraduate curricula. The percentage distribution among the categories suggests that the implementation of the SDGs faces institutional, cognitive and methodological barriers, directly impacting the way in which professors and students relate to this topic in the academic environment.

The difficulty in integrating the research topic, representing 15.78% of the cases, indicates that a significant portion of researchers encounter obstacles in relating their research to the SDGs. This difficulty may be linked to the lack of a structured approach by institutions, which do not necessarily offer clear guidelines on how to incorporate these principles into scientific work. In addition, this percentage may also reflect a segmented view of academic research, where the SDGs are perceived as belonging only to certain areas of knowledge, limiting their potential for application in different disciplines and contexts. This fragmentation highlights a challenge for the construction of more interdisciplinary education aligned with the global demands of sustainability.

Another relevant aspect identified in the survey is related to the lack of understanding of the 2030 Agenda and how this agenda applies to disciplines, covering 26.31% of the responses. This data reinforces the need for educational and structural actions within HEIs, since the lack of knowledge about the 2030 Agenda prevents its effective implementation. If students and teachers do not understand how the SDGs can be worked on in disciplines, there is a tendency for their application to remain superficial or limited to specific actions, without consistent integration into the curricula. This scenario points to the need for reformulations in academic programs, with the inclusion of disciplines specifically focused on the theme of sustainability, as well as methodologies that encourage applied and contextualized learning.

Teacher resistance, representing the same percentage as the lack of understanding about the SDGs, demonstrates that one of the main obstacles to curricu-

lar and methodological change lies in the attitude of the teachers themselves. This resistance can have several origins, from a lack of familiarity with the topic to work overload and the need to adapt to new pedagogical practices. Many teachers, accustomed to traditional teaching models, may consider integrating the SDGs a complex or unnecessary task, especially if there are no clear institutional incentives for this change. In addition, introducing new approaches can demand time and resources that are not always available, making resistance a natural consequence of an educational system that, in many respects, still operates with rigid and inflexible structures.

The most significant data from the survey, at 57.80%, concerns the integration of the SDGs into postgraduate curricula. This percentage indicates that, despite the difficulties, there is a growing movement to incorporate these principles into higher education. However, this number should not be interpreted solely as a positive indicator, but rather as a reflection of an ongoing process that still faces significant challenges. The integration of SDGs into curricula may be occurring unevenly across postgraduate programs, without a solid institutional policy to ensure its effectiveness. This suggests that, even though there are efforts to include SDGs in courses, there is still a gap between intention and practice, and there may be isolated initiatives that do not necessarily generate structural impacts on academic training.

The data presented in the research indicate an urgent need for institutional policies that strengthen the presence of the SDGs in postgraduate curricula, reducing barriers such as lack of understanding of the topic and teacher resistance. Higher education institutions need to adopt strategies that encourage ongoing teacher training, offering specific training on the 2030 Agenda and its practical applications in teaching and research. In addition, promoting spaces for dialogue and creating academic incentives can help more teachers engage in the topic, understanding its relevance and applicability in different contexts.

Another important point to be considered is the impact that these difficulties can have on the quality of academic training and scientific production. The lack of integration of the SDGs in research themes can limit the development of studies that address global problems in an interdisciplinary and applied manner. If the challenges related to sustainability, social innovation and sustainable development are not incorporated as central elements in postgraduate programs, there is a risk of training

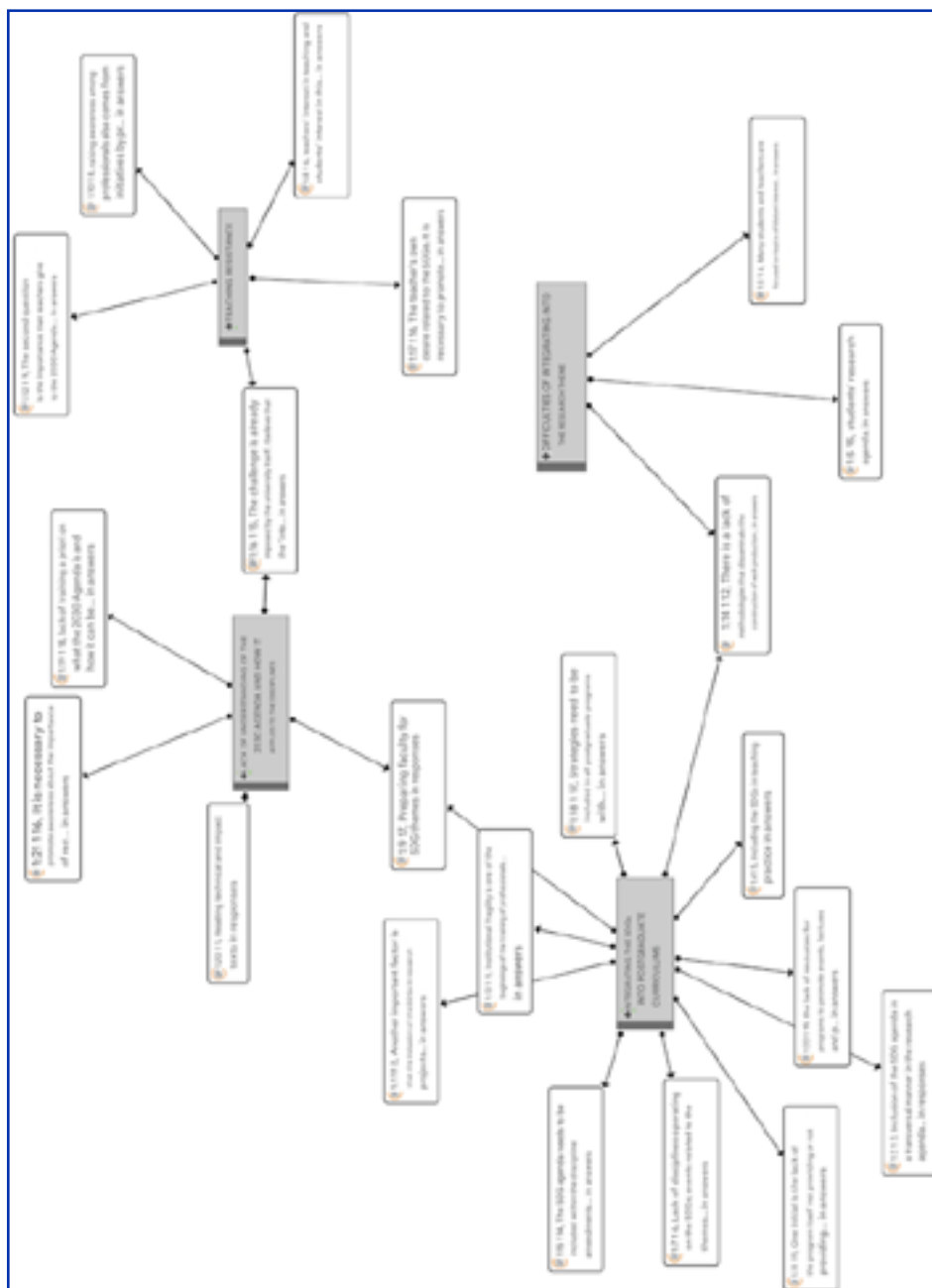
researchers who are disconnected from contemporary demands and the needs of society. This gap can directly impact the university's ability to contribute to concrete solutions aimed at sustainable development, reinforcing the need for structural changes that ensure the transversality of the SDGs in academic training.

Therefore, the data show that, despite progress in incorporating the 2030 Agenda into postgraduate curricula, there are still substantial challenges that need to be overcome. Teaching resistance and lack of understanding of the SDGs represent obstacles that hinder effective implementation, while the difficulty of integrating them into the research theme reinforces the need for methodological changes in the way teaching and research are conducted. For sustainability to become a central axis in higher education, it is essential that universities take an active role in promoting this agenda, ensuring that the SDGs are not only discussed, but effectively incorporated as structuring principles in academic training and scientific production. After categorization, a visual representation in the form of a semantic network (Figure 2) was developed, resembling a mind map, with the aim of facilitating the visualization of the citations in each category and the distinction of the perspectives of each informant, highlighting the interrelations between the documents analyzed. The detailed analysis of this semantic network is presented in the subsequent discussion section.

By examining the responses obtained from the semantic network, it is possible to identify the four main categories developed in this study that are related to each other, each with its own responses. When analyzing these categories together, it becomes clear that they are interrelated. For example, a lack of understanding of the 2030 Agenda by teachers may contribute to resistance to integrating the SDGs into curricula, which in turn may hinder the integration of the SDGs into students' research.

On the other hand, teacher resistance may arise as a direct result of a lack of understanding of the importance of the SDGs and the 2030 Agenda. In addition, the difficulty of integrating the research topic can be understood by the lack of SDGs in postgraduate curricula, which may in turn be influenced by teacher resistance. These relationships highlight the need to address the challenges faced in training professionals aware of the SDGs in an integrated and holistic manner, considering the interconnections between the various issues involved.

Figure 2. Network of categories and citations.



Discussion

The incorporation of the 2030 Agenda does not only represent a challenge for HEIs, but rather a global issue that impacts governments, industries, and everyone involved in global transformations. In this context, educational institutions assume the responsibility of training students and professionals with the skills necessary to achieve the SDGs, as they contribute to the formation of capable citizens and professionals who are aware of the issues faced by society.

This study, inspired by the research of Acevedo et al. (2023), sought to identify the challenges faced in the training of professionals aware of the SDGs in the Brazilian context, from the perspective of the authorities representing Graduate Programs in Administration. The coordinators were invited to identify the obstacles in their programs, related to the promotion of sustainable education aligned with the 2030 Agenda, considering the persistent lack of understanding, still present in the literature, on how to integrate sustainable development into the educational systems of HEIs (Menezes et al., 2021).

The analysis of the citations mapped for each category revealed that most of the challenges are centered on the inclusion of the SDGs in Postgraduate Programs, with more than 50% of the responses highlighting this issue. Among the citations, it was observed that the concern with the transversal integration of the SDGs in the research agenda, the absence of specific disciplines, the lack of syllabuses that address the SDGs and resistance on the part of professors represent significant barriers to the effective implementation of the 2030 Agenda in the academic context analyzed here.

These findings reflect a worrying scenario in relation to the commitment to the 2030 Agenda. Previous studies, such as that of Blanco-Portela et al. (2018), have already pointed out the difficulties of incorporating the SDGs into curricula and extension projects, highlighting the importance of mandatory participation in the calls for proposals for Postgraduate Programs to disseminate this approach in the academic environment. In another perspective presented by the coordinators, the central concern is not limited to the inclusion of the SDGs, but rather to the way in which these topics are addressed and conducted. Some quotes highlighted the importance of teachers' engagement in teaching the SDGs and promoting awareness of the relevance of the 2030 Agenda within the classroom. These issues are

linked to the lack of understanding about the practical application of the SDGs in the disciplines, corroborating previous studies by Leal Filho et al. (2019) and Avila et al. (2019), which identified the lack of awareness and knowledge about the 2030 Agenda as an obstacle to its effective implementation in educational institutions.

Corroborating previous studies (Kok et al., 2021; Mawonde & Togo, 2021), the findings of this research demonstrated by the quotes made in Figure 2 by the coordinators are in line with the concern about the need for more curricular strategies for HEIs to address the SDGs. The challenges identified reflect gaps that have already been discussed in the literature by several authors highlighting the pressing need for more effective institutional policies and innovative educational strategies to integrate the SDGs into Postgraduate Programs.

In addition, this study identified that 15.78% of the interviewees' quotes pointed to the challenge of keeping the SDG theme aligned with the students' research topics. In line with such data, the study by Kopnina (2020) already highlighted the importance of educational institutions establishing programs that encourage the development of research on sustainability, as a way of seeking solutions to challenges that have not yet been solved.

The comparison between the results of the study carried out in Brazilian HEIs, focused on the challenges of training professionals aware of the SDGs, and the results of the article by Acevedo-Duque et al. (2023), which investigated the challenges of training human talent in HEIs in Europe and Latin America, reveals both points of convergence and divergence.

Both studies identified the need to update the curriculum of Postgraduate Programs to integrate the SDGs and promote the development of skills aligned with the current demands of society. In both the Brazilian and European and Latin American contexts, teaching resistance and a lack of understanding of the 2030 Agenda were highlighted as obstacles to promoting sustainable education.

In this study, challenges were identified in incorporating the 2030 Agenda into the institutions' objectives, as well as a distance between students' research topics and the SDGs. On the other hand, the study by Acevedo-Duque et al. (2023) emphasizes the importance of integrating technological resources and environmental knowledge into curricula, aiming at the development of entrepreneurial and critical individuals in relation to society.

The results of this study have both theoretical and practical implications. From a theoretical point of view, the findings reinforce the existing literature on the difficulty of integrating the SDGs into higher education, expanding the understanding of the specific barriers faced by Postgraduate Programs in Brazil. In addition, they contribute to the deepening of discussions on the need for curricular reforms and institutional strategies to promote sustainability in higher education.

From a practical point of view, the findings indicate the need for more robust institutional policies to ensure the integration of the SDGs in HEIs, such as the adoption of strategies such as the creation of mandatory courses on sustainable development, teacher training to expand understanding of the SDGs, and greater incentive for applied research in this area. Furthermore, partnerships with external sectors, such as companies and government organizations, can strengthen the impact of Postgraduate Programs in fulfilling the 2030 Agenda.

Therefore, when comparing the results, it is possible to observe that both in the Brazilian context and in the European and Latin American context, the need to update curricula and effectively integrate the SDGs in Postgraduate Programs are common challenges. However, it is possible that local specificities and the particularities of each region may influence how these challenges are faced and overcome, which may be one of the possible causes for the differences obtained in some of these research results.

Conclusions

The responsibility of Postgraduate Programs to promote professional training aligned with the SDGs of the 2030 Agenda is essential to meet the demands of contemporary society. This study, inspired by the research of Acevedo-Duque et al. (2023), highlights the need to integrate the SDGs into Postgraduate curricula, overcoming challenges such as the lack of specific disciplines, the absence of syllabuses addressing the SDGs, and professors' resistance.

In this sense, collaboration between educational institutions, governments, and other stakeholders can help promote education that effectively contributes to sustainable development. This is because integrating the SDGs into academic pro-

grams not only enables students to face current challenges but also prepares them to be change agents for a more sustainable and equitable future.

However, the successful implementation of the 2030 Agenda in higher education requires an ongoing commitment to curricular innovation, the training of aware and engaged professionals and the promotion of a sustainability culture in all spheres of education and society. Thus, deepening the discussion on this topic, as well as encouraging reflection of HEIs and others involved in the process of training professionals, is relevant to identify difficulties faced by the actors involved in this process and, consequently, develop ways to mitigate such challenges.

Thus, , this study sought to contribute to furthering this discussion and identifying possible future studies. The critical analysis of the barriers encountered in the implementation of the 2030 Agenda in higher education can provide information to improve future research and practical actions. In this sense, it is essential to consider the methodological limitations, time and resource constraints, as well as the perspectives not addressed in this study.

The results of this study are directly aligned with the objective of analyzing the challenges faced in training professionals aware of the SDGs in Administration Postgraduate Programs, in light of the 2030 Agenda. First, it was identified that the integration of the SDGs into the curricula of Administration Postgraduate Programs is limited, which represents a major challenge. The lack of specific disciplines on the topic, the absence of syllabuses that directly address the SDGs, and resistance from part of the faculty were pointed out as significant obstacles. These findings confirm the need for greater inclusion of the SDGs in the curricula and the promotion of a sustainability culture in higher education, which were central objectives of this research. In addition, the results reinforce the importance of fostering collaboration between educational institutions, governments, and other stakeholders to face these challenges and ensure the training of professionals prepared to contribute to sustainable development, as proposed by the 2030 Agenda.

The study was restricted to a specific sample of authorities representing Postgraduate Programs in Administration, which limited the generalization of the results to other areas of knowledge or educational institutions. The low participation rate in the survey, through responses to online questionnaires may also have influenced the results, leading to a possible lack of representativeness or bias in

the perceptions presented. Another limiting factor was that this study focused on the Postgraduation programs' representative authorities' views, leaving out the perspectives of professors, students and other actors involved in Postgraduate Programs, which could provide additional results on the challenges and opportunities in the integration of the SDGs. Furthermore, this study did not observe a connection between teacher training and teacher compensation, an aspect that could provide information on the impact of these variables on teaching quality and SDGs' implementation. The subjectivity in the interpretation of qualitative data, although enriching, may also have influenced the conclusions, since the process of categorizing the responses is subject to interpretative variations. Finally, the absence of a broader quantitative approach, such as an analysis of structured data on the implementation of the SDGs in curricula or indicators of academic success, limits the overall understanding of the impacts of this integration in Postgraduate Programs.

For future research, it would be relevant to conduct longitudinal studies to monitor the progression of the incorporation of the SDGs in Postgraduate Programs over time, identifying trends, good practices and areas that require greater attention. In addition, investigating the perception and actions related to the 2030 Agenda and the SDGs in different areas of knowledge and segments of higher education would be essential to understand the particularities and specific challenges of each context and also of each region. In this sense, more than an analysis only by regions, as suggested, it would be important to analyze the content of the responses according to the characteristics of the programs, such as area of concentration and lines of research, which could offer a more detailed view of the particularities of each area and how they influence the integration of the SDGs.

For a more in-depth regional analysis, it is also essential to consider the socioeconomic, cultural and political factors that influence both the number of HEIs and their commitment to the SDGs. Although this study did not address this specific objective, future research could investigate how the 2030 Agenda is being integrated in each region.

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References

- Acevedo-Duque, Á., Jiménez-Bucarey, C., Prado-Sabido, T., Fernández-Mantilla, M. M. Merino-Flores, I., Izquierdo-Marín, S. S., & Valle-Palomino, N. (2023). Education for sustainable development: challenges for postgraduate programmes. *International Journal of Environmental Research and Public Health*, 20(3), 1759. <https://doi.org/10.3390/ijerph20031759>.
- Avila, L. V., Madruga, L.R.R.G., Beuron, T. A., & Garlet, V. (2019). Barreiras Internacionais Para Inovação E Sustentabilidade Em Universidades. *Revista Litterarius*, 18(01).
- Bardin, L. (2016). Content analysis. New York: Routledge, 2011, 229p.
- Bardin, L. (2016). Content analysis. New York: Routledge, 2011, 229p.
- Bautista-Puig, N., & Sanz-Casado, E. (2021). Sustainability practices in Spanish higher education institutions: An overview of status and implementation. *Journal of cleaner production*, 295. <https://doi.org/10.1016/j.jclepro.2021.126320>.
- Blanco-Portela, N., R-Pertierra, L., Benayas, J., & Lozano, R. (2018). Sustainability leaders' perceptions on the drivers for and the barriers to the integration of sustainability in Latin American higher education institutions. *Sustainability*, 10(8). <https://doi.org/10.3390/su10082954>.
- Boafo, Y. A., Boakye-Danquah, J., Boakye-Danquah, E., Lartey, D. L., & Obeng-Odoom, A. (2024). Perceptions and enablers of sustainable development: a comparative study of Ghanaian university students' engagement with the SDGs. *Higher Education*, 1-30. <https://doi-org.ez34.periodicos.capes.gov.br/10.1007/s10734-024-01274-2>.
- Boeren, E. (2019). Understanding Sustainable Development Goal (SDG) 4 on “quality education” from micro, meso and macro perspectives. *International review of education*, 65, 277-294. <https://doi.org/10.1007/s11159-019-09772-7>.
- Cardoso, A. O., dos Santos, M. N., & Ávila, L. V. (2024). The context of education and climate change in higher education institutions: a systematic review of the literature. *Visão Journal: Organizational Management*. <https://doi.org/10.33362/visao.v13i1.3421>.
- Chasek, P. S. (2024). Implementing the United Nations Sustainable Development Goals on Campus: An Exercise in Problem-Based Learning for a Sustainable University, *International Studies Perspectives*. <https://doi.org/10.1093/isp/ekae015>.
- Creswell, J. (2007). Research Design: qualitative, quantitative and mixed methods. Artmed, Porto Alegre, 2 ed.
- García-Arce, J. G., Pérez-Ramírez, C. A., & Gutiérrez Barba, B. E. (2021). Objectives of Sustainable Development and Sustainable Functions in Higher Education Institutions. *Investigative news in education*, 21(3), 516-551. <http://dx.doi.org/10.15517/aie.v21i3.48160>.
- Gazzoni, F., Scherer, F. L., Hahn, I. S., de Moura Carpes, A., & dos Santos, M. B. (2018). The role of HEIs in sustainable development: case study of the Federal University of Santa Maria. *Journal of University Management in Latin America-GUAL*, 48-70. <http://dx.doi.org/10.5007/1983-4535.2018v11n1p48>.
- IPEA. Institute of Applied Economic Research. Agenda 2030. (2018). Available at: https://repositorio.ipea.gov.br/bitstream/11058/8855/1/Agenda_2030_ods_metas_nac_dos_obj_de_deserv_susten_propos_de_adequa.pdf. Accessed on October 10, 2023.

- Kopnina, H. (2020). Education for the future? Critical evaluation of education for sustainable development goals. *The Journal of Environmental Education*, 51(4), 280-291. <https://doi.org/10.1080/00958964.2019.1710444>.
- Kok, K. P., Gjefsen, M. D., Regeer, B. J., & Broerse, J. E. (2021). Unraveling the politics of 'doing inclusion' in transdisciplinarity for sustainable transformation. *Sustainability Science*, 16, 1811-1826. <https://doi.org/10.1080/00958964.2019.1710444>.
- Leal Filho, W., Skanavis, C., Kounani, A., Brandli, L. L., Shiel, C., do Paco, A., & Shula, K. (2019). The role of planning in implementing sustainable development in a higher education context. *Journal of Cleaner Production*, 235, 678-687. <https://doi.org/10.1016/j.jclepro.2019.06.322>.
- Mawonde, A., & Togo, M. (2021). Challenges of involving students in campus SDGs-related practices in an ODeL context: the case of the University of South Africa (Unisa). *International Journal of Sustainability in Higher Education*, 22(7), 1487-1502. <https://doi.org/10.1108/IJSHE-05-2020-0160>.
- Menezes, K. M., Rodrigues, C. B. C., & Candito, V. (2021). The Sustainable Development Goals articulated with project-based learning: possibilities for health education. XIII National Meeting on Research in Science Education, Santa Catarina. Proceedings. Campina Grande: Realize Editora, 1-9.
- UN, P. (2018). Transforming our World: The 2030 Agenda for Sustainable Development. *AmbientalMENTE-sustentable*, 25(1), 171-190. <https://doi.org/10.17979/ams.2018.25.1.4655>.
- Owens, T. L. (2017). Higher education in the sustainable development goals framework. *European Journal of Education*, 52(4), 414-420.2017. <https://doi.org/10.1111/ejed.12237>.
- Pereira, E., Carneiro, A. M., & Gonçalves, M. L. (2015). Innovation and evaluation in the Brazilian higher education culture: general interdisciplinary education. *Evaluation: Journal of Higher Education Assessment (Campinas)*, 20(3), 717-739. <https://doi.org/10.1590/S1414-40772015000300010>.
- Pinto, M. M., & Canguê, J. (2022). SDG4 and Quality Higher Education: a challenge for Angola and Brazil, countries of the global South. *Research Notebooks*, 29(1). <https://doi.org/10.18764/2178-2229v29n1.2022.1>.
- Light of Civil Society Report: 2030 Agenda for Sustainable Development Brazil: GT Agenda 2030. (2018). Available at: https://brasilnaagenda2030.files.wordpress.com/2021/07/por_rl_2021_completo_vs_03_lowres.
- Ristoff, D. (2019). The challenges of evaluation in the context of expansion and inclusion. *Espaço Pedagógico Journal*, 26(1), 9-32. <https://doi.org/10.5335/rep.v26i1.8406>.
- Santos, A. C. D. S., & Pontes, A. N. (2019). Assessing the achievement of sustainable development objectives in Brazil. *Contributions to Social Sciences*.
- Savegnago, C. L., Gomez, S. D. R. M., & Dalla Corte, M. G. (2022). The 2030 agenda in Brazilian federal universities: an exploratory study. *Humanities & Innovation*, 9(14), 226-238.
- Schäfer, M. B., & da Silva, E. C. L. (2022). Knowledge and application of the 2030 agenda in the archive units of federal higher education institutions in the Southern Region of Brazil. *Ibero-American Journal of Information Science*, 15(3), 647-668. <https://doi.org/10.26512/rici.v15.n3.2022.41254>.
- SDSN Australia/Pacific. (2017). *Getting started with the SDGs in universities: A guide for universities, higher education institutions, and the academic sector. Australia, New Zealand and Pacific Edition. Sustainable Development Solutions Network – Australia/Pacific, Melbourne*. Available at: http://ap-unsdsn.org/wp-content/uploads/Como-comecar-com-os-ODS-nas-Universidades_18-11-18.

Silva Junior, L. A., & Leão, M. B. C. (2018). Atlas.ti software as a resource for content analysis: analyzing robotics in Science Education in Brazilian theses. *Science & Education*, 24(3), 715-728. <https://doi.org/10.1590/1516-731320180030011>.

Soares, F. P., Melo, M. M., & Camargo, L. M. (2023). Agenda 2030, SDGs and water education: systematic literature review and bibliometric analysis. *Journal of the Department of Geography*, 43. <https://doi.org/10.11606/eISSN.2236-2878.rdg.2023.193690>.

Tribeck, P. M. de A., & Stefani, S. R. (2024). SDGs in higher education institutions: a systematic review using the Prisma Method. *Emancipação*, 24, 1-21. <https://doi.org/10.5212/Emancipacao.v.24.2422112.017>.

Trivinos, A.N.S. (1987). Three approaches to social science research: positivism, phenomenology and Marxism. In: _____. *Introduction to social science research: qualitative research in education*. São Paulo: Atlas, 1987. chap. 2, p. 30-79.

Willats, J., Erlandsson, L., Molthan-Hill, P., Dharmasasmita, A., & Simmons, E. (2018). A university wide approach to embedding the sustainable development goals in the curriculum—a case study from the Nottingham Trent University's Green Academy. *Implementing sustainability in the curriculum of universities: Approaches, methods and projects*, 63-78.