ORDINARY LANDS AND HIDDEN WOODS: UNVEILING THE (UN)KNOWN ABOUT SUSTAINABLE CURRICULUM

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1 INTRODUCTION

Sustainability in the education field is being discussed since 1970 and various different concepts were proposed to delimit the meaning of this approach (Du et al., 2013). It is possible to find concepts as Responsible Management Education (RME) (Laasch & Conaway, 2015) and Education for Sustainability (EfS) (Christie et al., 2015) concerning this topic (Doherty et al., 2015; Dyllick, 2015), among others. In this study, we use the Sustainable Development (SD) definition, due to the prominence of Education for Sustainable Development (ESD) (Barth & Rieckmann, 2012) in the related areas of interest in our study.

Sustainable Development (SD) is understood as a harmonization process that seeks to reconcile social, economic, and environmental objectives, so that growth is socially inclusive and environmentally sustainable (Sachs, 1986; Bagoly-Simó et al., 2018). In addition, the Education for Sustainable Development (ESD) is a learning process with principles that underlie sustainability (Wals, 2009). In fact, there is a similarity between the concepts of SD and ESD and therefore the concepts are being used interchangeably by researchers presenting their results (Du et al., 2013).

Higher Education Institutions (HEI) have been questioning their role in changing their traditional functions, towards playing in a different role in the society (Unceta et al., 2021). According to Sammalisto, Sundstrom & Holm (2014), many declarations and initiatives of engaging sustainability have been created to encourage HEIs. The adoption of sustainability should be understood as a maintenance state to be adopted with an undetermined time to end (Dovers, 1997). Once the future demands new ways of thinking and acting (Sammalisto, Sundstrom & Holm, 2014), the role of responsibility of the HEI regarding a more sustainable society is highlighted, since its performance stands out in decisions and activities for society and the environment in different moments (Hahn & Kühnen, 2013).

In the higher education context, the interest in bringing the topic of sustainability to the curriculum of long-term courses has grown (Sanchez-Carrillo et al., 2021), once it can modify the way of teaching, perception of the student and their actions (Dixit & Sehrawat, 2022). Curriculum can be understood as the totality of experiences which are planned for people through their education, given that curriculum is an interactive process developed among learners, teachers, materials, and the environment (Su, 2012). It can include interdisciplinary learning and the university's life as a community (The Scottish Goverment, 2008). Changing the curriculum is an important step towards ESD, because if the formal education is changed, then the whole teaching and learning will be replaced (Lozano & Lozano, 2014). Going beyond the curriculum, it is possible to cite attitudes such as providing research training in postgraduate studies, developing extension courses aimed at collaborative projects for society or offering training on sustainable development (SDSN Australia/Pacific, 2017).

Studies have analyzed the implementation of sustainable development in HEIs in different ways, from systematic analyzes (Sanchez-Carrillo et al., 2021) to cases of study (Sterling, 2004; Pearson et al., 2005; Dixit & Sehrawat, 2022). On the one hand, we can find a common ground on sustainability and its relation to higher education. On the other hand, there is no consensus on ways of including sustainability in the curriculum (Brundiers et al., 2020). Universities have strived to bring sustainable changes to their operations, such as including solar panels and harvesting rainwater, and this has provided many case studies for publication. Even though greening universities operations is very important, few studies have analyzed the changes in teaching and learning outcomes (Atici et al., 2021).

Since the Decade of Education for Sustainable Development (DESD) from United Nations Educational Organization (UNESCO) took place in 2002, the literature about sustainability in the curriculum has grown (Leal Filho, 2011). We argue that researchers mostly bring lower transition stages to sustainability in HEI and the systematized knowledge about the inclusion of sustainability in the curriculum is grey (Dlouhá et al., 2017). Thus, we believe it is important to understand how studies on the conception, implementation and results of curriculum focused on sustainability in long-term courses in higher education have been developed (Perera & Hewege, 2016; Dlouhá et al., 2017).

Given this gap, this article aims to provide an overview of academic studies on the sustainable curriculum in courses in higher education. To guide this paper, we present the following question: "What are the drivers, features, and outcomes regarding a sustainable curriculum?" To answer it, we produced a systematic literature review, covering almost five thousand papers, in more than two decades of studies. To the best of our knowledge, this is the first study in such coverage on the connections between sustainability and curriculum in higher education.

This study will contribute directly to the literature about sustainability and higher education, by presenting an overview about the subject - absent so far (Ferrer-Balas et al., 2010). It intends to contribute mainly with the educational practice, providing insights about curriculum development (Mohammed et al., 2022). This article also demonstrates a potential contribution on social and government causes, as its results are directly connected to the Sustainable Development Goal (SDG) 4 - Quality Education, of the 2030 Agenda (United Nations, 2015), specifically in goal 4.3, which concerns access for all to quality higher education.

This article is structured as follows. First, we present the theoretical background on inserting sustainable development in the curriculum of higher education. Second, we detail the methodological procedures addressed. Third, we present the results from the systematic literature review, next we present the discussion on the topic, followed by a research agenda proposal. This study ended up with the final's considerations and references.

2 INSERTING SUSTAINABLE DEVELOPMENT IN CURRICULUM

In order to make a difference about sustainability, it is necessary to go through a curriculum reorientation in higher education (Leal Filho, 2011). Indeed, a plethora of studies have revealed the contributions of implementing Education for Sustainable Development (ESD) in HEIs (Barth & Rieckmann, 2012). Nevertheless, while the HEIs around the world are being questioned about their teaching and research methods (Alawneh et al., 2021), only a few studies discuss specifically the content and curriculum changes (Perera & Hewege, 2016).

For the authors Barth & Rieckmann (2012, p. 29), several actions are being undertaken by HEIs, predominantly in the natural sciences and teacher education fields. New courses and specializations are emerging with a focus on sustainable development. This phenomenon can be highlighted because sustainability has been recognized as a key issue in higher education (Du et al., 2013), and changing the curriculum may be observed as one of the first measures to integrate SD (Ferrer-Balas et al., 2010).

It is possible to find a process of perceptual change about education and sustainability (Sterling, 2004). In this article, we use the EDS term because, for Wals (2009, p. 26), it is a "process of learning (or teaching) based on the ideals and principles that underlie sustainability and is concerned with all levels and types of learning education". In this process, according to Lozano & Lozano (2014) the higher education can include four approaches for incorporating SD into education and curriculum:

1. Institute some coverage of environmental issues in existing modules or courses;
2. Plan and implement a course directed to SD;
3. Intertwine the SD in the concepts of regular disciplinary courses, adapting it to correspond to the nature of each course;
4. Offer the SD as a specialization opportunity within the framework of the faculties.

It is possible to cite that curriculum is one of the most important parts to incorporate attitudes and practices necessary to SD (Hallinger & Chatpinyakoop (2019). According to Weiss et al. (2021), several HEIs have begun to implement sustainability curriculum because the contribution to the future is immeasurable, but it may not stop there. For example, studies are trying to bring this type of offerings to areas such as Business (Staniskis & Katiliute, 2015) and Engineering (Sharma et al., 2017). Some types of offers are being included in the formal education as isolated courses, specific subjects or in a transdisciplinary way. The isolated courses are curricular components offered, which can deal with elements linked to the dimensions of sustainability - sometimes they are electives (Bagoly-Simó et al., 2018). Specific subjects included formal under graduation courses that deal with various topics related to sustainability (Onuki & Mino, 2009). A notion of transdisciplinary means that students are encouraged to focus on broader issues, and to collaboratively arrive at sustainable solutions to discipline specific challenges (Gröschl & Pavie, 2020).

Of course, moving the tracks of HEIs to full integration of these goals is not an easy task. According to Barth, a crucial question is how the implementation of SD can be facilitated, and how it is mobilizing researchers. Experiences are showing that the traditional education has to move beyond, that is, look for new ways of teaching and learning (Du et al., 2013). To illustrate this point, Du et al. (2013) used Project Based Learning (PBL) as a study case to demonstrate a different way of bringing SD to the curriculum and concluded that it could be an effective way of promoting it. Other studies are bringing the idea of a holistic education approach, using what could be called as "transdisciplinary" offerings. According to Stough et al. (2018), transdisciplinary may conceptualized as a transition of teaching and learning to include SD approaches into curriculum. It can be achieved through interactive, action-oriented and research-based methods (Stough et al., 2018).

However, as indicated by Barth & Rieckmann (2012), infusing curricula with "built-in" sustainability remains a big challenge. Sometimes, offering occasional courses, and even electives, seems – and it is - a way of implementing sustainability in formal education, but it cannot stop here (Ferrer-Balas et al., 2010). There are several routes that HEIs might follow in order to incorporate SD in education, changes should happen in different levels, such as education, research, operations, and outreach dimensions of the organization (Du et al., 2013). Adding to this topic will bring opportunities for creating, strengthening, and communicating with stakeholders on the inside and outside of the HEI (SDSN Australia/Pacific, 2017). According to Sustainable Development Solutions Network (SDSN) Australia/Pacific (2017), engaging students, providing training, integrating the sustainability into the institutional documents, etc., are some examples of adapting this aspect into curriculum. Lozano & Lozano (2014) claims that sustainability incorporation and institutionalization should be done incrementally and with the participation of all involved, in order to achieve clarity and constancy.

As it is discussed in the following sections, incorporating SD in the curriculum should be done in a transformative way, that is, in a balanced, synergistic, transdisciplinary, and holistic perspective. An emphasis in integrating the social dimension in SD is necessary as well, as supported by Ferrer-Balas (2010).

3 METHOD

To answer the research question, we conducted a systematic literature review (Tranfield et al., 2003; Petticrew & Roberts, 2006) as the pace of knowledge production in the field of sustainability has been accelerating, causing its fragmentation. The systematic review of the literature requires strict adherence to procedures for identifying data for analysis (Mohammed et al., 2022), and for that, we applied the Preferred Reporting Items for Systematic Reviews (PRISMA) workflow (Salomon et al., 2006). On that note, we've decided to follow the same steps as previous studies (Bitencourt et al., 2020; Paniccia et al., 2020): (i) identification of the eligibility criteria, (ii) definition of sources of information and the search strategies and (iii) study selection processes, outcomes, and data synthesis.

3.1 Search process and Inclusion and Exclusion Criteria

Our research began with the intention of exploring and synthesizing the efforts aimed at bridging a gap, that between sustainable development and the curricula in higher education. Considering our intention, we defined the following research question: "What are the drivers, features, and outcomes regarding a sustainable curriculum?". To answer the question in a viable timeframe, we have defined a set of criteria, detailed below, used to narrow down the number of papers that would be fully analyzed.

To maintain adherence to the question, the following keywords were chosen to conduct the search on the databases: *Curriculum sustainab*; "Curriculum" AND "sustainab*"; "Curriculum" AND ("sustainab*" OR "Corporate Social Responsability" OR "Responsible Management")*. The Web of Science (WoS) and Scopus databases were selected for our search as they represent the biggest indexing databases of peer-reviewed literature available, that contains research on the area we set out to explore, following previous studies (Franco et al., 2018; Lima & Galleli, 2021; Klarin et al, 2021).

The timeframe searched was limited from the years of 2000 to 2021, covering more than two decades of studies. According to Grosseck et al. (2019), until 2004, publications on the field of Education for Sustainable Development were in its initial stage; from 2004 onwards, it began to rise steadily, and since 2014 such publications are experiencing a high growth of interest. The search was conducted on both databases on June 14, 2022.

Results on the Scopus database were filtered to show only papers submitted on the subjects of: Social Sciences, Engineering, Business, Management, Accounting, Economics, Econometrics and Finance. Whilst in the WoS database, the area of study filter applied was Education Educational Research, Green Sustainable Science Technology, Engineering Multidisciplinary, Management, Business, Economics. The language of publication was not filtered, and only peer reviewed articles (published or in press) were considered. The group did not consider gray literature, as dissertations and proceedings of conferences, books or book chapters and editorial material. Also, we excluded publications that focused on basic or intermediate level education, keeping only those that addressed the topic at a higher education level, consonant with the study scope.

3.2 Study selection, data collection process and outcomes

All authors were part of the reviewing team, and meetings were conducted once a week in a period of two months to minimize random errors and bias. Whenever it was hard to classify the eligibility of an article, the authors would mark it as "review" so that its eligibility would be assessed with the whole group during the meetings. Figure 1 shows the PRISMA flow diagram of the different phases of our systematic review.

Figure 1 - PRISMA flow diagram
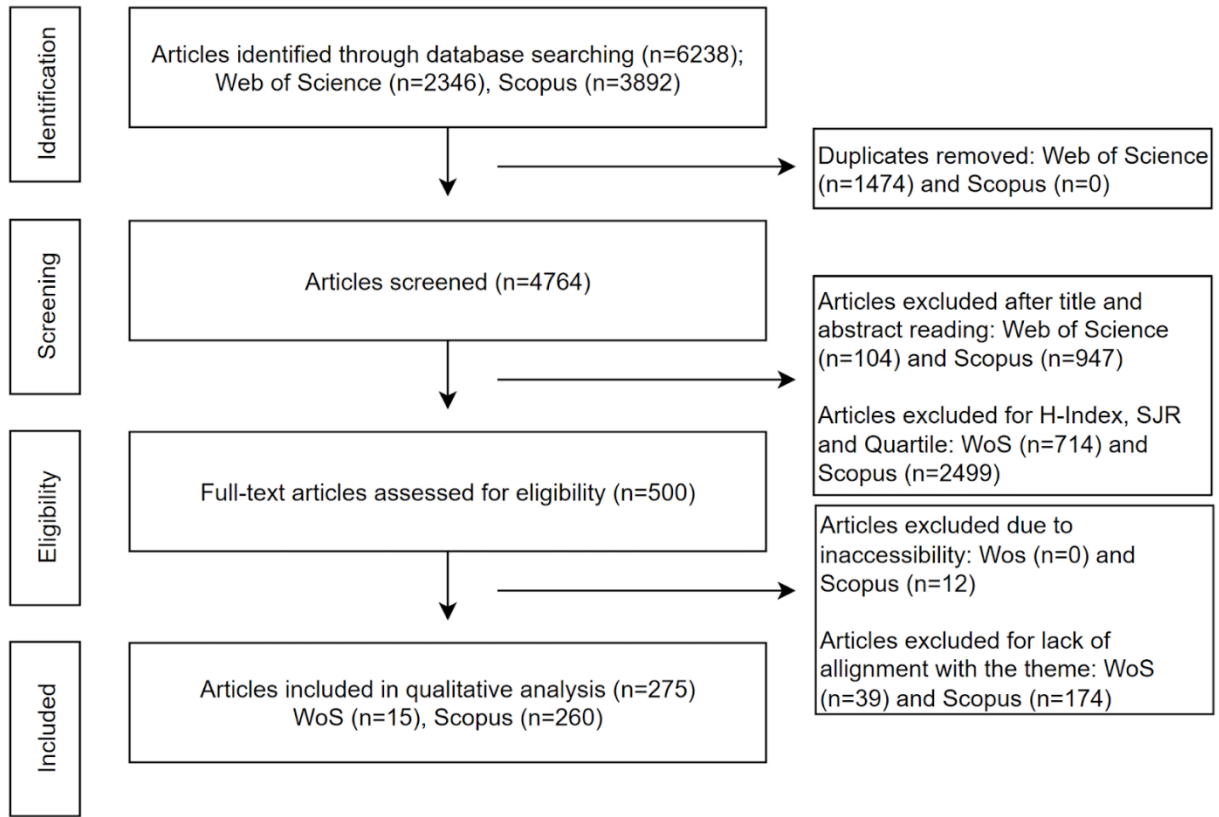
The first step was examining the databases for papers, resulting in 6.238 articles in total, 2.346 from the Web of Science database, and 3.892 from the Scopus database. Duplicates were removed from the database that had fewer articles, reducing 1.474 articles from the WoS database. At the screening part, the authors read the titles, checking for adherence to the theme, and whenever necessary, the abstracts. This resulted in the removal of 1.051 articles in total, 104 from the WoS, and 947 from Scopus.

After this, the articles were filtered by the impact factor of their journals, leaving only those that are published in journals with a H-Index > 0; SJR > 0 and are at the first Quartile (Q1) of their category. This resulted in the cut of 714 articles from the WoS, and 2499 from Scopus, leaving 500 articles to be assessed for their eligibility. For the eligibility assessment, the team set out to read all the 500 articles, but couldn't access 12 of them, all in the Scopus database, which were cut out from the review. After the assessment, 39 papers from WoS, and 174 from Scopus were removed, leaving the team with 15 papers from the WoS, and 260 from the Scopus databases – a total of 275 papers for the final sample, that would comprise the systematic review.

The remaining articles were fully analyzed considering their theoretical background; context; results (when applicable) and conclusion sections, providing data which was organized and coded in a Google Spreadsheet, allowing the team to identify the most recurring themes and debates on the sample regarding sustainability and curriculum, which are presented and discussed on this paper. Descriptive data was also analyzed and is presented in the results section.

4 RESULTS

This topic aims to exemplify the results obtained from the systematic literature review. The authors used the *Microsoft Excel* platform to develop visual elements from what was found. Graph 1 refers to the evolution of publications, between the years 2000 to 2021, referring to the theme of sustainability in the curriculum of higher education.

Graph 1 - Publication evolution
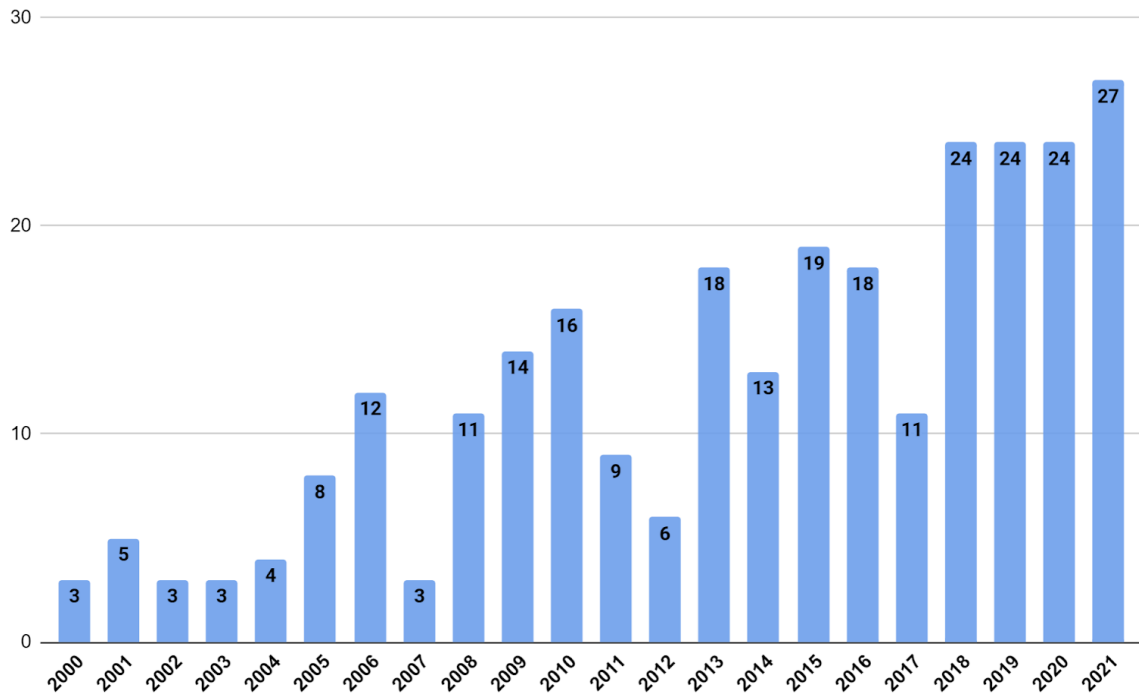
SOURCE: The authors (2022).

One can observe that the year of 2021 had the highest number of publications (27), followed by the years of 2018, 2019 and 2020, that remained with a constant and considerable amount of 24 publications per year. The year of 2007 draws attention as it was the year with the lowest number of publications since 2000, with only three (Abdul-Wahab et al., 2003; Holt, 2003; Marshall & Harry, 2005), and because it represented a considerable decrease compared to the previous year. It is possible to delineate that the evolution is not constant. Finally, after 2017, we witness a significant growth and stability on the number of publications.

Table 1 shows the journals to which the researched articles belong, evidencing the relevance of the journals, in addition to the number of articles selected in each journal.

Table 1 – Number of publications per journal and the impact factor

Journals	H INDEDX	SJR 2021	QUARTILE	Number of publications
International Journal of Sustainability in Higher Education	66	0.86	Q1	94
Journal of Cleaner Production	232	1.92	Q1	66
Sustainability Science	17	1.03	Q1	10
Accounting Education	41	0.74	Q1	5
Academy of Management Learning and Education	83	1.76	Q1	4
Medical Teacher	119	1,07	Q1	4
Assessment and Evaluation in Higher Education	89	2.03	Q1	3
International Journal of Educational Development	60	0.75	Q1	3
International Journal of Fashion Design, Technology and Education	18	0.45	Q1	3
Journal of Business Ethics	208	2.44	Q1	3
Journal of Geography in Higher Education	51	0.71	Q1	3
Journal of Sustainable Tourism	114	2,47	Q1	3
Sustainability	109	0.66	Q1	3
International Journal of Sustainable Development and World Ecology	48	0.8	Q1	2
International Journal of Technology and Design Education	46	0.75	Q1	2
International Research in Geographical and Environmental Education	30	0.7	Q1	2
Nurse Education Today	84	0,99	Q1	2
Studies in Higher Education	112	1,56	Q1	2
Sustainable Development	70	1.31	Q1	2
Others	-	-	Q1	38
Total different journals 57	**Total n° of publications**			**275**

SOURCE: The authors (2022).

Analyzing the Table 1, we observe the concentration of publications in the International Journal of Sustainability in Higher Education and Journal of Cleaner Production. Is important to say that both are related to sustainability in some way. Together, these only two journals correspond to 58% (160) of the total of publications, whereas in other 57 different journals oversee the publication of 275 papers.

Once this study focuses on higher education, it was expected to find different degrees, for instance, under graduation and post-graduation. In sequence, Table 2 exposes the education levels found in the articles from the sample.

Table 2 – Degree levels

Education level	Amount
Under graduation	128
Unspecified	94
More than one	24
Master's degree and PhD	16
MBA	5
Total	**267**

SOURCE: The authors (2022).

As we can notice in Table 2, most of the papers from the sample are dedicated to under graduation courses (128), representing almost half of them. We call attention for the "unspecified" category, which comprises studies on perceptions of students about integrating sustainability in the higher education curriculum (Høgdal et al., 2021; Bitencourt et al., 2020; Ordaz et al., 2021), for example, without clearly specifying the level of education.

Another category of interest was the subject areas on which the associations on sustainability and curriculum were studied, as shows Table 3.

Table 3 - Subject Areas

Subject area	Amount
More than one	88
Unspecified	22
Business	31
Sustainability	7
Accounting	5
Nursing	5
Design	5
Tourism	4
Sciences	4
Planning Education	3
Medical studies	3
Fashion	3
Geography	2
Education	2
Engineering	2
Agriculture	2

SOURCE: The authors (2022).

From Table 3 we can observe that several areas are present, but with a small number of articles on each one of them. Illustrating such finding, we have those 88 articles embracing more than one subject area, for example, one study that involved design, engineering, and business education, in an interdisciplinary perspective (Faludi & Gilbert, 2019). At the same time, the category "Unspecified" presented 32 articles, referring to the presence of sustainability in the curricula, but without referring to a specific knowledge area, in some cases, dealing with the drivers and barriers for implementing sustainability in higher education (Weiss et al., 2021) or to emphasize the policies revolving around it (Dixit & Sehrawat, 2022). Amongst 13 specific areas, Business stood out, with 31 papers referring to it. It is important to highlight those subject areas with only one article were not considered in Table 3.

Together with the degree and subject area, we also analyzed the curriculum offer on sustainability content. Table 4 refers to the types of offers found in the articles' sample.

Table 4 - Offers type

Offers	Amount
Transdisciplinary	74
Unspecified	41
Isolated course	27
Specific subject	15
More than one	10
Total	**167**

SOURCE: The authors (2022).

We can notice that there is a great predominance of transdisciplinary offers, concerning the sustainability content in higher education curriculum (74 papers). In sequence, we have a considerable number of studies that were classified as "Unspecified" because it was not possible to identify the offer type. "Isolated course" refers to a single discipline, while "specific subject" indicates a separate subject (Leal Filho, 2002).

5 DISCUSSION

As it is possible to see in the Graph 1, the importance of an Education for Sustainable Development (ESD) is well established in the literature (Leal Filho, 2011; Doherty et al., 2015) given the growth in the number of articles published. Although in some years there were few publications, the Graph 1 shows that the number of publications continued to grow. It is because universities play a central role in preparing students and the community for such a task (Lozano, 2015) and it is possible to cite that many efforts towards this goal have been described (Andrades et al., 2018).

Despite the growth present in the Graph 1, the stabilization of the number persists. Within the temporal sample of this research, just in 2018 more than 20 articles were published and since that were stagnant, except by the year of 2021. Relating to 2021, the number of 27 articles published is a big point to highlight because it is the biggest number since 2000. This may be justified by the efforts to infuse sustainability into the HEIs, related to the idea of greening the institution, which ends up focusing on its operations, instead of the education aspects of ESD (Hallinger & Chatpinyakoop, 2019)

The Table 1 delimits the number of publications per journal and the impact factor and manifests the predominance in two journals. Concentration can mean its supremacy in terms of knowledge and makes us question whether this prevents the dissemination of the discussion in other areas. This predominance continues in the subject area, possible to see in Table 3, it shows that the business subject has more publications than others. This fact can be justified by the maturity and experience in this regard, evidenced by the discussion of concepts such as Responsible Management (RM) and initiatives such as Principles for Responsible Management Education (PRME), which comes from the area of management (Laasch & Conaway, 2015). This argument is supported by the fact that research has studied the perception of those involved in this context, such as students (Marshall & Harry, 2005; Sharma & Kelly, 2014; Høgdal et al., 2021). At the same time, almost half of the articles in journals and 88 articles in more than one area may reflect the same phenomenon, indicating a multidisciplinary in debate and studies of sustainability studies in higher education.

The Table 2 evidence the prominence of undergraduate studies on the degree levels. It can be explained by the greater incidence of regulations on this level of education, in which public policies are usually involved. On the other hand, the low indecency of studies related to masters and PhDs may be the cause of one of the main barriers to the circularization of sustainability, which is the lack of trained faculty (Vargas, 2000; Galang, 2002; Nicolaides, 2006). Despite the introduction of global declarations, such as the 2030 Agenda, there are few

studies that highlight the intertwining of the implementation of initiatives for SD (Gladwin et al., 1995; Nicolaides, 2006; Rampasso et al., 2019; Weiss et al., 2021).

In terms of Table 4, the challenges to infuse SD in the curricula of HEIs, aside from faculty capacitation, another frequently cited barrier is the overcrowded curriculum faced by many courses (Moore, 2005). Even though most papers that evaluate faculty receptivity to an ESD curriculum present positive results (Winter & Cotton, 2012), there is still indifference or even resistance to the movement, though the resistance is usually discipline specific, and can be overcome when education for sustainability is framed in a particular worldview that resonates with the specific discipline (Christie et al., 2015). Most courses that address sustainability focus on environmental aspects, not covering all dimensions of sustainability (Flohr, 2001).

In most articles about offer type, appointed in the Table 4, there is also a tendency to include the sustainability in higher education, through active and less conventional methodologies (Sterling, 2004). It is an interesting perspective, if the objective is to involve students in the subject in question, in addition to training them to be protagonists in the necessary changes in the environment and in society, as they are familiarizing themselves, since then, with the idea of being assets, in the context of the study of sustainability.

Informed by discussion, it was possible to elaborate the Figure 2 that aims to present an overview of the components of a sustainability curriculum.

Figure 2 - Sustainability Curriculum Components
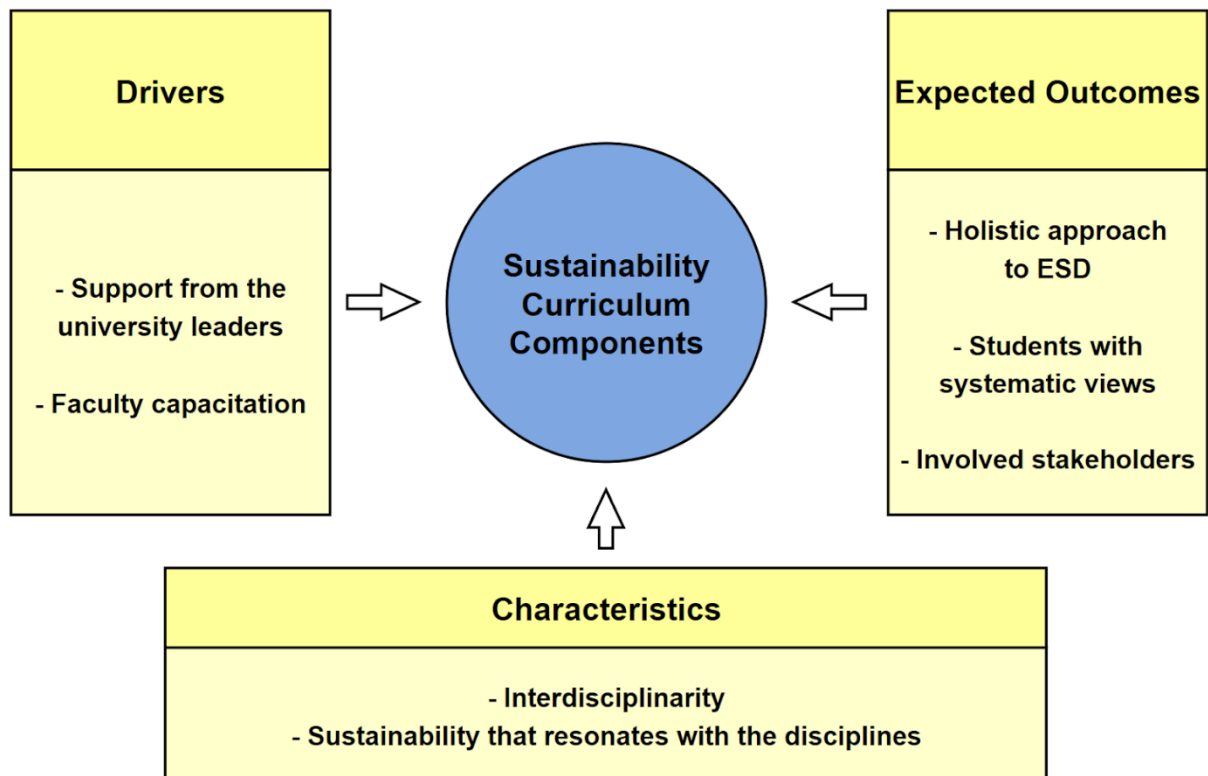
SOURCE: The authors (2022).

Retuning to our research problem, which is, "What are the drivers, features, and outcomes regarding a sustainable curriculum?", the Figure 2 intended to provide a general overview of the components of a sustainability curriculum. After the results and discussion, it is possible to cite that the most important characteristic of the components is the

interdisciplinarity, and a factor that supports it is when the sustainability portion complements the specific disciplines in which it is being inserted (Perera & Hewege, 2016). The systematic review of the literature of 275 articles allowed us to identify drivers that support the implementation of a sustainable curriculum, such as the support from university leaders and faculty capacitation (Bagoly-Simó et al., 2018). It may be appointed that the outcomes expected of a curriculum that follows these guidelines are: i) a holistic approach to ESD; ii) students with worldviews that are more systematic and iii) university stakeholders that are more involved in the sustainable development (de Lange, 2013).

5.1 Research agenda

As presented in the result section, research about the sustainability curriculum has been gaining traction in recent years, which means that researchers should leverage the momentum to delve deep into the theme. In the overview we provide, we have noticed some gaps that could be further explored, presented as future research in this section.

5.1.1 Future research on the topic of transdisciplinary associated with sustainability - Its impacts, approaches, and barriers

Arguments defending the transdisciplinary approach were present in our sample (Onuki, Mino, 2009), but few explored the topic with enough depth to cover its impacts, viable and tested approaches, and how to overcome the barriers imposed to a fruitful transdisciplinary curriculum. As "unspecified" grade categories, subject area and type of offer can tell us: i) adoption of transdisciplinary curriculum, which is very positive; or ii) disregard of these particularities by the researchers, by reason of the study's debate, or other reasons. We suggest further studies on this topic, from longitudinal case studies or action research, for example.

5.1.2 Future research on university's stakeholders involvement with the sustainability curriculum

Involving stakeholders in education is an important factor to advance the learning outcomes (de Lange, 2013; G. Sharma & Bansal, 2020), but the literature does not present a systematic approach to this in terms of sustainability curriculum or education. Such relationships could be explored in more depth to provide the basis for a coherent systematization. Our recommendation relies on quantitative studies that investigate stakeholders as the university community (faculty, staff, students, society) in different stages of implementing sustainability curriculum or other initiatives on the theme.

5.1.3 Future research on the importance of the university structures that aid the sustainability curriculum

In our sample, few articles explored the relevance of university structures and their roles in supporting sustainability education. A paper that follows this route is Lozano et al. (2013), which explores the university system, comprising curriculum, research, physical plant operations, outreach and engagement with stakeholders, and assessment and reporting. Studies like this, comprising both quantitative and qualitative approaches, could be conducted in different universities throughout the world for comparative analysis.

5.1.4 Future research on curricular design and education methods that stimulate student and faculty engagement

Lack of engagement with the sustainability curriculum from faculty and students is a pertinent topic to be explored. A few longitudinal research explores the theme (Holt, 2003; Blake & Sterling, 2011) and the low consider about the evaluation methods and learning outcomes (Tranfield et al., 2003). We suggest future studies that could investigate the antecedents and consequents of such engagement, that could better guide efforts from HEI in initiatives of inserting sustainability in curricular design and course projects.

6 FINAL CONSIDERATIONS

The objective of this systematic literature review was to provide an overview of academic studies on the sustainable curriculum in long-term formal courses in higher education. A total of 275 papers for the final sample was read to provide results. It is noticed that is an effort to infuse sustainability into the HEIs given the importance to the society future (Leal Filho, 2011). From the greening of operations to focus on including projects involving the practice, efforts have been undertaken in the HEIs throughout the world (Hallinger & Chatpinyakoop, 2019). Some barriers are constraining this movement, as the lack of faculty support and low motivation from the students, which claims for more studies from the academia (Hallinger & Chatpinyakoop, 2019). This study evidences the importance of including the HEIs in the discussion of engaging SD and invites all the involved to build upon the existing knowledge corpus.

This study is not exempt from limits. The eligibility criteria applied in the systematic literature review can be considered a limitation of the results, as it eliminates a lot of studies that may be useful and, apart from the keywords, the focus on only two databases (WoS and Scopus) may have prevented us from accessing other relevant studies. We suggest a continuity for this research, partnering up with educational managers to validate and expand the results and discussions, following the recommendations from Sharma and Bansal (2020). This study directly contributes to the literature on concepts about sustainability and curriculum approaches because it highlights the connections between them. This article serves the purpose of bringing back the attention to the core of universities – the education, which sometimes stands in the shadows of the greening agenda. The idea is also contributed to social and government causes, by providing insights for public policies and the Sustainable Development Goal (SDG) 4 - It can be appointed that this article may rise a discussion to the practice around the next step to the HEIs beyond the curriculum changes to rethink the curriculum. And, to social and government causes, this study helps in proving insight to reformulation the public policies or to the international movement, as Sustainable Development Goal (SDG) 4 - Quality Education, of the 2030 Agenda (United Nations, 2015), specifically in goals 4.3.

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