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What We Know and Don't Know About Sustainability in Business Education

A Critical Review and Research Agenda

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This thesis was written as a part of the Master of Science in Economics and Business Administration at NHH. Please note that neither the institution nor the examiners are responsible − through the approval of this thesis − for the theories and methods used, or results and conclusions drawn in this work.

Contents

1. Executive summary

Universities around the globe have started to modify their curricula to include and address sustainability in response to the public's growing concern about environmental degradation and the calls for a shift to a more sustainable society. Equal interest in the phenomenon and how to best integrate sustainability in management education has emerged among scholars. However, extant literature remains fragmented, as it fails to integrate insights effectively. The diverse range of theoretical perspectives adopted and used by academics leads to a scattered and uncoordinated research landscape, which lacks a unified approach. Furthermore, the literature is characterised by a significant amount of redundancy, with numerous studies addressing similar topics while leaving significant gaps in other areas. Additionally, this review finds that prior studies placed heavy reliance on professors' and HEI administration's views of sustainability in management education, neglecting perspectives from other stakeholders involved.

Hence, based on an integrative literature review, this thesis examines the state of the art of the field, looking at what do we know and don't know about how sustainability is embedded in business schools. My analysis identifies three research streams, each with distinct sub themes. This thesis reveals that significant strides have been made in justifying and emphasising the necessity for business schools to integrate sustainability into their curricula, defining what this integration should touch upon, what prevents it, and teaching methods. However, little attention paid to the process of implementation itself, especially in terms of its temporal evolution and the role of change agents in this process, and in providing concrete guidelines and examples of business-related courses in which sustainability has been integrated.

Furthermore, this thesis proposes a model of stakeholders involved in sustainability in management education which previous literature neglected. It crystallizes the pivotal role of these actors and shed light on future research avenues by highlighting under researched stakeholders, such as students and student-led associations.

Therefore, I contribute to theory by providing an integration of the heterogenous body of literature and highlighting the multi-stakeholder nature of embedding sustainability in business education, thus providing concrete directions for future research.

2. Introduction

2.1 Purpose of the thesis and research question

Universities around the globe have started to modify their curricula to include and address sustainability in response to the public's growing concern about environmental degradation and the calls for a shift to a more sustainable society. This societal transformation requires increased awareness and education (Yadav & Prakash, 2022) and addressing sustainability in business education is in particular necessary (Haertle et al., 2017), as the latter prepares the future business leaders and employees who will be in a position to address the widespread unsustainable business practices (Kohl et al., 2022; Ziegler & Porto-de-Oliveira, 2022). As issues with climate change, resource depletion, and social inequality grow; the responsibility of integrating sustainability principles in business schools' curricula is not just an option, but an imperative(Annan-Diab & Molinari, 2017; Fang & O'Toole, 2023).

However, despite good intent and wide support (Mousa et al., 2020), sustainability is present mostly at a declarative level, but less so at the practical level (Preuss et al., 2023). Mostly it has been incorporated in the form of add-on courses separate from the rest of the curriculum and university experience (Sharma & Hart, 2014), thus diminishing its impact on students' understanding and attitudes (D. N. Greenberg et al., 2017). Hence, overall, while the widespread rhetoric is in favour of embedding sustainability, this is often not backed with substantial practical implementation (Preuss et al., 2023).

This phenomenon of increased focus on how business schools can foster pro-sustainability behaviour has been accompanied by a marked increase in scholarly interest (Figueiró & Raufflet, 2015; Vargas-Merino et al., 2024), as evidenced by the growing number of papers published on the subjects. For example, in my preliminary search on Scopus database (2003-2024) using the keywords "sustainab*" or "responsibl*" and "education" resulted in 513 results. Academic research on sustainability in management education has developed alongside the increasing presence of sustainability in management curricula and has now emerged as a research field (Figueiró & Raufflet, 2015; Russo et al., 2023), acknowledging its potential for

societal impact (Vargas-Merino et al., 2024) and providing theoretical advances and examples of successful case studies (Gatti et al., 2019)

While there's much for institutions to learn from the existing literature, this body of literature is not coherent and lacks conceptual clarity (Stephens & Graham, 2010). A wide variety of terminology is used - including sustainability, sustainable development and responsible management education - and findings appear to be siloed. Similarly, previous literature reviews include samples of articles that do not overlap (e.g. Kanashiro et al., 2020; Russo et al., 2023; Vargas-Merino et al., 2024).

As the literature appears to be fragmented and in need of re-conceptualization, there is a clear need for an integrative literature review to bring together findings and look at them from a new perspective, which is the aim of this paper. Hence, this thesis aims to answer the question *what do we know and don't know about how sustainability is embedded in business schools?* and addresses this question by conducting an integrative literature review.

2.2 Research Gaps and Contributions of this Thesis

Previous literature reviews either look at *Responsible Management Education* (RME) or *Sustainability in Management Education* (SiME), despite the two concepts indicating a similar willingness to introduce concepts related to sustainability and sustainable development in management education. As a result, prior literature reviews only provide fragmented insights into the question of how business schools can embed sustainability in practice. Further, these reviews are often based on a limited sample size, excluding relevant journals in the field of management and learning, and are restricted to show bibliographic results. Consequently, these prior reviews fall short to provide a forward-looking research agenda to further the field of sustainability in business education (for more details, see table II in section 3.4). Additionally, this review finds that prior studies placed heavy reliance on professors' and HEI administration's views of SiME, while the role of diverse internal and external stakeholders has not been fully theorized. Despite acknowledging the holistic nature of embedding SiME, prior reviews and studies neglect incorporating perspectives and actions from a variety of actors involved in SiME. As a result, previous research runs the risk of overlooking the potential

contribution of some actors (such as other HEI staff beyond educators), biasing results towards certain perspectives (those of deans and professors) and under-researching or misinterpreting mechanisms (such as the lived classroom experience).

To address these gaps, the objective of this thesis is twofold. Firstly, I aim to present the state of the art, providing a comprehensive overview of existing knowledge from a wide sample of articles that look at how business schools can embed sustainability in practice. Thus, this thesis will bridge the gap between the two research areas *of Management Education* (RME) and *Sustainability in Management Education* (SiME). This will not only facilitate future research endeavours but also be valuable from a practical point of view for institutions who are interested in embedding sustainability by providing a clear synthesis. Secondly, I develop an integrated model that emphasises the multi-stakeholder nature of SiME, providing an overview of the actors involved and highlighting where new perspectives are needed. Overall, I aim to promote further research at the intersection of sustainability and education, gaining insights from both integration and critical analysis, for which an integrative review is suited for (Post et al., 2020). The thesis highlights gaps in the current literature and suggests avenues for future studies.

Hereby, this thesis contributes to the literature at the intersection of sustainability and management education in three ways. Firstly, it integrates insights from a disjointed literature into a cohesive overview. Secondly, it brings light to the multi-stakeholder nature of embedding sustainability in business schools by reviewing the literature from a stakeholder theory point of view and offering a model of the stakeholders involved in the process. Finally, this thesis identifies potential avenues for future research, thereby reinvigorating the existing field.

Additionally, this thesis offers practical insight on embedding sustainability holistically across curricula and programs for practitioners, namely HEI leadership and educators.

2.3 Outline of the thesis

In the following, I will first provide some theoretical background and context by defining the relevant concepts and terminology (section 3.1.), delineating the importance of the role of

higher education institutions (section 3.2.) and the emergence of the field (section 3.3.), before illustrating the findings and shortcomings of previous literature reviews (section 3.4.).

I will then explain the chosen methodology of integrative literature review, from the choice of research design (section 4.1), through the selection of the sample (section 4.2), to the analysis (section 4.3). I will also address quality concerns (section 4.4).

On this basis, I will then delineate my findings, which consist of the identification of three research streams and associated gaps for each (section 5). The three research streams identified are defined as conceptualising SiME (section 5.1), implementing SiME in HEIs (section 5.2), and practicing SiME in the classroom (section 5.3). I then follow with a section devoted to suggestions for future research (sections 6), at the end of which I offer a model of stakeholders involved (section 6.4) , suggesting that stakeholder theory can bring further insight in the field.

I then take stock of my findings (section 7) and discuss the contributions of this thesis (section 7.1), the managerial implications (section 7.2), and the limitations of this study (section 7.3) in order to conclude.

3. Theoretical background: Concepts and Emergence of the Field

3.1 Concept definition

As Higher Education Institutions (HEIs) play a significant role in transforming societies (Barth et al., 2015), there has been a push for the incorporation of sustainability in education, in line with the 2030 Agenda set by the UN, who has strongly advocated for sustainable development education, defined as a "learning process of decision making that takes into account the long-term future of the economy, ecology and equity of all communities" (UNESCO, 2005).

Addressing climate change and natural resource degradation requires economic and societal transformation (IPCC, 2023). Since companies have a considerable impact on (un)sustainability, whether and how their transformation into more sustainable ways of doing business happens is important. This puts in the spotlight the need for Business Schools and more broadly management education to incorporate sustainability and train their students how to properly navigate the challenges associated with it, though by no means is education for sustainability restricted only to management education.

A variety of terminology has been put forward by the literature to indicate this phenomenon: Education for Sustainability, or more specifically Education for Sustainable Development (ESD); Sustainability in Management Education (SiME); and Responsible Management Education, from the UN-supported Principles of Responsible Management Education (PRME) initiative. While there might be finer conceptual differences between these terms, they've all been used in the literature interchangeably to describe the same trend. For simplicity, the term used here henceforward is that of Sustainability in Management Education (SiME), as it is the broadest in meaning of those used while still referring specifically to Business Schools.

Table I.
List of terminology used in the literature

Term	Abbreviation
Education for Sustainability	
Education for Sustainable Development	*ESD*
Sustainability in Management Education	*SiME*
Responsible Management Education	*RME*

While the importance of the concept has been unanimously agreed upon, the theoretical background underpinning lacks consolidation, as proved by the different terminology used to refer to it (Cicmil et al., 2017; Fonseca et al., 2018; Vargas-Merino et al., 2024) This is to be expected, since sustainability itself is a complex term, open to several interpretations (Bonnett, 2002; Wu et al., 2010).

However, despite the plurality of the terminology used, all of these terms circle back to the same concept, which I posit can be defined as "education that fosters "pro-sustainability" behaviour in students". Both sustainability and responsibility emphasize the need for integrating sustainability principles and practices into management education and recognize the importance of educating future leaders and managers about the social, environmental, and economic dimensions of sustainability so that there is a change in their attitudes (Russo et al., 2023; Vargas-Merino et al., 2024).

3.2 Importance of the role of HEIs

Business schools have been recognised as agents of change in the promotion of sustainability (Stephens et al., 2008; Troyer, 1974).

As the world faces environmental, social, and economic challenges, universities have an imperative to be responsible entities and contribute towards tackling these issues. The extant literature builds on the assumption of a social contract of universities and their obligation to society (Nicolaides, 2006; Vargas-Merino et al., 2024) and calls for the realization of the potential of HEIs to be models of civic responsibility (Vargas-Merino et al., 2024). The expectation that business schools include sustainability has been reinforced in light of their association with corporations' environmental failures (Godemann et al., 2014). The inclusion of sustainability in HEIs is no longer simply an option, but, as the need for all citizens to work towards a more sustainable society presses on, it is now an "urgent need" (Cho et al., 2020; Frizon & Eugénio, 2022).

The institutional stability of universities further puts HEIs in a great position to contribute towards long-term issues such as climate change (Stephens et al., 2008) and prompts them to play a more prominent role in societal transformation.

Specifically, higher education institutions (HEIs) can support the transition towards a more sustainable society because of their double function of not only creating and disseminating knowledge, but also training students for their future roles in society (Disterheft et al., 2013; Vargas-Merino et al., 2024).

The UN Decade of Education for Sustainable Development (UNESCO,) cites learning and education as essential activities to support crucial procedures that can alter attitudes and behaviours related to sustainability, finding its argument in the knowledge-attitudes-behaviours framework. Studies have confirmed the ability of universities and educators to influence the opinion on sustainability among students (Zhang & Szerencsi, 2023), with schools being one of the most important sources of ethics-related knowledge alongside families (Zhang & Szerencsi, 2023).

Management education institutions and business schools can in particular contribute by equipping students with the skills and knowledge to promote sustainable business practices it, by training the future generations of decision-makers, policymakers, and business leaders (Cortese, 2003) as well as by forming students as sustainability followers and thus reducing cultural resistance for sustainability initiatives in organisations (Eustachio et al., 2024) and thus overall push companies towards a more sustainability-oriented state (Eustachio et al., 2024).

Qualified professionals are needed to enhance concrete actions in line with Sustainable Development Goals of the United Nations (Frizon & Eugénio, 2022) and surveys have shown that both private and public sector are seeking graduates trained in sustainability issues (Wu et al., 2010).

3.3 Emergence of the field

The emergence of sustainability in management education began with critiques of existing educational systems and calls to incorporate sustainability education from the Brundtland report in 1987 and the Rio Summit in 1992.

This momentum led to the establishment of various organizations and declarations, such as the Association of University Leaders for a Sustainable Future, the Association for the Advancement of Sustainability in Higher Education , the Talloires Declaration in 1990, the first official statement by university administrations committing to incorporating sustainability, and the Beyond Grey Pinstripe initiative, providing an alternative ranking of MBA programs leading the way in the integration of social and environmental stewardship. In the following years, the United Nations declared 2005-2014 as the Decade of Education for Sustainable Development emphasised the integration of sustainability values into education, which gained in importance and visibility (UNESCO, 2005).

More specifically in management academia, the Organizations and the Natural Environment (ONE) division of the Academy of Management (AOM) was established in 1991 with the mission of advancing research, teaching, and service in the field of relationships between organizations and the natural environment.

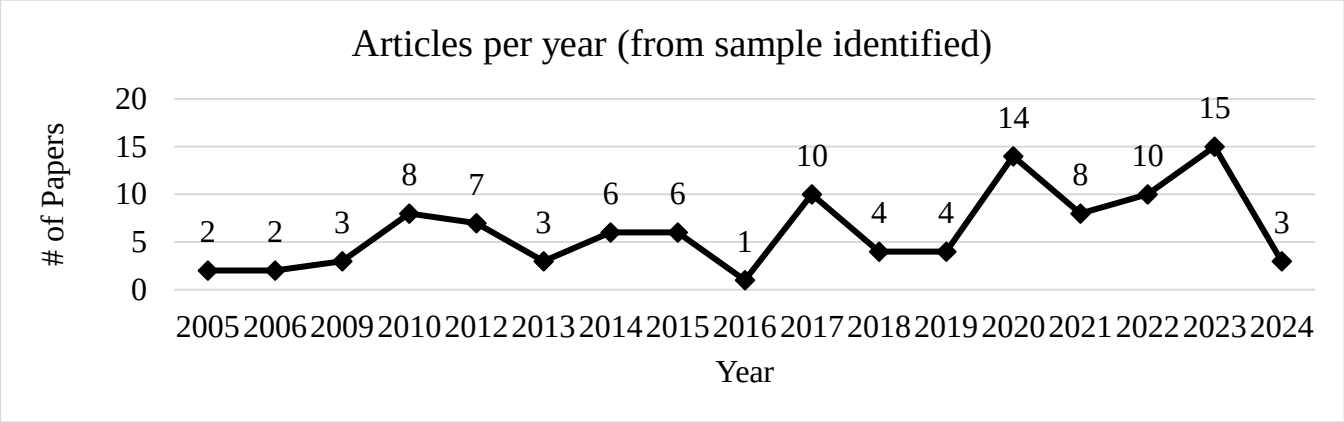
A significant global initiative is the “Principles for Responsible Management Education” (PRME) ideated in 2007 by a task force of sixty representatives of academic institutions such as deans and university presidents and supported by the United Nations. PRME promotes six core principles, revised in 2023, related to purpose, values, method, research, partnership, and dialogue (UNPRME United Nations, 2023) in order to educate future business leaders on balancing economic and sustainability goals. Over 880 business schools worldwide have signed up for PRME, committing to integrate these principles into their teaching and research

practices. The initiative promotes transparency in the form of biannual Sharing Information on Progress (SIP) report and its growing number of signatories evidences a growing commitment to the inclusion of sustainability in Management Education (Godemann et al., 2014).

Accreditation agencies such as the Advance Collegiate Schools of Business (AACSB) and the European Quality Advance Collegiate School of Business (EQUIS) have also incorporated sustainability guidelines into their accreditation processes, requiring schools to demonstrate a commitment to address corporate social responsibility issues through its policies, procedures, curricula, research, and/or outreach.

Overall, a sharp increase in the offering of courses, minors, specialist degrees, etc., has been evidenced over the years (Eustachio et al., 2024). Despite these advancements, HEIs continue to face challenges in fully orienting themselves towards sustainability and achieving the intended result of influencing student behaviours (Zhang & Szerencsi, 2023), indicating that there is still a significant way to go.

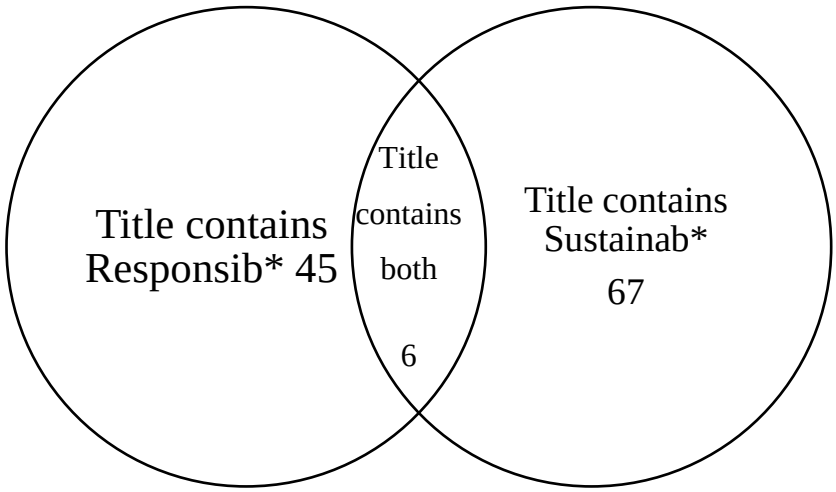
The increased inclusion of sustainability in HEIs has also been paralleled by an equal increase in its study. This is evidenced by an increase in numbers of pertinent articles published every year, as shown in Graph I. Several Special Issues have also been issued on the topic from journals such as Management Learning (in 2023), the International Journal of Management Education (in 2017) the Journal of Cleaner Production (in 2015), the Academy of Management Learning (in 2010), the Journal of Management education (in 2010), and Business Strategy and the Environment (in 2005). As discussed above, however, the field however lacks construct clarity – which is characteristic of emerging research streams (Suddaby, 2010) – and as such, the articles have been published with titles relating to sustainability, sustainable development, and responsibility in management education.



Graph I. Papers published on the topic of SiME per year, based on sample analysed in this work

Source: Own Creation

Due to the diverse terminology used in the field, scholarly articles have been published under both “responsible” and “sustainable” management education, as well as variations like "responsibility" and "sustainability.". Despite (or precisely because of) the conceptual closeness of these terms, only one of the two is typically used in article titles. For example, in the sample that this thesis looks at, only six papers use both terms in the title. As a result, this often results in papers ignoring findings from papers published under the opposite term (Russo et al., 2023; Vargas-Merino et al., 2024).



Graph II. Overlap of papers containing in the title both “responsib*” and “sustainab*” from sample analysed

Source: Own Creation

3.4 Prior Literature Reviews

There are seven prior literature reviews on sustainability in management education, as shown in Table II. The included papers are those that state to be literature reviews and present a clear methodology where selection criteria are explained.

Figueiró & Raufflet (2015) provides an overview of the emerging field's early years, summarising the ten years of research prior to its publication. While this presents a stepping stone for the research field, considerable progress has been made since then. Its status as the second most cited paper in the SiME field evidences the need for a cohesive summary – a need which, however, remains unmet, as later contributions have not yet matched the one made by (Figueiró & Raufflet, 2015). While the number of published papers on the topic of SiME has more than doubled since 2013, the sample size for the subsequent literature reviews has not increased proportionally. As such, the literature remains fragmented. The recent number of reviews published emphasises the need for a comprehensive view, but they still fall short of fulfilling this role.

Frizon & Eugénio (2022) approaches the review process by selecting journals based on the Scimago Journal Rank, focusing on Q1 and Q2 and keywords such as "Sustainability", "Sustainable", "Sustainable Development", "Environment", "Environmental", "Education", "Educational", "Social", and "Cleaner Production". However, this approach excludes relevant journals such as Academy of Management Learning and Education and other specialized publications with a lower ranking due to their specialized nature. This proves to be too restrictive, as evidenced by the small sample size.

Roos & Guenther (2020) follows instead Figueiró & Raufflet (2015)'s criteria and the journal recommendations from the Academy of Management in the division 'Organizations and the Natural Environment". Their focus however is specific to management control systems within HEIs for environmental performance, which is part of the efforts of RME but does not look at the education and teaching part, which is what instead we are concerned here.

Kanashiro et al. (2020) suggests a presage-process-product learning model to categorize the findings of the literature up until 2017. They select papers based on the journals they were

published in, focusing on “journals that specialise in sustainability, management education or that had a special issue on sustainability”. This provides a great initial framework, but doesn’t cover more recent literature. In line with the others, this review doesn’t include RME-specific literature.

Similarly Vargas-Merino et al. (2024) only looks at sustainable development and sustainability as key words, and, again, acts a selection of the journals based on their quartile, which in turn means that journals such as the Academy of Management Learning and Education and the Journal of Management Education are excluded, despite both having had a special issue dedicate to the topic and being popular outlet for SiME topics.

Furthermore, as denoted in section 1.2.1, both SiME and RME indicate the same concept of integrating sustainability-related concepts (though RME focuses on PRME signatory schools. Yet, despite covering the same topic, the two literatures do not communicate with each other. While there is some overlap, a significant proportion of articles includes one key word but not the other in the title (e.g. responsible but not sustainability). In line with this, the existing literature reviews do not look at both SiME and RME research streams. Rather, all extant literature reviews don’t include “responsible” as a key word in their search but only “sustainab*”.

Notably, Russo et al. (2023) is one of only two reviews that focuses on RME. However, it does not take into account appears that include the keyword “sustainability” and variations of it. Cullen (2020) is the other paper that focuses on RME and similarly doesn’t include the keyword “sustainability” in the search. Additionally, this review focused also on learning in contexts other than HEIs such as within organisations / in the workplace and individually outside of an institution. Consequently, the two areas remain disjointed and as such we can say that no attempt at cohesion between the two research streams has been made so far.

Therefore, we can firstly conclude that a significant portion of the extant literature is excluded from previous reviews. Secondly, the RME and SiME research strands remain distinct. Thirdly, with the exception of Figueiró & Raufflet (2015) and Kanashiro et al. (2020), who only reviewed up to 2013 and 2017 respectively, no study provides a comprehensive framework for understanding and contextualising the entire body of literature.

Table II. Articles Reviewing Sustainability in Management Education

Authors	Main findings	Sample	Keywords used	Keywords omitted
(Figueiró & Raufflet, 2015)	Early overview of emerging field. organizes literature by challenges, teaching techniques, and curriculum orientation	n= 63 2003-2013	sustainability, sustainable, green, sustainable development	"Responsib*"
(Kanashiro et al., 2020)	Summarises factors that contribute or undermine learning SiME - teaching and students' contextual factors that facilitate learning SiME	s= 46 2002-2017	sustainability education, learning in sustainability and assurance of learning in sustainability	"Responsib*"
(Cullen, 2020)	Analyses findings on the learning of RME in the context of HEIs, organisations, and individuals	s = 102	'Responsible Management Educat*', 'Responsible Management Learn*', 'Responsible Management Train*', 'Responsible Human Resource Development', Responsible Management Teach*' and 'Responsible Management Educat*'.	"Sustainab*"
(Roos & Guenther, 2020)	examine how HEIs perform environmental management with a focus on management control systems	n=56 2000 - 2017	sustainab*, green, ecol*, environmental* AND "manag* control*", "public sector accounting", "performance measurement", MCS, MAS AND "high* education", universit*, college*, campus, "Business school*", "HEI*" and "knowledge intensive organi?ation*"	"Responsib*"
(Frizon & Eugénio, 2022)	bibliometric review of research on SiME, showing	n=16 2014-2020	"Sustainability", "Sustainable", "Sustainable Development", "Environment", "Environmental", "Education", "Educational", "Social", and	"Responsib*"

	increasing importance		“Cleaner Production” in the journal title AND “Sustainability”, “Higher Education”, “Accounting” and/or “Management” in title	
(Russo et al., 2023)	delineates the historical development of the relationship between business schools and the PRME	n = 82 2007-2022	“Business School” AND “Responsible Management Education” OR “RME”	“Sustainab*”
(Vargas-Merino et al., 2024)	reviews extant literature for conceptualization of the role of universities in education of sustainable development	n=74	“education for sustainable development” OR “education for sustainability” AND “HEI” OR “universit*" OR “higher education” OR “tertiary education”	“Responsib*”

4. Methodology

4.1 Research design

In order to investigate how business schools can embed sustainability in practice and fulfil the aim of providing a clear framework of what we know so far, I conducted an integrative literature review following an inductive qualitative method. Torraco (2005, p. 356) defines an integrative literature review as "… a form of research that reviews, critiques, and synthesizes representative literature on a topic in an integrated way such that new frameworks and perspectives on the topic are generated". An integrative review is well-suited to define the state of the art in a research topic (Elsbach & van Knippenberg, 2020), such as sustainability in business education, which is a fragmented field, as evidenced by the plurality of terminology used. As the field of research has become increasingly siloed, there is a pressing need to reconceptualize the existing literature and consolidate it into a coherent body of knowledge. Hence, this thesis aims to provide a 'creative synthesis' defined as the integration of existing knowledge with insights gained from the critical analysis to formulate a new perspective (Post et al., 2020). Adopting this approach allows me to identify both state of the art and gaps in the literature and thus provide a comprehensive overview of existing knowledge and promote further research (Elsbach & van Knippenberg, 2020).

This thesis uses a structured approach to reviewing published academic research. Organized and replicable methods were employed to identify, select, and critically analyse the literature on the basis of a thematic analysis through qualitative coding (Tranfield et al., 2003). Specifically, the review was conducted in two steps: (1) selection of sample based on keyword and journal identification, and (2) article content analysis. These two steps are described in more detail in the sections below.

4.2 Selection of sample

As noted before, the field of sustainability in business education has used a variety of terminology. On this basis, two key words were identified: sustainable and responsible. While these appeared to be synonymous, in the title of journals usually only one of these appeared. In order to allow for variations, such as sustainability and responsibility, the wildcard search symbol * was used.

The sample for the analysis originates from a search on the Scopus database for academic articles that included either “sustainab*” or “responsib*” AND “management” or “business” “education” in the article title. The search string that was used for filtering on the title was: ["sustainab*" OR "responsib*"] AND [("management" OR "business") AND "education"]. Search results were limited to English language. I excluded book chapters, errata, letters, notes, and books – thus keeping in articles, conference papers, review, editorials, and conference reviews. The decision to include conference papers stems from the fact that Figueiró & Raufflet (2015) has been published as one, but is the most cited previous review of the field. In order to keep broad boundary conditions and include all relevant research, the timeline for included publications includes the entire period during which research on the topic has been published. This initial search done identified 513 documents, as of February 2024. Subsequently, 8 were excluded as they were found to be duplicates i.e. indexed twice (EX1). Hence 505 records were assessed for eligibility from Scopus.

In order to ensure that all available relevant work was to be found, a search on a second electronic database was conducted, as recommended for a methodical and comprehensive literature search (Siddaway et al., 2019). The same keywords and search string - ["sustainab*" OR "responsib*"] AND [("management" OR "business") AND "education"] in the title - were used to find articles in EBSCOhost (Business Source Ultimate). Again, the results were limited to the English language and included only academic journals. This second search identified 261 results. Subsequently, 2 were excluded as they were found to be duplicates i.e. indexed twice (EX1). Results from EBSCOhost were found to significantly overlap with the results from Scopus (EX2) (n=95), leaving 164 additional unique records for assessment from EBSCOhost. Duplicates between the two databases were found by comparing DOI.

Afterwards, the journals to be included in the sample were identified, following the selection criteria adopted by Figueiró & Raufflet (2015). Journals recognized by the Management Education and Development (MED) division of the Academy of Management dedicated to research and price in management education were selected. Among these, journals that had not published papers about sustainability in higher education have been excluded. These include Transformative Dialogues, Journal of Management Inquiry, Educational Media International, Journal of Marketing Education, The Accounting Educators' Journal and Journal of Industrial Organization Education. Archived journals with no access were also excluded. These include the International Journal of Management Development, the Journal of Executive Education, and the Journal of Leadership Education. Subsequently, as also indicated

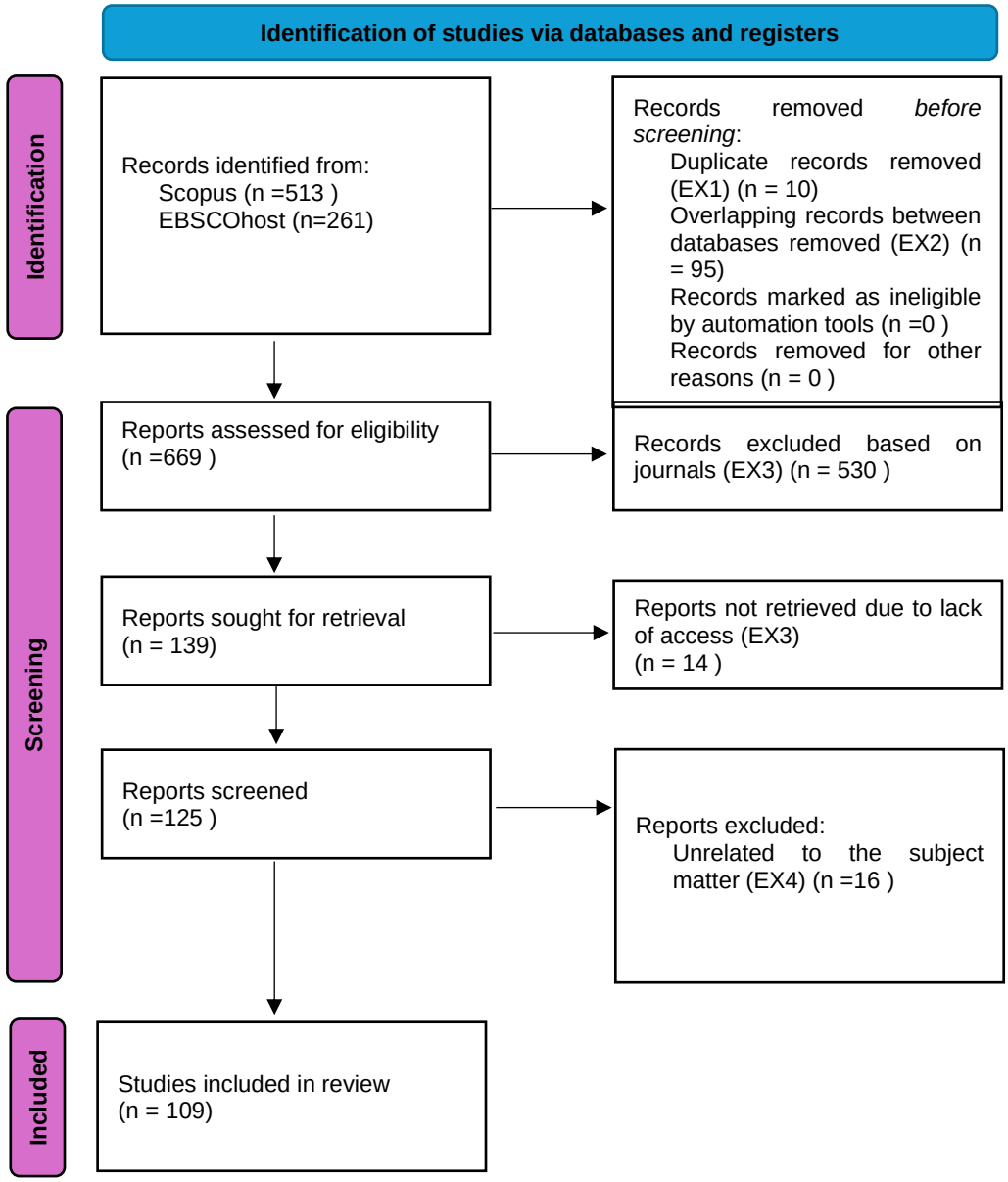
by Figueiró & Raufflet (2015), four journals were added. The Journal of Cleaner Production and Business Strategy and the Environment were added, as these journals have a strong focus on sustainability research, have published articles on sustainability in management research. Two specialized publications - Studies in Higher Education and the International Journal of Sustainability in Higher Education - were also added. In total, a sample of 9 journals was built.

Table III.
List of journals considered

Journal	ABS-Rank	# of articles
Academy of Management Learning Education	*4**	*11*
Business Strategy and the Environment	*3*	*1*
International Journal of Management Education	*1*	*32*
International Journal of Sustainability in Higher Education	*NOT LISTED*	*27*
Journal of Cleaner Production	*2*	*15*
Journal of Education for Business	*NOT LISTED*	*7*
Journal of Management Education	*2*	*6*
Management Learning	*3*	*6*
Studies in Higher Education	*3*	*1*

On the basis of the identified journals, 530 records were then excluded (EX2) and 139 were sought for retrieval. Due to lack of access, 14 records were not retrieved (EX3) and 125 were screened. 16 of these were found to be unrelated to the topic investigated, despite having sustainability and education in the title and were thus excluded. Thus, the total of studies included in the review is 109.

Graph III. PRISMA Flow diagram for sample selection



4.3 Analysis

After the final sample had been composed and read, a qualitative exploratory research approach, which involved the coding of papers, enabled the classification of the different articles and the identification of research streams and gaps in these.

I coded the literature by summarizing findings and identifying similarities across studies. To do this, I derived categories inductively according to different characteristics. As the

research was exploratory, defining the categories coded and the codes was an iterative process. In the end, for each article, I defined the main findings, the research strand they focused on, the sub-theme, the research methods, the actors involved, the situated activities mentioned, the tools mentioned, the barriers and the drivers highlighted.
Beyond coding, an in-depth reading of each paper led to the identification notions present in the literature and gaps surrounding what has not been covered.

4.4 Quality criteria

In order to ensure transparency and reproducibility, it is important to record all changes to produce a reliable account of the process that may be evaluated by others (Hiebl, 2023). To provide as reliable results as possible, that is consistent and replicable results, I have explained the strategy of my research in this methodology section in a detailed way. Exclusion criteria have been pointed out and justified. While operating a selection based on journals may restrict the collection, it enabled the thesis to focus on studies focused on management education, which is the aim of the study, and ensures the quality of the papers reviewed. This also allows me to create transparency and assure that readers can follow the logical flow of my selection of papers and coding analysis. In order to ensure that a wide range of results was included, I sifted through the full-text version of every potentially relevant article sought for retrieval to determine whether it was relevant or not.

To mitigate the potential influence of researcher bias, I have also taken steps to continuously re-evaluate my impressions and hypotheses, as well as to remain open to the possibility of unforeseen results throughout the analysis. Furthermore, I ensured that my interpretations were consistent and transparent by summarising the key findings and presenting in the Appendix the research stream and sub-theme coding (section 9.1).

Additionally, best practice guidelines for literature reviews suggest the involvement of two separate reviewers for the search and coding of the articles in order to ensure inter-rater reliability (Siddaway et al., 2019) . However, since the reviewer is a master student writing alone, this was not possible in practice. As Siddaway et al. (2019) notes, some flexibility should be granted in such cases, as “it is possible that a single individual could correctly conduct an extremely high-quality and publishable systematic review” (Siddaway et al.,

2019). Crucial for this to happen is for the reviewer to provide detailed information about the process, which in the case of this thesis, has been done in this methodology chapter.

5. Research streams on sustainability in business education

W*hat do we know and don't know about how sustainability is embedded in business schools?* In order to answer this question, I conducted an extensive literature review to gather existing knowledge about sustainability in management education so far. On the basis of the review and of the coding procedure, I identified three separate streams of research: conceptualizing, implementing, practicing.

These three organise the literature on the basis of level of practicality. Conceptualizing refers to literature focusing on building the theoretical background for the field, including a definition and justification for SiME. Implementing refers to papers concerned with the process of implementation, including factors that drive or hinder it. Practicing instead refers to literature that focus at a granular level on the classroom and what happens in it, including description of courses that successfully fostered pro-sustainability attitudes.

Nevertheless, the existing literature does not address all pertinent issues. Therefore, for each research stream, I have identified the most significant gaps and have proposed research avenues to address these gaps, which I will then cover in section 6. In the sections below I will explain each research stream and its sub-themes as well as critically evaluating it.

Table IV. Research streams identified

Table IV Research streams identified	
Research stream	**Sub-themes identified**
Conceptualizing SiME	Justification for integrating sustainability in management education Definition of sustainability in management education What elements should SiME encompass How should sustainability be included?

	What does teaching SiME means?
	What competences need to be fostered?
	SiME and the hidden curriculum
	Assessing the impact of embedding sustainability in business schools
Implementing SiME in institutions	Current state of implementation
	Approaches to implementation
	Process of implementation
	Barriers and Drivers
Practicing SiME in the classroom	Teaching methods
	Interdisciplinarity
	Reflexivity
	Practical Tools
	Concrete examples

5.1 Research Stream #1: Conceptualizing SiME

A significant number of the articles (44 out of 109) examined aimed at building a theoretical ground for future contributions, thus falling in this 'conceptualizing' research stream. Specifically, they focused on legitimizing the necessity of embedding sustainability into business schools, defining what SiME consists of, what it should concern, how it should be incorporated, what should the content of it be, and whether it is effective. Each of these themes is further analysed and summarised below.

5.1.1 Justification for integrating sustainabilty into management education

Following the establishment of the Principles of Responsible Management, a considerable number of papers was published advocating for the integration of sustainability in Management Education (Alcaraz & Thiruvattal, 2010; Arevalo et al., 2020; Forray et al., 2015; Holliday, 2010; Palthe, 2013; Rusinko, 2010; Stephens & Graham, 2010), thus establishing the case for integrating sustainability into business programs. These found their basis in the need to foster pro-sustainable sensitivities (Kurucz et al., 2014; Sidiropoulos, 2014), the demand of sustainability-specific training from the industry side (Gitsham & Clark, 2014), and the social obligation of HEIs as agents of public good (Abdelgaffar, 2021; Audebrand & Pepin, 2022; Burchell et al., 2015; Kolb et al., 2017; Lourenço et al., 2013; Molthan-Hill et al., 2020; Parkes et al., 2017; Storey et al., 2017; Tilbury & Ryan, 2011).

At this point in time, there is widespread recognition of the need for inclusion of sustainability in management education (Russo et al., 2023; Vargas-Merino et al., 2024). It is acknowledged that business schools can bring about more sustainable ways of doing business, albeit slowly (Rasche & Gilbert, 2015), and that there is a perceived obligation by the HEIs themselves and society for them to act on the integration of SiME in order to contribute to solving global wicked problems such as climate change (Russo et al., 2023). The underlying assumption is that students can be socially conscious entre- and intrapreneurs, leaders, and world citizens (Wihlenda et al., 2023). Hence, management education should include sustainability, in order to influence the position of its students in society, as consumers, employees, managers, entrepreneurs, investors, and leaders (Fougère & Solitander, 2023).

Weybrecht (2017a, 2017b) has argued that SiME can develop individuals, drive cultural shifts and influence change, foster innovation, and contribute to local, national, regional and global efforts. Thus, HEIs can be seen as catalysts for change towards sustainability, able to impact positively society (Vargas-Merino et al., 2024).

5.1.2 Definition of sustainability in management education

Several papers are also dedicated to defining sustainability and/or responsible management education, highlighting the abundance of perspectives and interpretations of these concepts (Burchell et al., 2015; Vargas-Merino et al., 2024). Despite using different terminology, both

studies on SiME and on RME similarly point towards the integration of economic, social, and environmental considerations in business education. Research focused on PRME refers to sustainability broadly, with varying degrees of reference to the specific Principles.

Regardless of the specific definitions adopted by each paper, they all converge towards the same principles: the recognition of the complex interrelationships and interdependencies between economic growth, environmental carrying capacity, and sociocultural conditions (Wu et al., 2010), with an important focus on the time factor due to the necessity to provide for the needs of current and future generations (Kanashiro et al., 2020), thus promoting pro-environmental and pro-social values, behaviours, and attitudes.

SiME finds its roots in the literature of Business Ethics, Corporate Social Responsibility, and Environmental Sustainability (Frizon & Eugénio, 2022) and thus finds itself in line with the idea that the requirement for sustainability in business management is for environmental and social responsibilities to be given the same weight as economic and financial concerns (Neubaum et al., 2009; Wu et al., 2010). Vargas-Merino et al. (2024) maps out several conceptual definitions used by different papers, thus providing an overview from which the aforementioned points of convergence emerge.

Given the similarities between the concepts, an agreed-upon meaning can be reached. On this basis then, I argue that SiME can be broadly defined as multi-dimensional knowledge that fosters the recognition of the complex interrelationships and interdependencies between economic growth, environmental carrying capacity, and sociocultural conditions, highlighting the intergenerational temporal dimensions, and promoting pro-environmental and pro-social values and behaviours.

In particular, (business) education is then linked to sustainability for both its capacity to transmit knowledge and increase sustainability awareness but also for its ability to generate sustainable attitudinal changes in the community (Vargas-Merino et al., 2024). As a key provider of business education, HEIs need to prepare students on appropriate skills and competences, which include sustainability (Kolb et al., 20o17; Shephard, 2008). Hence, more specifically, I posit that SiME can be defined as “education that fosters “pro-sustainability” behaviour in students”.

5.1.3 What elements should sustainable management education encompass?

Scholars have argued for breadth not only when it comes to the scope of what sustainability should include, but also when it comes to the extent to which it should be integrated. Responsible management education needs a re-examination of the "values that are reproducing the unethical, irresponsible, and unsustainable behaviours within students who will become the new leaders in the business world" (Malarski & Berte, 2023). Thus, embedding sustainability requires a holistic and systematic approach (Kolb et al., 2017).

This includes aligning the university's mission, program outcomes, education/curriculum, learning objectives, student activities, assessments, research, community interaction (Cortese, 2003; Malarski & Berte, 2023; Singhal et al., 2017). In line with this, Wright & Wilton (2012) argues that considering sustainability in campus operations is also necessary, as coherence in values should be fostered. Similarly, Singh & Segatto (2020) emphasises how teaching practices and professional associations should align. Kolb et al. (2017) combines previous research and outlines major areas of action for business schools: reorienting curricula, developing graduates with appropriate skills and competences, supplying CSR education for practitioners, developing specialist CSR education for industries, raising public awareness, conducting research to advance knowledge on CSR, training the workforce, implementing sustainability within one's own institution. Vargas-Merino et al. (2024) also outlines the main areas for integration, as follows: education/curriculum, research, monitoring and assessment, stakeholders support, and leadership in higher education.

5.1.4 How should sustainability be included?

When it comes to education, research argues that the curriculum, as the basis of the educational experience, should be developed with sustainability in mind (Etse & Ingley, 2016). Approaches for integrating sustainability in the curriculum have been broadly classified in two ways: either embedding content to existing courses or developing stand-alone dedicated material (Beddewela et al., 2017; Etse & Ingley, 2016; Matten & Moon, 2004; Nicholls et al., 2013; Storey et al., 2017).

Rusinko (2010) categorizes options for integrating sustainability in management education in a matrix, presenting different structural options for delivery of sustainability – though existing

structures (e.g. course, module, case) or new structures as well as differentiating cross-disciplinary and discipline specific. Thus, he presents five options: integrating into existing courses, integrating into common core requirements, creating new discipline-specific sustainability courses, and creating new cross-disciplinary sustainability courses or programs. In addition, there are co-curricular options, such as service learning and student clubs or activities.

Studies shows that students' ability and confidence to understand sustainability-related issues can be fostered by both types (existing and standalone) of course (May et al., 2014). In an pre-post comparison of students' views, Zhang & Szerencsi (2023) shows that stand-alone courses can work, but that they still leave a gap between awareness and action, which perhaps can be overcome by embedding content in other courses . Similarly, Chirieleison et al. (2017) finds that a high quantity of dedicated stand-alone courses is needed to make an impact. Overall, Teruel-Serrano and Vinals (2020) found that there was still a need for a more cogent approach to combining environmental issues after reviewing the course syllabi for sustainability courses. They contended that a fresh approach to teaching was required rather than just adding one sustainability-focused course, as stand-alone courses cannot be used to mainstream sustainability.

Furthermore, sustainability can be incorporated in a course to varying degrees. Kolb et al. (2017) offers a maturity-model classification of the level of embeddedness, ranging from no CSR-relation, to CSR built in parts of the lecture, CSR as a partner function, CSR as normative framework (explicit), and CSR as normative framework (implicit). In the first three stages, while the business topic is approached from a CSR perspective, a distinction is made between approaches, while in later stages a wholly integrative approach is suggested, with CSR topics and sustainable management practices creating a normative framework influencing the business topics. This can be explicit – if for example it is explicitly stated in the title – or implicit.

5.1.5 What does teaching SiME mean?

Research has also focused on the content to be included in sustainability education, or in other words, what needs to be taught. The aim is for students to learn the drawbacks of conventional business methods that prioritise process efficiency and profit maximisation and teaches people

how to make innovative contributions to a more sustainable environment (Fukukawa et al., 2013; Gatti et al., 2019).

Scholars agree that SiME should not only involve the cognitive aspect of learning, but also the affective aspect, aiming to foster passion and elicit emotion (Chalkley, 2006; Figueiró & Raufflet, 2015; Gatti et al., 2019; Kleymann & Tapie, 2010; Shephard, 2008). Whereas the first aspect relates to the acquisition of knowledge and understanding, the latter includes values, attitudes, and behavioural intentions (Gatti et al., 2019).

The concept of a sustainability mindset has been proposed as a way to encompass the multi-faceted nature of the aim of SiME (Kassel et al., 2016; Kassel & Rimanoczy, 2018). This has been defined as "a way of thinking and being that results from a broad understanding of the ecosystem's manifestations, from social sensitivity, as well as an introspective focus on one's personal values and higher self, and finds its expression in actions for the greater good of the whole" (Kassel & Rimanoczy, 2018, p. 7). It includes three dimensions (knowledge, values, competences) and four interdependent content areas (ecological worldview, systemic perspective, emotional intelligence, and spiritual intelligence) (Kassel & Rimanoczy, 2018).

The goal is thus to shift from increasing the understanding of sustainability in managerial practices and decision-making to a more holistic pedagogy (Audebrand & Pepin, 2022; Montiel et al., 2018; Shephard, 2008; Shrivastava, 2010; Starik et al., 2010). According to Shrivastava (2010), teaching environmental sustainability management calls for a more all-encompassing approach to education—one that incorporates not just cognitive learning but also emotional, spiritual, and physical learning. In order to effectively manage sustainably, passion for sustainability is just as important as cognitive comprehension when it comes to environmental sustainability strategies. Additionally, Starik et al. (2010) and Audebrand (2010) recommend modifying current curricula to support innovative methods of teaching sustainability management that emphasise sustainability ideals more and foster students' development of relationships with the environment. In turn, this should also help develop the moral compass of students (Thompson, 2010).

There have also been calls (e.g. Montiel et al., 2018; Mousa, 2022) for more attention to be paid to the practical experience aspect of education – not only when it comes to identifying impacts, but also addressing them. Similarly, Weybrecht (2021) stresses how the content

should go beyond awareness raising and rather connect and embed with the core of the discipline.

5.1.6 What competences need to be fostered in students?

On the basis of the UNESCO (2017)'s eight competences for sustainability – that is: 1) systems thinking competency, 2) anticipatory competency, 3) normative competency, 4) strategic competency, 5) collaboration competency, 6) critical thinking competency, 7) self-awareness competency, and 8) integrated problem-solving competency, several works have set out to define the competences to indicate what needs to be trained.

For example, De Haan (2006) highlights foresighted thinking, interdisciplinary work, transcultural understanding, participatory skills, planning and implementation skills, empathy, motivating, reflection. Laasch et al. (2023) defines knowledge, skills/doing, attitudes applied to six competence domains of being, becoming, acting, interacting, knowing and thinking. The most comprehensive is Lambrechts et al. (2013) who, building on Roorda (2010), offer a complete set of knowledge, skills, values, and attitudes necessary to ensure today's students and future leaders are ready to deal with complex issues regarding sustainability, and achieve a sustainable future creates. The framework summarizes previous work and includes the following six main points, with sub-competences: responsibility, emotional intelligence, system orientation, future orientation, personal investment, and action skills (Lambrechts et al., 2013).

Overall, there is a growing agreement on the set of key competences (del Mar Martínez-Bravo et al., 2024), such as systems-thinking, futures-thinking, values-thinking, strategic-thinking, and interpersonal competencies (Brundiers et al., 2021; del Mar Martínez-Bravo et al., 2024; Redman et al., 2021).

5.1.7 SiME and the hidden curriculum

A few studies draw attention to the hidden curriculum (HC) of business schools (Fougère & Solitander, 2023; Høgdal et al., 2021; Mousa, 2022; Olanya et al., 2023), stressing need to acknowledge and tackle aspects of the HC that do not align with sustainability.

Rowntree (1981, p.115) defines the hidden curriculum as "all the beliefs and values and understandings that are passed on to the student in an educational institution, not through

formal teaching but unconsciously through what the institution implicitly demands of the students". It also reflects "what is implicit and embedded in educational experiences in contrast with the formal statements about curricula and the surface feature of educational interaction" (Sambell & McDowell, 1998, pp. 391–392).

When it comes to embedding sustainability and the HC, Høgdal et al. (2021 and Olanya et al. (2023) call for the alignment between the formal and implicit dimensions of the curriculum to SiME. This refers to various dimensions, such as challenging underlying assumptions of the material taught (Blasco, 2012; Fougère & Solitander, 2023; Ndubuka & Rey-Marmonier, 2019). Among these are the assumption that resources are free and infinite, that technology can be a cure-all for all of society's problems, that material means are the sole answer to human needs and wants, that one's success if independent of the surrounding community, and that the ecosystem will continue to assimilate the negative externalities of human actions (Cortese, 2003; Ndubuka & Rey-Marmonier, 2019). Especially true in courses that foster entrepreneurship for sustainability, the assumptions that "(1) innovative solutions developed by entrepreneurs are what is needed to address the SDGs, and (2) since the SDGs are grand challenges, problems that concern large areas and amounts of people, there would be scalable 'markets' to be served by these solutions, and thus tremendous business opportunities" (Fougère & Solitander, 2023) might only be true in some cases. Thus, the underlying assumptions that "business-driven solutions are best equipped to tackle grand social and environmental challenges, and the idea that 'the entrepreneurial mindset', drawing on heroic figures in the media, is the most decisive characteristic that is needed to address the SDGs" (Fougère & Solitander, 2023) can actually be deleterious.

Along these lines, it has also been pointed out that the majority of educational institutions predominantly adheres to antiquated neoclassical concepts that portray sustainability as a series of incremental improvements over business as usual, emphasise minimising harm, and advocate for the business case of sustainability as a reason for corporations to change (Landrum, 2021; Landrum & Ohsowski, 2017). Instead, the literature presents a compelling argument that a transition to a more modern ecological worldview is necessary (Landrum, 2021; Webster & Johnson, 2008).

It is also important to consider the HC when it comes to non-formal, and informal learning experiences (Caldana et al., 2023). Similarly, Blasco (2012) calls for a close examination of the implicit dimensions of educational experience and spaces beyond the formal curriculum

where students undergo moral learning and socialization processes. These include teaching practices, on which no study has currently focused on, but also student associations, which were the subject of Borges et al. (2017)- which showed they promote a predisposition towards making as social impact.

5.1.8 Assessing the impact of embedding sustainability in business schools

Research has also focused on assessing the impact of efforts to incorporate sustainability in business schools. Scholars have attempted to develop assessment measures, yet no single approach has gained universal acceptance (Gatti et al., 2019; Sharma & Kelly, 2014; Tang, 2018). A few studies have investigated the impacts by collecting opinions from students after one semester of teaching, with varying conclusions regarding its effectiveness (Chirieleison et al., 2017; Gatti et al., 2019; Marathe et al., 2020; May et al., 2014; Parkes et al., 2017; Ruhanen & Bowles, 2020; U. Sharma & Kelly, 2014; Tang, 2018). Looking at the impact of embedding sustainability in management education, some find a limited positive impact at increasing empathy (Chirieleison et al., 2017; Marathe et al., 2020; May et al., 2014) by improving perspective takings skills and level of emphatic concern (Marathe et al., 2020). However, not only these studies rely on whether students can accurately report their changes (Zhang & Szerencsi, 2023), but they also mostly focus on the knowledge acquisition component, while behaviour is equally, if not more, important (Lambrechts et al., 2013; Parkes et al., 2017; Ruhanen & Bowles, 2020). Some other studies instead prefer a pre-post approach, finding a limited positive effect in ethical sensitivity (Saat et al., 2010) and increasing awareness (Hay & Eagle, 2020; Zhang & Szerencsi, 2023; Zizka & Varga, 2021), but also expressing concerns about the transferability of learnings to behaviour outside the classroom (Zhang & Szerencsi, 2023; Zizka & Varga, 2021). Specifically, findings show that while awareness slightly improved (though it was already high at the beginning), a stronger driver for the intention to make a change is still needed, as no change was seen on students' behaviour around carbon-intensive initiatives, despite in-class discussions (Sammalisto et al., 2016; Zhang & Szerencsi, 2023). Yet, any learning that does not result in personal behavioural changes concerning the abuse of the environment can be considered a failure (Jucker, 2002; Nicolaides, 2006).

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Szerencsi, 2023; Zizka & Varga, 2021), but also expressing concerns about the transferability of learnings to behaviour outside the classroom (Zhang & Szerencsi, 2023; Zizka & Varga, 2021). Specifically, findings show that while awareness slightly improved (though it was already high at the beginning), a stronger driver for the intention to make a change is still needed, as no change was seen on students' behaviour around carbon-intensive initiatives, despite in-class discussions (Sammalisto et al., 2016; Zhang & Szerencsi, 2023).

5.1.9 Critical evaluation

Research has concentrated on justifying and emphasising the necessity for business schools to integrate sustainability into their curricula, which was particularly needed at the outset. It has also made progress in defining the scope of this integration and has demonstrated that it can have a positive impact. However, I contend that the research remains too abstract. For instance, while it outlines the broad objective of teaching sustainability, the literature has focused on broad generalisations and has not delved deeply into the specifics of what should be taught.

5.2 Research Stream #2: Implementing SiME in institutions

The second research stream identified in this literature review concerns the implementation of sustainability in management education. Studies in this research stream include reviews concerning the current state of implementation in different countries, studies detailing how the implementation has been conducted, studies advocating that implementation is a process and not a one-off initiative, as well as articles that identify barriers and drivers of SiME implementation.

5.2.1 Current state of implementation

Several studies in the literature asses the current state of sustainability implementation in business schools in various geographic areas (Caldana et al., 2023; Etse & Ingley, 2016; Naeem & Neal, 2012; Preuss et al., 2023; Wu et al., 2010).

Wu et al. (2010) offers a review of the state of sustainability education in management schools worldwide. This early study has then been followed by later region-specific reviews, finding that despite high presence at a declarative level, the uptake of sustainability in practice is low in Ghana and Africa more broadly (Etse & Ingley, 2016), the Asia-Pacific region (Naeem &

Neal, 2012), Latin America (specifically Peru, Brazil, Colombia) (Cavalcanti-Bandos et al., 2021), Asia (Wu et al., 2015), and Central and Eastern Europe (Preuss et al., 2023).

Overall, while there is evidence of some progress, the situation remains unsatisfactory and there is a deficiency in discussions of ethics, sustainability and responsibility of business (Beddewela et al., 2017). Specifically, "a pro-RME rhetoric is not necessarily backed-up with substance" (Preuss et al., 2023).

Additionally, while the push for responsible management has resulted in some changes, the level of development has been uneven(Preuss et al., 2023). There is a considerable variance in the extent to which sustainability is incorporated across institutions, with some universities adopting a more slow and selective approach to incorporating sustainability, whereas others make it a core element of their strategy (Verhulst & Lambrechts, 2015). The existing literature indicates that while there is a growing emphasis on the integration of SiME in business schools, the majority of this is achieved through elective modules or subjects that are not part of the core curriculum (Beddewela et al., 2017; D. N. Greenberg et al., 2017; Louw, 2015)– an approach described as a "bolt-on" strategy (Louw, 2015) or "saddle bag" approach (Sharma & Hart, 2014). In other words, the topic of sustainability is contained in a separate compartment that has little impact on the rest (Sharma & Hart, 2014) and as such prevents students from developing an integrated understanding between sustainability and business (D. N. Greenberg et al., 2017).

Studies show that there is no integration between the strategic dimensions of the higher education system in favour of sustainability (Amaral et al., 2015; Fuchs et al., 2020; Leal Filho, 2015). In many cases, actions are implemented in a compartmentalised manner, applied to only some of the dimensions of the university system (Amaral et al., 2015; Fuchs et al., 2020; Leal Filho, 2015). While the literature agrees that sustainability has to be implemented holistically (Kolb et al., 2017; Singh & Segatto, 2020), in practice it has been integrated more predominantly in some areas (curriculum/education) than others (campus management and research) (Maloni et al., 2021; Mendoza et al., 2019; Weybrecht, 2021).

Several scholars have raised concerns about "decoupling", whereby schools communicate a commitment to sustainability to the outside world, but then implement it insufficiently to achieve meaningful change - that is, business schools symbolically embrace the concept of SiME, but do not follow through with implementation in the institution or curricula (Alcaraz

& Thiruvattal, 2010; Doh & Tashman, 2014; Maloni et al., 2021; Rasche & Gilbert, 2015; Snelson-Powell et al., 2016). Looking at empirical data from a survey, Maloni et al. (2021) investigates the decoupling phenomenon through the perspectives of students asking about the university and its commitment (albeit not including questions on how sustainability is taught) and finds evidence supporting decoupling.

There have also been efforts in developing tools for assessment (Peschl et al., 2023; Tahmassebi & Najmi, 2023). Peschl et al. (2023) develops a benchmarking framework by codifying existing initiatives. Tahmassebi & Najmi (2023) presents a self-evaluation or external assessment tool (RMECAT), drawing on previous studies and the PRME. Assessment is mostly done on a documentary basis and measures include purpose (official mission, implicit mission), values (formal commitments, new people intake, attitudes of faculty members, values governing the business school and educational process), education (formal curriculum, integrating social topics into classic management courses, teaching methods, informal education, faculty knowledge about responsible management and sustainability), research (research outputs, research infrastructures), partnerships, public dialogue (Tahmassebi & Najmi, 2023).

5.2.2 Approaches to implementation

There have been some attempts at detailing efforts within a specific university to go about implementing sustainability (e.g. Greenberg et al., 2017). However, the primary means of communicating efforts are the Sharing Information on Progress (SIP) reports written by PRME signatories, the objective of which is to communicate information and facilitate dialogue (PRME, 2024).

In their analysis of the first 100 published SIP reports, Godemann et al. (2011) observed that each signatory had adopted a distinctive approach to integrating PRME into their institutions and reporting their progress. This lack of consistency in reporting presents a challenge in generating momentum and offering a space of learning practices (Peschl et al., 2023). Furthermore, because of their abstract level, concerns have been raised about SIPs becoming marketing efforts for reputation enhancement rather than creating a community of learning (Peschl et al., 2023).

5.2.3 Process of implementation

Not much research has been dedicated to the process of implementation, though its across-time nature has been highlighted (Stephens & Graham, 2010)

However, a simultaneous top-down and bottom-up leadership approach has been recommended (Avelar et al., 2022), though there is evidence that at different points in time different approaches are needed (D. N. Greenberg et al., 2017), as some factors that facilitate the adoption of SiME early on end up hindering later stages of implementation (D. N. Greenberg et al., 2017). These include the decentralized nature of implementation, a shared leadership approach, and faculty reward systems(D. N. Greenberg et al., 2017). It has also been remarked the importance of maintaining SiME, further stressing how it is a process (Singh & Segatto, 2020).

There are only two studies detailing the process (Beddewela et al., 2021; Malarski & Berte, 2023). Beddewela et al. (2021) proposes a six-stages model derived from change management literature, delineating theoretically the institutionalisation of responsible management education within business schools. On the other hand, Malarski & Berte (2023) stresses how initially an investigation of investigating how other institutions implement sustainability is needed, then followed by a reflection on how to implement it in the own organisation, and finally a more concrete plan.

5.2.4 Barriers and Drivers

While the uptake of RME/SiME has been increasing, there are still significant barriers to its adoption (Russo et al., 2023; Shah et al., 2023; Vargas-Merino et al., 2024; Weybrecht, 2021). As a result, a substantial proportion of the literature is dedicated to studying various factors that affect its incorporation in management education, either positively (driver) or negatively (barrier). These have been summarized in Table V below, also reproduced with mentions to the relevant literature in the Appendix section 9.2 for better readability.

Table V. Barriers and drivers identified

Category	Factor	Role
Legislative enablers	Accreditation bodies	Driver
	Global policies (e.g. PRME)	Driver
	Governmental bodies	Barrier/Driver

Institutional support	Lack of financial resources	Barrier
	Leadership	Barrier/Driver
Engagement/resistance	From faculty	Barrier/Driver
	From students	Barrier/Driver
Complexity	Vagueness of instructions	Barrier
	Lack of expertise	Barrier

Legislative enabers

A number of studies have examined the legislative factors that influence the uptake of sustainability in business schools, including global initiatives such as the PRME, accreditation bodies, and governments (Burchell et al., 2015; Mousa & Arslan, 2023; Wu et al., 2010).

Studies on the impact of the PRME initiative agree on the lack of evidence indicating that being a signatory to PRME has resulted in a discernible difference in the advancement of responsible management curricula compared to non-participating institutions (Burchell et al., 2015; Preuss et al., 2023). However, being a signatory "can act as a means through which active faculty can exercise agency to shape organisational change" (Burchell et al., 2015, p. 481).

To a less extent, studies have also focused on accreditation bodies – showing that they have also played a minor role in pushing for SiME (Wu et al., 2010) – and on the social, economic and political context of the higher education institution (Blanco-Portela et al., 2018; Mousa & Arslan, 2023; Singh & Segatto, 2020). Findings indicate that implementing SiME in fragile states, which present poor or outdated infrastructure and resources and lack socio-cultural or academic freedom, is challenging (Mousa et al., 2020; Mousa & Arslan, 2023).This has been noted in the context of the African continent where policies to drive the educational agenda are generally weak (Etse & Ingley, 2016; Mousa & Arslan, 2023), but this is likely to extend other developing countries as well, for example in South America (Blanco-Portela et al., 2018) and Asia. However, studies have also noted that legislative regulation has the potential to hasten the transition given that there is evidence that voluntary adoption proceeds at a slower pace and thus legislative bodies can also act as a driver (Avelar et al., 2022; Landrum, 2021).

Institutional support

Financial resources

Lack of financial resources is one of the most common barriers identified in the literature (Barth, 2013; D. S. Greenberg, 2019; Leal Filho & Wright, 2002; Mahajan, 2020; Mousa et al., 2020; Preuss et al., 2023; Singh & Segatto, 2020; T. S. Wright & Wilton, 2012).

According to Leal Filho & Wright (2002), not all university administrators see the incorporation of sustainability as a conventional university activity and thus they allocate the limited resources available to activities that are instead seen as "conventional", leaving sustainability initiatives underfunded. In recent years, the status quo hast not changed, as in a survey of schools in Central and Eastern Europe, Preuss et al. (2023) finds that 89% of respondents emphasised the lack of resources, showing how most schools still fail to provide sufficient resources for SiME.

Leadership

Higher management levels of the HEIs need to foster implementation of SiME for it to be successful (Beddewela et al., 2017; Blanco-Portela et al., 2018; Eustachio et al., 2024; Figueredo & Tsarenko, 2013; D. N. Greenberg et al., 2017; Gudz, 2004; Leal Filho et al., 2020; K.-H. Lee & Hales, 2022; Nicolaides, 2006; Singh & Segatto, 2020).

The endorsement of senior management is imperative for the implementation of changes, as they possess the authority to allocate financial resources and as staff resources, such as teaching and research time (Beddewela et al., 2017; Evans & Robertson, 2003).

Eustachio et al. (2024) finds that institutional support is crucial and its lack is one of the most significant difficulties in the implementation process. This support from the leadership tends to be stronger in PRME signatory schools (Eustachio et al., 2024), which is in line with findings that suggest that while the PRME does not in itself produce the intended change, PRME signatory status can be employed as a means of enabling active faculty to exercise agency (Burchell et al., 2015).

Several other studies are in agreement with the need for committed senior management, spanning from program coordinators to deans (Blanco-Portela et al., 2018; Figueredo & Tsarenko, 2013; K.-H. Lee & Hales, 2022; Singh & Segatto, 2020). This is necessary in both a top-down and a bottom-up approach (Nicolaides, 2006). Lack of support for people in the upper management is a common issue (Blanco-Portela et al., 2018; Eustachio et al., 2024;

Singh & Segatto, 2020), as a result of which the allocation of administrative and financial resources also becomes a challenge (Cowell et al., 2017) faced by change agents (Beddewela et al., 2017; Blanco-Portela et al., 2018; Figueredo & Tsarenko, 2013).

On the other hand, support from leadership and adequate reward structures can support widespread adoption of SiME (Greenberg et al., 2017). However, in the academic context leadership might find it difficult to enforce what and how faculty teach (Greenberg et al., 2017; Gudz, 2004).

Engagement and resistance

Faculty engagement (or resistance)

The perceptions and role of business school faculty are considered to be of key importance for the support of SiME (Beddewela et al., 2017; Doh & Tashman, 2014; Dyllick, 2015; Maloni et al., 2021; Preuss et al., 2023; Tahmassebi & Najmi, 2023). Several studies have stressed the significant role of faculty members as crucial actors (Burchell et al., 2015; Maloni et al., 2021; Matten & Moon, 2004), and as they are the main responsible for implementing SiME, their attitudes towards SiME can have a significant impact (Beddewela et al., 2017; Tahmassebi & Najmi, 2023).

Faculty – and specifically self-selected passionate individuals - can act as a change agent, championing SiME and act as the most important driver (Beddewela et al., 2017; Nicolaides, 2006; Preuss et al., 2023; Russo et al., 2023).

However, there are significant differences in business school professors' views and commitment to incorporating sustainability (Gottardello & Pàmies, 2019; Kanashiro et al., 2020). Thus, while faculty can act as change agents and champion SiME, they can also resist it, as a result of which progress might become slow and appeals from sustainability champions may be disregarded (Maloni et al., 2012), Indeed, many authors have highlighted that there has been resistance from educators to implementing SiME (Beddewela et al., 2017; Doh & Tashman, 2014; Dyllick, 2015; Maloni et al., 2012, 2021; Preuss et al., 2023; Tahmassebi & Najmi, 2023). For example, Maloni et al. (2012) surveying faculty reveals that professors acknowledge business sustainability relevance but often display little personal commitment to teaching it and sense of responsibility for the coverage of the topic in their disciplines, despite seeing opportunities for integration. Often, faculty members tend to perceive sustainability as

a matter that falls outside their purview and therefore assign responsibility for sustainability coverage to others (Gottardello & Pàmies, 2019; Maloni et al., 2012).

A number of potential reasons for resistance have been identified, including a lack of personal interest (Sharland et al., 2013), resistance to working in an interdisciplinary manner or to different pedagogical approaches (Singh & Segatto, 2020), the perception that sustainability is irrelevant to a business school (Doh & Tashman, 2014), lack of time to engage (Preuss et al., 2023), not knowing what to include (Nicolaides, 2006), or simply because of a preference for maintaining the status quo (Burchell et al., 2015; Rasche & Gilbert, 2015).

Overall, it is important to recognise the inclination among faculty to incorporate sustainability as a key factor (Beddewela et al., 2017; Maloni et al., 2012).

Student engagement (or resistance)

Perceived student disinterest can also be a barrier (Beddewela et al., 2017; Mousa et al., 2020; Ndubuka & Rey-Marmonier, 2019; Tahmassebi & Najmi, 2023). Students' involvement and interest can both be a driver (Blanco-Portela et al., 2018) and its lack can become a barrier (Ndubuka & Rey-Marmonier, 2019). While studies haven't focused on students' views, research has looked at the perception of professors of students' views (e.g. Beddewela et al., 2017; Mousa et al., 2020; Ndubuka & Rey-Marmonier, 2019; Tahmassebi & Najmi, 2023), some of which note a frustrating lack of engagement, though this might not necessarily be due to lack of interest in sustainability, but rather due to teaching methods or other reasons (Beddewela et al., 2017).

Complexitiy

Vague directions

Directions for implementation are deemed vague and implementation itself is very complex, and as such these presents a significant barrier (Beddewela et al., 2017; Ndubuka & Rey-Marmonier, 2019; Storey et al., 2017). Educators have asked for more precise information in terms of what to include and how to do it (Beddewela et al., 2017; Ndubuka & Rey-Marmonier, 2019; Nicolaides, 2006). For example, in Ndubuka & Rey-Marmonier (2019) one respondent specifically stated: "With the increased complexity, how do you teach that [sustainability] to students not to overwhelm them, not to make it superficial but actually be in-depth?".

This is further exacerbated by the limited available teaching resources (K.-H. Lee & Hales, 2022), including textbooks (Maloni et al., 2012; Springett & Kearins, 2001).

Lack of expertise

Extant literature agrees that not enough faculty members have the appropriate knowledge, expertise or skills associated with SiME, which in turn hinders the extent to which HEIs embed sustainability in the curriculum/education (Beddewela et al., 2017; Burchell et al., 2015; Doherty et al., 2015; Figueiró & Raufflet, 2015; Kanashiro et al., 2020; Kumar, 2006; Maloni et al., 2012; Muff et al., 2013; Ndubuka & Rey-Marmonier, 2019; Nicolaides, 2006; Rasche & Gilbert, 2015; Sekhar, 2020; Shrivastava, 2010; Singh & Segatto, 2020).

Not only HEI leadership say that there is a lack of faculty trained to teach in the area (Beddewela et al., 2021; Kumar, 2006; Muff et al., 2013; Shrivastava, 2010), but also professors themselves acknowledge that incorporating sustainability would be challenging due to a lack of knowledge on their and their colleagues' part (Ndubuka & Rey-Marmonier, 2019). For example, one respondent in Ndubuka & Rey-Marmonier (2019) stated that "[Personally] I'm not comfortable discussing [sustainability] topics as I don't know enough [about them]". Lack of expertise encompasses not knowing what one should include, not knowing enough about specific issues, but also not knowing where to gather information related to the topic (Nicolaides, 2006).

Expertise and awareness is essential for the integration of sustainability in business education (Beddewela et al., 2021; Burchell et al., 2015; Doherty et al., 2015; Kanashiro et al., 2020). Kanashiro et al. (2020) specifically suggests that teachers' characteristic such as expertise, prior personal and professional skills influence how likely they are to incorporate sustainability in their curricula. Such lack of knowledge could result in faculty failing to engage with sustainability (Beddewela et al., 2017; Maloni et al., 2012).

This lack indicates also that business schools are not doing enough to train faculty in the area (Cornuel & Hommel, 2015). Hence, it would be relevant the need to promote pertinent training (MacVaugh & Norton, 2012; Singh & Segatto, 2020; Verhulst & Lambrechts, 2015). However, Wright & Horst (2013) posited that instructors may be disinclined to engage in sustainability training due to perceived opportunity costs (as training requires time) and a general lack of interest, indicating that personal interest in seeking specialized knowledge is necessary.

5.2.5 Critical evaluation

A significant proportion of the extant literature has concentrated on identifying barriers to SiME, with a particular focus on providing a comprehensive overview of the status of implementation across various geographical regions. However, there has been comparatively little attention paid to the process of implementation itself, especially in terms of its temporal evolution and the role of change agents in this process.

5.3 Research stream #3: Practicing SiME in the classroom

The third research stream – Practicing – deals with what goes on at the classroom level and "how business schools actually "do" responsible management education" (Parkes et al., 2017), that is examining how educators translate the principles of SiME into tangible learning experiences for students.

This includes studies that advocate for pedagogic approaches such as methods that promote active learning and practical application, papers that argue for the importance of interdisciplinarity and reflexivity in courses, as well as tools and practical examples of classes taught.

Studies in this research stream provide practical guidance for educators on ways to incorporate sustainability into their curricula, thereby reducing the barriers associated with the complexity of the task (Ndubuka & Rey-Marmonier, 2019; Storey et al., 2017), lack of expertise (Tahmassebi & Najmi, 2023; Yadav & Prakash, 2022) and ambiguity and vagueness of instructions for implementation at a granular level (Beddewela et al., 2017; Ndubuka & Rey-Marmonier, 2019; Storey et al., 2017). However, only a small number of papers fell into this category. Specifically, only 21 out of 109 papers (19.2%) analysed here were categorised as such.

5.3.1 Teaching methods

According to the UNESCO, embedding sustainability in education doesn't affect solely the content being taught, but also teaching and learning methods, aiming to empower students to both change their behaviour and take action (UNESCO, 2017). How the content is taught is

especially important in light of the fact that pro-sustainability values cannot be imposed upon students but rather need to be internalized (Kanashiro et al., 2020).

When reviewing the first 100 PRME progress reports Godemann et al. (2014) found that the majority of institutions primarily used traditional methods for teaching and incorporating SiME. However, arguments for teaching methods that foster active learning (MacVaugh & Norton, 2012) and practical application/experiential approaches (Alcaraz & Thiruvattal, 2010) have been put forward and scholars agree that developing students' pro-sustainability behaviour and critical thinking abilities requires participatory activities and active learning (Barth et al., 2007; Gatti et al., 2019). Figueiró & Raufflet (2015) reviews different effective teaching techniques and stresses the need for a "shift from a content-centred to a more student-cantered curriculum, intended to foster responsible citizens and promote the development of skills, such as problem solving and critical thinking" (Figueiró & Raufflet, 2015, p. 28). Specifically, the techniques they highlight as the ones that achieve this shift are: case method, action and experiential learning, service learning, and problem-based learning (Figueiró & Raufflet, 2015). Case methods refer to educational techniques where students actively engage in examining real-life scenarios to develop problem-solving skills, requiring critical thinking and collaborative discussions and allowing students to explore various solutions and the implications of their decisions in practical contexts (Gatti et al., 2019). They simulate real-world challenges, offering a platform for learners to apply theoretical knowledge to tangible situations (Figueiró & Raufflet, 2015). Experiential or action learning refers to educational approaches that facilitates learning through the active process of doing, followed by reflection on the actions taken, in order to helps students to internalise knowledge and skills more deeply (Shrivastava, 2010). In service learning, instead, students take part in projects that serve community needs while gaining practical skills and understanding the complexities and social importance of the issues they are addressing (Brundiers et al., 2021). This latter type of learning emphasizes collaboration with various stakeholders, fostering a deeper grasp of societal impacts and interpersonal interactions (Gatti et al., 2019). Similarly, problem-based learning (PBL) is a student-centred methodology in which learners are presented with a problem that needs solving by acquiring knowledge that they initially lack, thus also enabling students to navigate complexity and ambiguity (Gatti et al., 2019).

MacVaugh & Norton (2012) advocates for active learning approaches that "move learners away from dependence on (possibly illegitimate and unprepared) educators and towards a personal responsibility approach" (MacVaugh & Norton, 2012). Such pedagogical approaches

facilitate learners' engagement with the exploration of ideas and knowledge, critical reflection, and the enhancement of deep understanding (MacVaugh & Norton, 2012). They are particularly well-suited to the context of wicked problems and, as such, to situations of sustainability where there are no readily available approaches or well-known situations (MacVaugh & Norton, 2012). Additionally, problematisation prompts learners to reflect on their existing knowledge, the problematic aspects of the session topic or trigger, and most importantly, the aspects that remain unknown (MacVaugh & Norton, 2012). In the context of the classroom, active learning approaches can consist of a range of activities, including group work, flipped classroom approaches, case studies, worked examples, simulations, field visits, peer teaching, student research, project work, debate and the use of games (MacVaugh & Norton, 2012; Montiel et al., 2018). Del Mar Martínez-Bravo et al. (2024) compares learning approached gathered from the literature and their effectiveness and finds as most fruitful active on- and off-campus experiences (including internships, business simulations, field trips among others (del Mar Martínez-Bravo et al., 2024). Similarly, Lambrechts et al. (2013) finds that interactive and participative methods, action-oriented methods, and research methods are all effective characteristic of teaching and learning methods for sustainability (Lambrechts et al., 2013). Overall, researchers and teachers have started to converge on such pedagogical approaches, given the evidence that these approaches prove more successful (Kanashiro et al., 2020).

Beyond active engagement, the practical application aspect has also been stressed by the literature (Figueiró & Raufflet, 2015; Hoveskog et al., 2018; Kanashiro et al., 2020), showing that practical applications enhances understanding (Seraphin et al., 2021). It has suggested that this should take the form of community-related consulting projects for students (Weybrecht, 2021), formal apprenticeships (Strydom & Kempen, 2021), and in general collaboration with external stakeholders on real-world issues (Chiang & Chen, 2022), with the aim of creating “liveable knowledge” (Wenger, 2011). In particular, Furco & Billig (2002) defines this approach as the collaboration between educational institutions and community institutions, whereby students gain practical experience in challenging contexts.

5.3.2 Interdisciplinarity

Several studies also highlight the importance of interdisciplinarity and transdisciplinary learning when it comes to incorporating sustainability in the management curriculum (Blasco, 2012; de Paula Arruda Filho, 2017; Figueiró & Raufflet, 2015; Godemann et al., 2014; D. N.

Greenberg et al., 2017; Kolb et al., 2017; Ndubuka & Rey-Marmonier, 2019; Parkes et al., 2017; Russo et al., 2023; Tyran, 2017). Annan-Diab & Molinari (2017) in particular examined the manner in which an interdisciplinary approach to SiME is promoted the curriculum, research, and outreach of a business school, urging more HEIs to adopt an interdisciplinary approach in educating for sustainability. Additionally, Sibbel (2009) has argued that the conventional pedagogical approaches to management education, which are largely discipline-specific and unidirectional, are inadequate in equipping students with the requisite skills to address complex sustainability-related issues.

5.3.3 Reflexivity

Also prominent in the literature is the role that reflexivity plays in SiME (Hind et al., 2009; K.-H. Lee & Hales, 2022; Shrivastava, 2010; Wihlenda et al., 2023; Yang et al., 2021; Ziegler & Porto-de-Oliveira, 2022). In particular, reflection enables students to relate new knowledge, such as that pertaining to sustainability, to their existing knowledge and experiences (K.-H. Lee & Hales, 2022). This enables students to assess the relevance of this knowledge to their future workplace and to make connections between theory and practice (K.-H. Lee & Hales, 2022; Taylor & others, 2009).

Ziegler & Porto-de-Oliveira (2022) and Lee & Hales (2022) offer a description of practical applications of reflexivity in the classroom. Ziegler & Porto-de-Oliveira (2022) delineates how they use back casting – thinking form future visions possible pathways to achieve desirable futures – as a technique to foster reflexivity in relation to sustainability, detailing the course designed and the individual work assigned. Lee & Hales (2022) looks at reflective journals used as an assignment and how these fostered critical thinking – though findings from the assignment, if the journals are included in the assessment process, are in danger of being self-serving. Lastly, Yang et al. (2021) shows how a contemplative art based project which included a final reflection note fostered reflexivity.

5.3.4 Practical tools

A couple of papers have been published on the topic of practical tools, ranging from literacy test to reading materials and cases (Landrum & Ohsowski, 2017; Montiel et al., 2017, 2018; Storey et al., 2017).

A practical tool to evaluate students' previous knowledge related to sustainability has also been developed, called the Sulitest. It consist on an online test measuring knowledge, skills and mindset of students related to Sustainability Literacy (Storey et al., 2017).

Landrum & Ohsowski (2017) identifies most frequently assigned reading materials in introductory business sustainability courses in the USA. They find that 55% of reading materials are aligned with a weak sustainability orientation, whereas only 29% of the readings are aligned with a strong sustainability orientation (Landrum & Ohsowski, 2017), thus highlighting the need for improved selection of reading materials.

The case method has also been explored as an effective too to teach social and environmental responsibility. It promotes active learning through discussions and solutions generation, and can be an exercise in decision making with real business examples of complex sustainability issues (Figueiró & Raufflet, 2015; Montiel et al., 2018; Reficco & Jaén, 2015). Montiel et al. (2018) specifically looks at case studies used in environmental sustainability management courses and classifies them, creating a literary-genre based typology.

5.3.5 Concrete examples

Kanashiro et al. (2020) highlights how there are limited resources to develop new courses or to implement sustainability topics in existing disciplines and how this lack represents a barrier to a higher uptake of SiME.

As individual educators have deemed SiME implementation overwhelming (Storey et al., 2017) and said that further guidance on content is needed (Landrum & Ohsowski, 2017), practical recounting of courses constitute a valuable resource and can act as a reference or guideline for the design of other courses. However, there are only few examples of such descriptions, as illustrated in Table VI below.

Table VI. Articles detailing SiME course content

Table VI.

Practical description of courses that integrate or deal with sustainability in management education

Paper	Main findings
Chiang & Chen (2022)	Walks through the design and implementation of a brand management course that has embedded sustainability in its teaching
de Paula Arruda Filho (2017)	looks at how PRME was implemented in a class focusing on the conceptual definition of sustainability
Gatti et al. (2019)	describes a business simulation game for promoting the importance of sustainability
Hoveskog et al. (2018)	describes an Experiential Workshop for university undergraduates in which the Service-Learning pedagogic approach is taken and Flourishing Business Canvas is applied as a tool for collaborative visual business modelling
Lavine & Roussin (2012)	describes a semester-long action-learning project where undergraduate or graduate management students learn about ethics, responsibility, and organizational behaviour by examining the policy of their college or university that addresses academic integrity
Lee & Hales (2022)	Shows how reflective journals can be made into assignments
MacVaugh & Norton (2012)	advocates for active learning by showcasing four projects included in a course on sustainability
Schultz et al. (2020)	finds that student-led social media analysis may enrichen responsible management education.
Sidiropoulos (2014)	proposes sustainability-related concepts that could be integrated in the curriculum of different disciplines
Strydom & Kempen (2021)	shows apprenticeships at startups and entrepreneurship opportunities such as incubation hubs as a practical application of SiME
Viera Trevisan et al. (2024)	offers a detailed description of a course program and activities for each module, focusing on sustainability, climate change, circular economy, unsustainable consumption among others
Yang et al. (2021)	describes contemplative art-based project involving the creation of an electronic portfolio which consists of a student's digital photographs to foster attention to nature
Ziegler & Porto De Oliveira (2022)	offers a view of how back casting is used in a course to foster sustainability thinking through projects in collaboration with external partners

Chiang & Chen (2022) walks through how sustainability was embedded in a brand management course and how the latter was implemented, talking in detail about what the course consists of and providing a framework to design a similar one. The study includes a thorough description of in-class and at-home activities, as well as what they are meant to achieve, thus making replication of the course easy (Chiang & Chen, 2022) .

de Paula Arruda Filho (2017) looks at principles from the PRME framework were implemented in a class, with a small section on the process of deciding what to include. Though the focus is on the conceptual definition of sustainability, the course also included a section on practical application (de Paula Arruda Filho, 2017).

Gatti et al. (2019) describes a simulation game (Nachhaltige Putz-Roboter) and its application in a classroom context, with the objective of fostering a deep understanding of the concept of sustainability and its importance.

Hoveskog et al. (2018) walks through the structure and activities of a class in which a service-learning approach was adopted by organising an experiential workshop in line with it, where the Flourishing Business Canvas was applied. The class aimed at increasing student's ability to take practical action and reflections (Hoveskog et al., 2018).

Lavine & Roussin (2012) describes an action-learning project where students learn about responsibility by examining the policy of their college or university that addresses academic integrity

Lee & Hales (2022) describes an assignment based on reflective journals and how it can foster sustainability thinking.

MacVaugh & Norton (2012) advocates for active learning by showing how it was fostered through four projects as part of a course on sustainability, walking through the course description and content.

Schulz et al. (2020) looks at a student-led social media analysis and describes how to set up a like project - the week-by-week plan and the content of assignments and lectures - with the aim of fostering sustainable literacy and media literacy.

Sidiropoulos (2014) proposes potential avenues for integrating sustainability-related concepts into classroom discussions across a range of subjects. While the study offers initial ideas for

reflection, it does not provide a comprehensive overview of content, resources, or proposed activities.

Strydom & Kempen (2021) advocates through a case study that apprenticeships at startups and entrepreneurship opportunities such as incubation hubs can represent a practical application of SiME.

Viera Trevisan et al. (2024) presents a detailed description of a course program and activities for each module, focusing on sustainability, climate change, circular economy, unsustainable consumption among others.

Yang et al. (2021) describes a contemplative art-based project involving the creation of an electronic portfolio consisting of a student's digital photographs, with the aim of making students more environmentally conscious and visually attentive. The study provides details of the portfolio assignment, including reflective texts and digital photos, and how it was evaluated (Yang et al., 2021). It shows how it can contribute to fostering a better understanding of human impacts on nature (Yang et al., 2021).

Ziegler & Porto-de-Oliveira (2022) delineates how they used back casting, that is thinking from future visions possible pathways to achieve desirable futures, as a technique to include sustainability. It provides an account of problem-based service learning, including both class content and assigned exercises (Ziegler & Porto-de-Oliveira, 2022).

5.3.6 Critical evaluation

The existing literature has highlighted a number of teaching methods that are conducive to active learning and the practical application of knowledge. Furthermore, other studies have provided a useful practical starting point by offering concrete descriptions and tools that can be employed. However, the majority of these studies have concentrated on courses focused solely on sustainability concepts – that is "add on" or "bolt on" courses which often focus on raising awareness about broad sustainability issues and which have been added to business studies curricula. Only one study among the articles reviewed instead focused on a business-discipline course in which sustainability concerns have been incorporated. Specifically, Chiang & Chen (2022) described a Brand Management course. However, no such other study has focused on other business disciplines, ranging from introductory courses to more

specialized ones. This represents a significant gap in the literature that needs to be addressed, given that incorporating SiME should be done holistically.

6. Gaps and Future Research Agenda

In the preceding chapter, I presented and critically evaluated the existing literature, which provided a foundation for the discussion that informs this chapter. Here, I will highlight more specifically the gaps that I have identified within the current body of research, delineating unexplored avenues that present fertile ground for future investigations. This chapter will discuss how addressing these gaps can advance the field, proposing a research agenda for the future. Additionally, as extant literature largely neglects the role of different actors, I suggest brining stakeholder theory in and looking at the various actors involved in the process of embedding sustainability in business schools. This can provide great insight and further encourage additional future research avenues.

Table VII. Gaps identified in the literature

Table VII Gaps identified in the literature	
Research stream	**Gaps identified**
Towards a clearer conceptualization	Contents to include in courses Deeper analysis of hidden curriculum aspects
Clarifying the implementation process	Resistance from faculty Individual professors as change agents Process of implementation over time
Roadmap for practicing	Specific guidelines Examples of core business courses that integrate sustainability

6.1 Gaps #1: Towards a clearer conceptualization

While much has been written at a conceptual level, some aspects have been left out of the literature. In particular, I argue that more research is needed on the content that courses should include and on aspects of the hidden curriculum, so as to move towards a clearer conceptualization of SiME.

6.1.1 Contents to include in courses

While the literature agrees on going beyond conceptual knowledge (Kleymann & Tapie, 2010; Storey et al., 2017) and that the content taught in the curriculum should go beyond raising awareness (Zhang & Szerencsi, 2023), nonetheless a large percentage of schools still engage with SiME only through general awareness raising (Weybrecht, 2021). As scholars argue that a too abstract approach will not produce change in behaviour and practice (Hope et al., 2020), this thesis posits that further research is needed on how business education programs can effectively transition from raising awareness of sustainability issues to equipping students with practical skills and competencies necessary for sustainable practices. Looking at multiple successful case studies would provide an understanding of how specific programs have addressed this challenge. Rich descriptions and a detailed analysis would be beneficial for capturing concretely both what worked and what materials and pedagogies have been used, with potential for transferability in other HEIs. While a few successful single case studies (covered in the Practicing section) exploring certain pedagogies have been published (e.g. Chiang & Chen, 2022; Hoveskog et al., 2018; Yang et al., 2021), these aim at increasing awareness and are not linked to practical skills. Nonetheless, further research could take inspiration from these and provide similarly detailed accounts of courses that instead focus on the practical aspect.

Individual professors that are considering embedding sustainability in their curricula still face significant challenges (e.g. Sekhar, 2020 offers an overview). An often-mentioned barrier to doing so is vagueness and unclarity of what one should teach is cited as a barrier to implementing sustainability from professors (Beddewela et al., 2017; Ndubuka & Rey-Marmonier, 2019; Storey et al., 2017). The existing SiME literature does not explicitly defines topics and guidelines around what can be covered. While content will depend upon the subject matter and the context in which the subject is presented (Landrum, 2021), this thesis suggests that studies looking at existing syllabi for topics covered for different subjects, adopting a methodology similar to Landrum & Ohsowski (2017) which looks at reading lists, could prove valuable. Additionally, creating a platform for sharing syllabi and related ideas across professors and institutions would be a valuable resource. While the PRME initiative encourages information sharing through SIPs, these do not offer the level of detail needed to. Instead having access to information about how sustainability was integrated in courses of similar topics would reduce uncertainty and provide ideas as to how it can be done.

In this context, it has also been suggested that students could be involved in a process of co-creation of teaching plans (Shah et al., 2023; Singh & Segatto, 2020). As the field is new and developing, it has been observed that it is common for teachers and students to learn the material together (Roome, 2005). Further research is thus needed on how business schools can effectively engage students in the co-creation of course plans to integrate sustainability principles into business education curricula. Additionally, studies could look into different models for integrating students in research for the co-creation of sustainability as well. The study of co-creation approaches would be of value and could draw from studies on co-creation of sustainability knowledge in other disciplines (e.g. Mauser et al., 2013; Perello-Marín et al., 2018; Pocol et al., 2022; Soini et al., 2019; Trencher et al., 2015).

Finally, I find that no article of those reviewed researched assessment methods in the context of SiME. Yet, these can play a significant role in enhancing understanding and promoting practical skills, as evidenced by Yang et al. (2021) which adopted a portfolio assessment for their proposed experiential learning methodology. What novel assessment methods, drawn from literature in other disciplines such as ungrading, can be adapted and applied within business education to evaluate student learning outcomes in sustainability courses? How do these alternative assessment approaches impact student engagement, motivation, and comprehension of sustainability concepts, and what are the implications for promoting deeper learning and fostering a culture of sustainability within business schools? As mentioned, ungrading could provide a useful framework for further investigation. Ungrading is an educational philosophy that challenges traditional grading methods by focusing on feedback, growth, and learning rather than assigning a letter or number to student work (Kohn & Blum, 2020). By shifting the emphasis from the final grade to the process of learning, ungrading aims to create a more equitable and supportive learning environment for students in which they feel empowered to take risks, explore complex topics, and develop critical thinking skills beyond the constraints of traditional grading systems (Williams, 2020). This approach encourages meaningful engagement with course material, promotes self-reflection, and fosters a deeper understanding of course material and student agency in their learning journey (Kohn & Blum, 2020).

Furthermore, there is currently no research around keeping an updated curriculum. However, Landrum & Ohsowski (2017) showed how an institution needs to take into account what is already ingrained as part of the culture, life style and previous schooling of the students who start at university – pointing out an example from a German business school that did not offer

an introduction sustainable business course but only more advanced ones. Hence, I argue it would be helpful to investigate, for example through a case study, how can business schools effectively develop and maintain updated sustainability-focused curricula or how can business education institutions assess the currency and relevance of their sustainability curricula to determine if they are outdated or require revision.

6.1.2 Deeper analysis of hidden curriculum aspects

Hidden Curriculum refers not only to what it is taught and the underlying assumptions (Blasco, 2012) but also to informal learning that happens through interpersonal interaction (Blasco, 2012; Mousa, 2022) and the process of teaching (Etse & Ingley, 2016).

Thus, embedding sustainability should affect not only the content of education, but also its process (Gatti et al., 2019). This includes promoting students to be active learners (Figueiró & Raufflet, 2015; Gatti et al., 2019), interactions between staff members and students are also an important part of the hidden curriculum (Blasco, 2012; Mousa, 2022), as these socialization processes convey tacit messages (Mousa, 2022).

Olanya et al. (2023) presents an analysis of the students' narrative with regards to the broader MBA curriculum and finds that student-supervisor relationships can be a pain point. However, no further studies have been done, focusing exclusively on the hidden curriculum in staff-student interactions and examined what tacit messages staff-student interactions in business schools convey and whether these are consistent with PRME principles. Exploring this would require an exploratory study. A narrative approach, similarly to Olanya et al. (2023), would be appropriate, but ethnographic studies or interviews using a grounded theory approach would also be well suited to addressing this question. In addition, a comparison of different institutions could yield great insight.

6.2 Gaps #2: Clarifying the implementation process

While there is a considerable number of studies dedicated to assessing the state of implementation of SiME in various regions and to listing what barriers prevent its widespread adoption, this thesis argues that the process of implementation needs to be further clarified. As such, it would be fruitful to investigate further certain topics such as: resistance from

faculty, individual professors as change agents, and the process of implementation of SiME over time.

6.2.1 Resistance from faculty

As studies have indicated variations in academic staff's responses towards the implementation of sustainability in business schools (Gottardello & Pàmies, 2019) and highlighted resistance from faculty as a barrier to it (Beddewela et al., 2017), further research is warranted on the latter.

As faculty commitment is of paramount importance in ensuring the integration of sustainability into the curriculum (Kanashiro et al., 2020), I argue future research should endeavour to better understand how to overcome resistance from faculty and propose practical strategies for building support. A first step could be understanding for what reason this resistance originates through a grounded theory study exploring faculty's views. The perception that sustainability is not within the scope of their competence (Maloni et al., 2012), pedagogical complexities and lack of expertise (Storey et al., 2017) may further limit the broad acceptance of sustainability among faculty members. The role of faculty support in the implementation of sustainability initiatives has been under researched, which may result in an underestimation of the extent to which this support is required (Maloni et al., 2012). Consequently, empirical based works that assess the perception of faculty and test the reasons underlying their view through wide surveys could be useful.

Relatedly, no study has looked at training targeted at faculty on SiME. de Paula Arruda Filho & Beuter (2020) suggests that voluntary gatherings to discuss principles for transformative education could have a positive impact. Beyond the description of this initiative however, no other efforts have been documented. Nevertheless, workshops have been employed in the past, for instance, the SiME workshop series was a topic of professional development workshops conducted at the Academy of Management conference from 2009 through 2019 (Arevalo et al., 2020). To document the efficacy of workshops or other training and their underlying mechanisms, case studies and detailed descriptions would be beneficial.

6.2.2 Individual professors as change agents

The role of individuals and specifically of professors has been extensively acknowledged by the literature (Beddewela et al., 2021; Burchell et al., 2015; Naeem & Neal, 2012; Preuss et al., 2023; Russo et al., 2023; Solitander et al., 2012; Weybrecht, 2021).

Several studies stress the importance of the individual champions pioneering new approaches and contributing to the diffusion of sustainability in business schools (Verhulst & Lambrechts, 2015; Weybrecht, 2017a). These include individual courses, groups of students, research projects (Weybrecht, 2017a), but mostly individual faculty (Beddewela et al., 2017; Burchell et al., 2015; Preuss et al., 2023). Change is mostly due to active faculty shaping organisational change (Beddewela et al., 2017; Burchell et al., 2015; Preuss et al., 2023). The literature concurs that the inclusion of sustainability is mostly driven by faculty members (Beddewela et al., 2021; Burchell et al., 2015; Naeem & Neal, 2012; Preuss et al., 2023; Russo et al., 2023; Solitander et al., 2012; Weybrecht, 2021), often on the basis of emotional engagement and passion for sustainability (Louw, 2019).

Solitander et al. (2012) refers to "champions", as "both informal and formal leaders through education, advocacy, service, and facilitation of experiments and curriculum redesign" (Solitander et al., 2012). Beddewela et al. (2021) uses the term "internal agents of change" or "institutional entrepreneurs", stating that they can be a (group of) individual who uses their positions of power and access to resources to initiate and drive the institutionalisation process (Battilana et al., 2009; Beddewela et al., 2021).

However, while several studies point to their importance, no study has focused solely on individual professors and their role as change agents. This thesis posits that it would be beneficial to investigate the role of institutional entrepreneurs/change agents in the integration of sustainability within business schools. Identifying key actors and exploring the impact of institutional entrepreneurs within business schools in initiating and driving organisational change could provide valuable insights into the factors influencing diffusion of SiME. As Beddewela et al. (2021) suggests, the existing literature on change agents (e.g. Battilana et al., 2009) could serve as a valuable foundation for future contributions in this field.

6.2.3 Process of implementation over time

As noted above, not much research has been dedicated to the process of implementation, though its across-time nature has been highlighted (Stephens & Graham, 2010). Most studies present a static snapshot of the situation at one or more universities (Russo et al., 2023; Stephens & Graham, 2010).

I argue that a valuable area of future research would be introducing the temporal dimension and exploring the process of implementation itself. Process studies could build on the model proposed by Beddewela et al. (2021) – testing it and expanding on the diffusion stage. This would also help HEIs plan for their own transition.

Furthermore, it would be helpful to understand the dynamics of change and the leadership modes necessary for different stages. Greenberg et al. (2017)'s findings suggest that the approach to the promotion of the inclusion of sustainability in business schools has to change over time, as what can foster early adoption (such as a diffused leadership style) can also hinder its diffusion to a wider level. Hence, as tensions arise and different leadership approaches might be needed, there is scope for further investigation. Seraphin et al. (2021) suggests that an ambidextrous management approach would be suitable when implementing PRME to balance short-term and long-term. Thus, drawing from ambidexterity literature could be another avenue for further exploration.

6.3 Gaps #3: Roadmap for practicing

While some articles present concrete information in terms of how sustainability has been applied in the classroom, more in-depth research is needed, specifically in terms of designing more specific guidelines and more examples of how sustainability was integrated in core business courses.

6.3.1 The need for more specific guidelines

This thesis argues that there is a need for more practical tools and specific guidance on what needs to be taught.

Although there has been previous research on case studies (Montiel et al., 2018), their effectiveness could be further explored. This could be done by identifying the factors that

contribute to making a case useful and effective for teaching sustainability. What factors contribute to the effectiveness of case studies in teaching sustainability principles in business education? By looking at existing cases and their practical application in a classroom context, including the views of students, it would be possible to provide guidelines for the creation of new case studies. A repository of additional suitable case studies to be shared would also be useful.

More resources on what to teach - such as syllabi, reading lists, textbooks, content lists - are also warranted, as are studies to evaluate them. Landrum & Ohsowski (2017) looks at reading lists and finds that most are aligned with weak sustainability rather than strong sustainability, pointing out that more guidance is needed to define what good content or good readings would be. While Landrum & Ohsowski (2017) specifically focuses on sustainability-centred courses, what about standard introductory business courses that instead integrate sustainability? Further studies are needed to examine how well reading lists and course content in non-sustainability-centred business courses incorporate strong sustainability principles, developing also guidelines to improve their alignment with strong sustainability.

Overall, Landrum & Ohsowski (2017) finds that "participants yearned for guidance on specific content". Maloni et al., (2012) and Starik et al. (2017) mentioned the lack of textbooks and detailed resources as a barrier. Despites mandates to embed sustainability, there is no unique agreement or standards on what should be covered or on resources for teaching sustainability in business (Landrum & Ohsowski, 2017; Storey et al., 2017). While the broad nature of the mandate has been beneficial allowing for exploration, the flexibility and lack of concrete guidance also has drawbacks (Weybrecht, 2021) which makes embedding SiME overwhelming for individual educators (Audebrand & Pepin, 2022; Hibbert & Wright, 2023; Storey et al., 2017).

Sharing curricula could be helpful, but so can the development of tools to assess weak and strong sustainability to identify what is good.

In addition, rather than making specific recommendations, which are bound to change over time, I argue it would be helpful to look at the process of course design. Since no study so far has attempted to assist in curriculum integration by offering pedagogical guidance and frameworks, the aim would be investigating how do professors effectively integrate strong sustainability principles into the content and themes of business courses? Such a study would

identify what informs teaching, how to ensure that sustainability is covered/how decide what should be covered, and how to match learning objectives with appropriate teaching methods and assessment techniques. It should be carried out across professors, although individual practical examples – such as some of the papers under Practicing research stream (e.g. Montiel et al., 2018; Springett, 2005; Ziegler & Porto-de-Oliveira, 2022) – can provide a starting point. Looking at teachers' experiences of implementation through a qualitative study would allow the educators' situated experiences and actions to come through, which the literature has currently not focused on. Through interviews or an ethnographic study, such a study would explore the ways in which sustainability is embedded in teaching practices. It could additionally draw on education and instructional design literature, but would focus specifically on the integration of sustainability in business courses.

6.3.2 More examples of core business courses that integrate sustaianbility are needed

It has been pointed out that often management courses focus on sustainability and responsibility only in a theoretical way (MacVaugh & Norton, 2012; Singh & Segatto, 2020), focusing on defining concepts and raising awareness (Zhang & Szerencsi, 2023). Hence, I argue it is particularly important to understand how sustainability is integrated beyond this and more holistically, i.e. also in non-sustainability core courses. Therefore, while the examples detailed under the practice stream are useful, it would be helpful to have more of such examples, focusing however on core introductory businesses courses to which sustainability has been integrated as opposed to "bolt-on" sustainability-focused courses. Of those detailed in section 5.3.5, Chiang & Chen (2022) is the only one that does this, focusing on a brand management course that has embedded sustainability, while the others instead aimed at promoting sustainability awareness.

6.4 A stakeholder theory perspective: actors involved in SiME

The literature agrees that embedding sustainability in business schools requires a systematic and holistic approach (Kolb et al., 2017; Sekhar, 2020) and a few papers have stressed the involvement of different stakeholders (Molthan-Hill et al., 2020; Sekhar, 2020; Stephens & Graham, 2010; T. S. Wright & Wilton, 2012) and the multi-actor nature of SiME (Stephens & graham, 2010). However, none so far has mapped out all of the actors involved.

According to stakeholder theory, an organisation or institution can be viewed as a complex system made up of several internal and external stakeholder groups that are always interacting with one another (Ferrary, 2009; Friedman & Miles, 2006). Due to the variation in their interests, resources, and power, these stakeholders may exert divergent or occasionally conflicting influences on the formulation, implementation, and evaluation of practices in the organisation or institution (P. M. Wright & Steinbach, 2022). Stakeholder theory is relevant to SiME research because, in the implementation of SiME, a wide range of stakeholders (e.g., students, professors, HEI leadership) are involved directly or indirectly. Specifically, I argue that looking at the literature from a stakeholder perspective offers insights into the specific mechanisms in place and highlights future avenues for research.

Wright & Wilton (2012) emphasises that "all levels of stakeholders in a university (administrators, staff, students, and faculty) must work together if sustainability is to be a focus of an institution". Similarly, Sekhar (2020) stresses how SiME requires a holistic approach that connects all HEI academic functions and actors, as well as external organisations and communities. Stephens & Graham (2010) goes more in depth and applies a transition management framework which highlights the multi-scale and multi-actor nature of the process of incorporating sustainability in higher educations. However, Stephens & Graham (2010) still only looks at wider picture actors i.e. society wide, the higher education sector, and the individual universities, but doesn't go at a more granular level. On the other hand, Molthan-Hill et al. (2020) presents a first effort at mapping out different levels of influence, highlighting some of the actors involved, namely students, educators, the institution, national governments, and macro-level influences such as the United Nations and PRME. The study also finds that the individual level can have a significant impact and action at the individual level is necessary for the inclusion of SiME (Molthan-Hill et al., 2020). However, beyond the macro-level, which Sekhar (2020) and Wright & Wilton (2012) point out, I argue that there are other significant actors within the institution itself.

In light of this line of reasoning, I have compiled a comprehensive list of stakeholders involved in SiME based on the existing literature and have discussed the implications and potential future avenues for research for each.

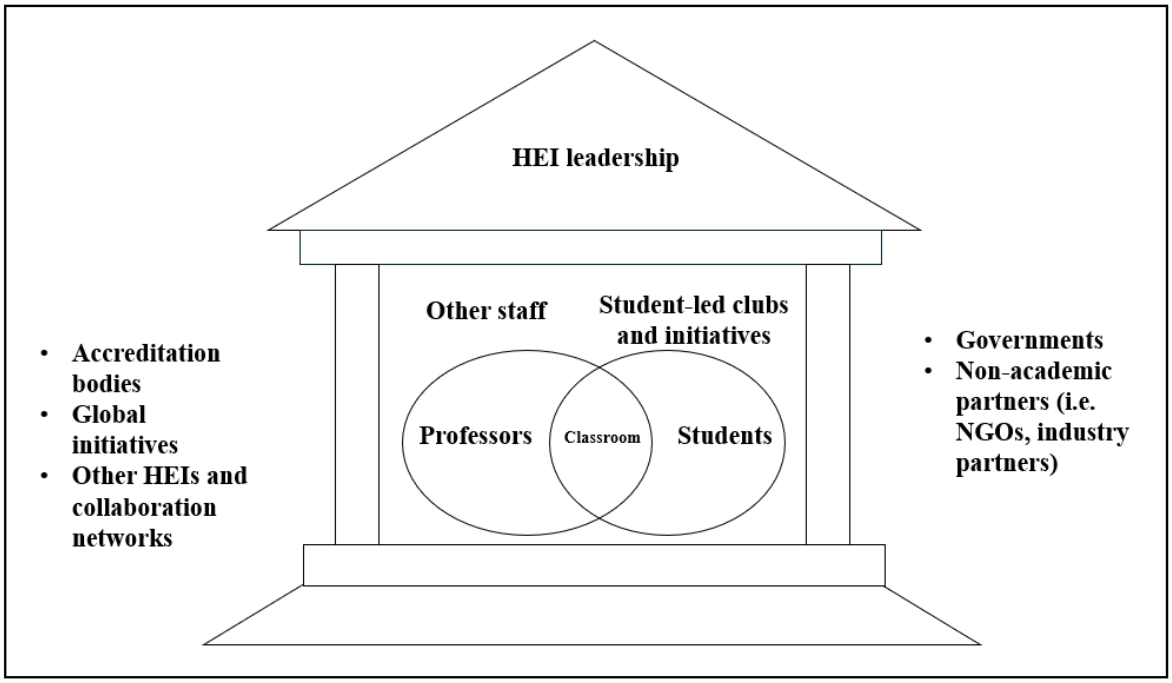
Therefore, I posit that SiME stakeholders to be taken into account include:

- External actors: accreditation bodies, other HEIs and collaboration networks, global initiatives (e.g. PRME), government, external stakeholders (e.g. NGO and industry partners)
- Internal stakeholders: HEI leaderships (including deans and the Board of Directors), professors, students, other staff (including career services), student-led clubs and initiatives

These are represented in Graph IV and explained in detail below.

Graph IV. Stakeholders involved in SiME

Source: Own creation



External stakeholders

Accreditation bodies

Wu et al. (2010) first highlighted the role that accreditation bodies can play. Although not solely focused on SiME, accrediting bodies for business schools can influence the industry and several studies found a positive influence of the inclusion of sustainability among the requirements for accreditation by agencies such as the European Foundation for Management Development (EFMD), the Association for the Advancement of Collegiate Schools (AACSB), and the European Quality Advance Collegiate School of Business (EQUIS) (Beddewela et al., 2017; Storey et al., 2017; Wu et al., 2010).

The reach of these accreditation bodies and potential influence upon business schools is quite significant (Cooper et al., 2014; Wilson & McKiernan, 2011). However, while they have incorporates SiME aspects within their standards, there is no clear description of how business schools must implement SiME material in order to receive accreditation (Sharland et al., 2013). Therefore, it is possible that business schools just reframe their current SiME initiatives in order to tick a box and obtain accreditation (or similarly implement superficial SiME initiatives) rather than implementing substantive SiME changes (Beddewela et al., 2017). This is partially due to the limitations of the conventional tools of rating and ranking (Tahmassebi & Najmi, 2023).

Global initiatives

Global initiatives – among which PRME is the most visible one - can also play a role in pushing and supporting the implementation of SiME. However, studies have casted doubt on the role of PRME in driving significant change among its signatory schools (Burchell et al., 2015; Maloni et al., 2021). Burchell et al. (2015) and Louw (2015) maintain that PRME has not served as a primary catalyst for responsible management pedagogical change (Louw, 2015) but rather it reflects practices already in place in the institutions. Furthermore, simply being a signatory doesn't equate necessarily to having thoroughly embedded responsible management in the curricula, which is the case for most participants (Godemann et al., 2011).

However, PRME can serve as a facilitator, empowering active faculty members (Burchell et al., 2015), thus acting as a reflection of the values already present in the HEI. Specifically, PRME can help by 1) Facilitating debate and discussion, (2) Providing a framework for assessing progress, (3) Fostering change, and (4) Serving as an external communication tool (Burchell et al., 2015).

Other HEIs and collaboration networks

As one institution does not exist in isolation, but rather in conjunction with other HEIs, these latter also constitute a stakeholder that could influence SiME (Avelar et al., 2022; Russo et al., 2023). Specifically, collaboration across HEIs has not been investigated in the context of SiME, though it has been posited as important (Weybrecht, 2021). The literature specifically mentions joint courses (Weybrecht, 2021) – online or in person - as well as conferences and workshops (Stephens & Graham, 2010).

Thus, this thesis argues that a mixed-method study looking at different modes of collaboration and the related impact would prove interesting. How do various modes of collaboration, such as joint courses, conferences, and workshops, across higher education institutions (HEIs) influence the promotion of SiME, and what are the differing impacts of these collaborative endeavours?

Additionally, there have also been calls for the development of an international database facilitating sharing of initiatives and innovative approaches to a more granular level than SIPs (Stephens & Graham, 2010).

Governments

Governments are another stakeholder that needs to be taken into account, as they have been shown to be a barrier towards the implementation of sustainability in the curricula of business schools. In particular, in countries with limited democratic expression, government regulations can often hinder the incorporation of sustainability into business school curricula (Mousa et al., 2020). More research, however, on a macro/institutional level is also warranted in order to define what policies would be beneficial to the promotion of SiME.

Non-academic partners

Cooperation with external stakeholders such as NGOs, commercial, industrial and agricultural associations and corporations, local government organisations, media or labour unions has been deemed an important pillar of SiME (Godemann et al., 2014; Parkes et al., 2017). Currently, only Ziegler & Porto-de-Oliveira (2022) talk about how collaboration with non-academic partners was used for creating course content. I posit that wider studies could explore the role of non-academic partners, such as industry actors, NGOs, and public organizations, in the development of sustainability-focused course materials and learning opportunities by identifying different modes of collaborating as well as the dynamics of collaboration and the challenges of cross-sector partnerships. As this relates to service learning, which has been advocated as a great way for fostering SiME (Strydom & Kempen, 2021), a possible avenue would be exploring how partnerships with NGOs and corporations enhance students' understanding of sustainable business practices and their ability to apply theoretical knowledge to practical contexts. Future research could also delve into identifying which types of collaborations, whether with specific NGOs, industry sectors, or community organizations, yield the most impactful outcomes for advancing sustainability in management education.

Furthermore there is potential for additional positive impact through the HEI's activities, which could contribute at a local or national level (Weybrecht, 2017a).

Internal stakeholders

HEI leaderships

HEIs' leadership and institutional support have been deemed by the literature an important driver (Russo et al., 2023; Sekhar, 2020; Singh & Segatto, 2020; Verhulst & Lambrechts, 2015). Eustachio et al. (2024) specifically highlights the role of senior management, as evidenced also by the literature on incorporating sustainability in organisations (Eustachio et al., 2023; Galpin & Lee Whittington, 2012).

Yet, I argue that research has not yet focused on the role of specific leaders and what they can do to foster SiME, with the exception of Walck (2009) who argues that deans can indeed contribute to the transition. How do specific leaders within Higher Education Institutions (HEIs), such as heads of departments, deans, rectors, vice-rectors, and members of the board of directors, contribute to fostering SiME? An exploration of their roles and actions, utilizing qualitative methods such as interviews or ethnographic approaches, could provide valuable insights into their influence on promoting sustainability initiatives and responsible management practices within academic settings.

Professors

It is widely acknowledged that professors are one of the primary stakeholders involved (Kanashiro et al., 2020). However, I argue that there is a notable absence of research investigating the situated experience of academics. This is also highlighted by Cullen (2020), who states that "little research has enquired into how those tasked with teaching responsible business – teaching staff, or 'lecturers' – make sense of, or interpret, what they are trying to do, how or why they are trying to do it or what their views are on their and others' responsibilities". Therefore, I posit that it is necessary to investigate how professors tasked with implementing sustainability make sense of it, and to determine which grounded theory approaches would be most suitable. Additionally, the focus should extend beyond activities in the classroom to encompass all aspects of their work, including preparation of course materials and ways in which they learn about incorporating SiME, and to identify other activities in which they are involved, including exploring how they promote SiME across the institution and how they deal with barriers they might face. Again, grounded theory approaches or ethnographies would be suitable.

Furthermore, (Eustachio et al., 2024) suggests that professors' role as sustainability leaders has not been sufficiently explored. Similarly, their role as change agents has been pointed out in the literature (Burchell et al., 2015; Kanashiro et al., 2020; Molthan-Hill et al., 2020), yet no study has been dedicated to investigating how do professors serve as change agents SiME and what are the underlying mechanisms of their influence. Ethnographic studies would be able to explore the inner workings and uncover useful insights.

This is of particular relevance in light of the observation that not all professors may be aligned with the integration of sustainability in management education (Beddewela et al., 2017; Gottardello & Pàmies, 2019). Despite generally favourable perceptions towards the PRME, there are indications of negative or neutral sentiments towards integrating sustainability into the curriculum (Blasco, 2022; Mousa, 2022). Academics have expressed frustration at having to respond to calls for the inclusion of sustainability, possibly due to the perceived de-prioritisation of other elements of their curriculum and the lack of expertise from the faculty (Falkenstein et al., 2022; Russo et al., 2023). Further in-depth studies, conducted with a larger sample size would be required to gather a better overview. As faculty disinterest and lack of engagement represent significant barriers to the inclusion of this subject (Beddewela et al., 2017; Maloni et al., 2012), I argue it is essential to gain a deeper understanding of their views These studies should investigate the range of views held by educators and the factors that contribute to resistance. Quantitative surveys would be optimal for this research, but they could also be supported by qualitative research in the form of interviews.

Other staff

Administrative staff should also be considered an important stakeholder in the promotion of SiME (Eustachio et al., 2024). Specifically, this thesis finds staff involved in career services deserve particular importance. Del Mar Martínez-Bravo et al. (2024) points out their involvement in the promotion of activities outside of school such as events and internships opportunities that might be related to sustainability. Additionally, career services needs to recognise the impact that separating 'social' related careers out reinforces the messages that everything related to sustainability is separate from "business as usual" (Weybrecht, 2017a). However, in PRME Sharing Information on Progress reports, no school mentions SDGs in relation to career services or career-related events, though there are few mentions of SDG-focused internship programs (Weybrecht, 2021). Similarly, Greenberg et al. (2017) finds as

part of their overall implementation evaluation that there are fewer reports of students making appointment to discuss social impact jobs compared to other types of jobs, though the former have doubled in the previous years, evidencing an increase in interest. Thus, I argue that more research on staff members within career services departments contribute to promoting sustainability and social impact careers within Higher Education Institutions is needed. Descriptive case studies would be particularly helpful.

Students

The objective of integrating sustainability into management education is to produce a transformation in the students themselves, thus the latter constitute a fundamental stakeholder in the context of SiME. However, despite their pivotal role and calls for further investigations (Kanashiro et al., 2020; Warburton, 2003), there is a paucity of studies that focus on students perspectives.

I argue that it is imperative that the opinions of students be actively consulted, as they represent a central actor in business education and their involvement is considered to be a key factor in influencing their sustainability behaviour (Leal Filho, 2015). In line with this, Greenland et al. (2022) argues that a "better understanding of student perceptions of sustainability has been deemed necessary for informing sustainable education strategy and curricula development". Similarly, Wright & Wilton (2012) finds that 84% of their respondents among HEI leadership agreed that they should consult students on their opinions. Yet there is a paucity of studies that address student perspectives (Høgdal et al., 2021; Mousa, 2022).

Among the various topics of potential interest, this thesis posits that two in particular stand out: the investigation of students' interest in sustainability courses and their views relating to how they are taught.

I argue that understanding current students' interest in sustainability courses in business schools is important because perceived disinterest from students is considered by professors as a significant barrier to the implementation of SiME (Beddewela et al., 2017; Burchell et al., 2015; Mousa et al., 2020; Ndubuka & Rey-Marmonier, 2019; Preuss et al., 2023). Similarly, Painter-Morland & Slegers (2018) warns that students' values could – on a theoretical basis and not based on a survey done on students - align with the broad exploitative agenda. While these studies show that professors perceive or believe that students would be disinterest in courses that embed sustainability, this is not supported by studies focused on students' views,

with the exception of (Eagle et al., 2015) who collected data from a cohort of students in 2012 finding that that students surveyed had a superficial awareness of sustainability and environmental challenges, regarding major issues beyond their control and being reluctant to make personal changes. However, this latter study surveys a generation of students different from the one in business schools at the moment and students' views in 2012 are not necessarily representative of students' views in 2024, as the attitude and knowledge towards sustainability varies across generations (Gazzola et al., 2020; Severo et al., 2018; Titko et al., 2021). Other studies found that interest and engagement coming from students have been found to drive course development (Christensen et al., 2007). Similarly, Cole & Snider (2019) finds that both undergraduates and executive MBA students hold positive views with regards to the need for embedding sustainability in their management education, as they acknowledge the impact that unsustainable business practices have had on the environment and can see how it would be useful to learn about more sustainable practices. Gatti et al. (2019) shows that students perceive sustainability as important and useful for their future career already before attending a sustainability-related mandatory course. Additionally, Zhang & Szerencsi (2023) finds a positive attitude towards SiME among the students, with most students (81%) willing to study the subject if it wasn't mandatory. Finally, Beddewela et al. (2017) explicitly notes, as part of a wider study, the disconnect between faculty's perception and students' views, showing that in contract to the faculty's views about a lack of student enthusiasm in SiME topics, the student perceptions were positive. Thus, while students' favourability towards responsible business education should not be assumed (Shah et al., 2023), neither should hostility be assumed.

I argue that further investigation is required to ascertain students' views with greater certainty. While quantitative studies may yield findings that are more generalisable, qualitative studies based on interviews with students could provide a more nuanced understanding of the issue. It is crucial to acknowledge that this investigation should not be limited to a single perspective; rather, it should encompass both the students' and the professors' views, in order to investigate also what causes the disconnect between students' attitudes and perceived attitudes by professors. By examining the underlying causes of both the perception and the views, this study can gain a comprehensive understanding of the issue. Relatedly, the study should consider the potential lack of engagement in the classroom environment from students and its causes, which extent beyond disinterest in sustainability and instead include teaching style and outdated content. An ethnographic study, coupled with in-depth semi-structured interviews

with both students and professors (separately), can also offer a valuable insight into this complex issue.

Additionally, I argue that student views on SiME and how sustainability-related material is taught should be investigated. As one of the respondents in Beddewela et al. (2017) points out, while they have “mixed responses from students within a [sustainability-related] classroom”, this “could be down to the way I approach the subject rather than their interest per se”. The study also more broadly surveys students about the ‘best way’ to incorporate sustainability, finding that the preferred method was to build the associated skills, in Ethics, Responsibility, Resilience and Sustainability into existing content across the full course, further supported by associative extra-curricular activities within departments. del Mar Martínez-Bravo et al. (2024) finds that the approaches for teaching sustainability have been adopted without considering input from the students, who are the primary recipients. Therefore, further insight is needed when it comes to how do students view what is being taught and how it is being taught.

In particular, this should be investigated through grounded theory, as the extant studies all apply pre-imposed notions in the form of single-choice surveys (e.g. del Mar Martínez-Bravo et al., 2024). These studies do not permit the views of the participants to be expressed. Qualitative research instead has been recommended for generating deeper insights into the experiences of students required for HEI strategy and practice, because it typically probes the experience of these participants with open questions and accommodates the nuances of expression in documented evidence (Greenland et al., 2022). These views can subsequently be tested quantitatively, with the aim of determining whether they apply to a wider population. However, this should only be done in a later phase of the study.

Greenland et al. (2022) is the only study to date to conduct in-depth interviews with students. The interviews were however conducted with the objective of assessing the dimensions of sustainability in a preliminary exploratory phase. These dimensions were subsequently included in a questionnaire. The interviews did not assess the students' previous knowledge or their thoughts on SiME. Instead, they focused on sustainability in general, leading to the identification of the dimensions of sustainability issues considered to be the most urgent. It did not investigate their views on SiME, such as whether what is taught is adequate, whether it goes beyond their current knowledge, whether teaching methods are effective, and other options about SiME. Instead, it asked students for their general views on what sustainability

meant to them, before probing on what sustainability issues they were aware of and their knowledge of the UN SDGs. Conversely, I argue that it would be more beneficial to investigate what students think of SiME, exploring what they think of how it is taught and how it should be taught, developing a conceptual framework that is closer to their language through grounded theory.

Overall, this review finds that the views of students and their situated experience has not been covered adequately and specifically more studies related to student perception of sustainability in management education are needed. Without the input of students, it is not possible to determine whether the efforts of SiME are ultimately effective (Maloni et al., 2021).

Furthermore, students are not being adequately engaged in incorporating sustainability on campus at a strategic level (Weybrecht, 2021). A mere handful of educational institutions acknowledge the potential of engaging students in strategic initiatives related to the Sustainable Development Goals (SDGs) in a variety of contexts, including the curriculum, operations, partnerships, and student-led initiatives. This represents a significant missed opportunity not only for the students themselves but also for the educational institutions (Weybrecht, 2021)

Student-led clubs and initiatives

Co-curricular initiatives such as student-led organisations are also an important stakeholder in embedding SiME and are explicitly addressed by Principle 6 of the PRME (Godemann et al., 2014).

These refer to a wide variety of activities, including competitions and awards, sustainable entrepreneurship programs, events, student-led research projects, workshops, reading groups, lecture series, and student associations and clubs related to sustainability, including global communities of associations (Kanashiro et al., 2020; Storey et al., 2017; Weybrecht, 2021). These represent a learning setting outside of the formal curriculum (Wihlenda et al., 2023)

Rusinko (2010) highlighted the importance and potential for co-curricular activities as an opportunity for integrating sustainability alongside the curriculum and approach SiME more holistically The research states that co-curricular options for sustainability can be opportunities for additional experiential and applied learning outside the classroom (Rusinko, 2010). Similarly, other studies asserted that co-curricular initiatives such as student organisations are complementary to formal learning generally (Ahren, 2009; Kuh, 1995) and

in a sustainability context (Borges et al., 2017; Kolb et al., 2017; Storey et al., 2017). Specifically, Storey et al. (2017) lists them as a powerful avenue for learning outside of the classroom through the process of active engagement and holistic.

Despite their stated importance, very few schools report on initiatives that are led by students (Weybrecht, 2021) and very little research has been dedicated to investigating these (Kanashiro et al., 2020).

On this basis, this thesis argues that the role of extra-curricular activities in management and entrepreneurship education has been under-researched in the academic literature. Only recently have studies emerged that demonstrate the impact of extracurricular engagement on responsible management and entrepreneurship education, and its contribution to sustainable development more generally (Bodolica et al., 2021; Borges et al., 2017; Wihlenda et al., 2023). Borges et al. (2017) conducted a quantitative study into nine student associations with the objective of identifying the commitment of university students to sustainability in a signatory HEI of the PRME. The study found that participation contributed to the development of a sustainability commitment, thus demonstrating that student associations are strategic and relevant for advancing the implementation of the SiME. Bodolica et al. (2021) documents the experience of a student who was involved in student-led extracurricular activities at his university. The study provides insight into the ways in which student initiatives can develop both a sense of community and entrepreneurial competencies. Wihlenda et al. (2023) present a study dedicated to the analysis of the impact of student initiatives on the context of SiME. Their findings indicate that such initiatives can positively influence a range of personal and professional outcomes, including self-efficacy, moral obligation, perceived social support, creativity, financial literacy, the ability to manage ambiguity, cooperation, the preparation of an entrepreneurial endeavour, and innovative employee behaviour (Wihlenda et al., 2023). In each of these areas, students who are engaged in extracurricular activities rate their competency higher than those who are not engaged, with a particularly notable difference observed in the context of sustainability-oriented initiatives. Extracurricular engagement in any kind of student initiative provides a relevant development space for social entrepreneurial competencies, but engagement in sustainability-oriented groups shows the most potential for the development of social entrepreneurial competencies (Wihlenda et al., 2023). Hence, they find strong evidence that student-led co-curricular initiatives are a great complementary resource for the integration of sustainability within business schools.

Thus, this area presents a great avenue for further research. I argue that case studies would be useful for investigating how sustainability-related co-curricular initiatives can be promoted and what specific types of activities present the best learning opportunities. Additionally, further research, in particular longitudinal or panel studies analysing changes over time (e.g., before and after involvement in a student group), would be beneficial in order to clarify the direction of causality.

7. Discussion and Conclusion

What do we know and don't know about how sustainability is embedded in business schools? This literature review identified that a significant amount of literature has been dedicated to establishing the rationale for integrating sustainability into management education, demonstrating it can have a positive effect, and defining SiME, including highlighting the need for a holistic and systematic implementation. Additionally, research has assessed the current level of implementation, determining that it is still inadequate. However, there is a lack of clarity regarding around what should be taught and what the process of implementation looks like over time. While research has highlighted barriers and drivers, we don't know how to overcome resistance from faculty and promote the role of change agents. Additionally, while some concrete examples have been advanced, more are needed on how to integrate sustainability in core business courses.

Furthermore, I argue that only the views of some stakeholders have been identified, while other actors have not been given voice to. This thesis finds that drawing from stakeholder theory allows for the significance of considering all actors involved to come forward. Some other stakeholders - such as student associations and board of directors - have a strong potential to influence the widespread adoption of SiME, yet their role has not been investigated so far, thus warranting further research.

7.1 Contributions of this thesis

This thesis aims to contribute in three ways. First, in contrast to previously published reviews, this thesis provides an integration of the large and heterogenous literature on both Responsible Management Education (RME) and Sustainability in Management Education (SiME). Secondly, it also contributes by reviewing the literature from a stakeholder theory point of view, bringing attention to the role of different actors, which previous studies have neglected. Specifically, this thesis highlights to the multi-stakeholder nature of embedding sustainability in business education and offers a general model of the stakeholders involved, encompassing understudied stakeholders such as career service staff, leadership (e.g. board of directors and program coordinators), and students – on whose views and practices there is little work. Thirdly, this thesis also opens new avenues for future research by inspiring more research on the topic of process of implementation of sustainability in business education over time,

resistance from faculty, the role of individual professors as change agents, views from students on teaching content and methodologies, and practical examples of how sustainability was integrated in core courses of business schools.

7.2 Managerial implications

This thesis also provides recommendations and a clear synthesis useful for practitioners – in particular for both HEI leadership and individual educators. Specifically, for HEI leadership it highlights the need to embed sustainability and for a holistic approach to be adopted, going beyond declarative commitments and spanning program outcomes, education/curricula, learning objectives, student activities, assessment, community interaction, and research. The work also outlines different ways in which sustainably can be integrated across the curriculum and how partnership with a variety of actors can help the process. It also points in the direction of tools for self-assessment (Peschl et al., 2023; Tahmassebi & Najmi, 2023) and studies detailing the process of implementation (Beddewela et al., 2021). Finally, it also illustrates the importance of support from HEI leadership and the provision of financial resources and potentially training for faculty. Additionally, this thesis provides a discussion of teaching practices and a list of practical examples of courses where sustainability was integrated that can prove helpful for educators.

7.3 Limitations

As a literature review, this thesis provided an overview of existing research on embedding sustainability in business schools, drawing themes together for consideration by future studies. However, it is necessary to highlight some important limitations.

The scope of the research has focused on a specific set of scientific papers related to the topic, chosen on the basis of specific inclusion and exclusion criteria delineated in the methodology chapter, which results in ignoring relevant literature that does not meet the criteria. Specifically, the key words “sustainab*” and “responsibl*” were used in the title search on the assumption that these would provide sufficient coverage of the research topic. Additionally, these key words were used in conjunction with “management” or “business” “education”. Hence, this thesis might have missed some relevant studies that use only one these keywords in the title.

Additionally, this literature review doesn't include books and grey literature (such as research reports from government agencies, master and doctoral dissertations). While conference proceedings were included, it is possible that further relevant work has been missed, presumably especially in relation to the third identified research stream ('Practicing SiME in the classroom'). Furthermore, as a literature review, this study suffers from publication bias – in other words, as articles finding statistically nonsignificant findings are less likely to be published, there might be an inherent bias in examining published articles. However, presented findings related to the effect of factors (such as a sustainability-focused course, or specific barriers/drivers) have been substantiated by several works – and if that hasn't been the case, the need for further research has been noted. Relatedly, however, it is important to note that studies on unsuccessful cases of SiME incorporated in a course have not been examined, but would warrant interest. Thus, even though this thesis tried to cover the relevant literature extensively, it does not claim to have necessarily included an exhaustive list of academic articles.

Additionally, due to the set constraint of the thesis, it was not possible to have two separate reviewers and ensure inter-rater reliability. However, detailed information about paper selection and coding was offered in the Methodology chapter (section 4) and in the Appendix (section 9) in order to allow for reproducibility.

Hence, despite the limitations of this study, this thesis aims to provide a clear overview and possible avenues for future research in SiME. As higher education institutions play an important role in shaping pro-sustainability behaviour, I hope to reinvigorate the field and encourage further integration of sustainability in business schools.

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9. Appendix

9.1 Articles examined organised by research stream

9.1.1 Articles categorized under research stream ‘Conceptaulizng SiME’

Paper	Research strand	Sub theme	Main findings
Adomßent et al. (2014)	Conceptualizing	What elements should SiME encompass	Presents emerging debates around sustainable consumption in HEIs and the role of higher education for sustainable development
Alcaraz & Thiruvattal (2010)	Conceptualizing	Justification for integrating sustainability in management education	Interview with policy maker about need for SiME
Arevalo et al. (2020)	Conceptualizing	Definition of sustainability in management education	Introduction to special edition
Audebrand (2010)	Conceptualizing	SiME and the hidden curriculum	Argues for rethinking the underlying metaphors for strategic management education and the semantic field from which they're drawn (war/combat)
Cole et al. (2019)	Conceptualizing	Justification for integrating sustainability in management education	Looks at how we should be educating current and future business leaders to navigate periods of global turbulence finding sustainability relevant

Dyck et al. (2023)	Conceptualizing	Assessing the impact of embedding sustainability in business schools	Shows that RME courses lead students to choose lower percentages of investments that only focus on financial profits vis-à-vis other investments
Figueiró P.S.; Raufflet E.	Conceptualizing	What does teaching SiME means	First literature review of the field
Forray & Leigh (2012)	Conceptualizing	Definition of sustainability in management education	Explains PRME
Forray et al. (2015)	Conceptualizing	Definition of sustainability in management education	Introduction to special edition
Fougère & Solitander (2023)	Conceptualizing	Justification for integrating sustainability in management education	Argues that SiME will affect students as consumer, employee, manager, entrepreneur, investor and leader
Frizon & Eugenio (2022)	Conceptualizing	Definition of sustainability in management education	Bibliometric literature review
Gentile & Samuelson (2005)	Conceptualizing	Justification for integrating sustainability in management education	Advocates for SiME
Giacalone & Thompson (2006)	Conceptualizing	SiME and the hidden curriculum	Analyses assumptions present in management education
Gitsham & Clark (2014)	Conceptualizing	Justification for integrating sustainability in management education	Investigates market demand for business students educated in sustainability matters
Godeman et al. (2014)	Conceptualizing	Definition of sustainability in management education	Describes the PRME initiative, what has been done and future directions
Greenland et al. (2022)	Conceptualizing	Definition of sustainability in management education	Examines student perceptions at an HEI business of what sustainability dimensions are most important

Hay et al. (2020)	Conceptualizing	Assessing the impact of embedding sustainability in business schools	Finds increased awareness of sustainable development and climate change after a period of education
Haertle et al. (2017)	Conceptualizing	Definition of sustainability in management education	Reviews the history and development of PRME
Hibbert & Wright (2023)	Conceptualizing	Definition of sustainability in management education	Argues that conceptualisations of responsibility in literature are generally superficial or unstated
Holliday (2010)	Conceptualizing	Justification for integrating sustainability in management education	Interview with CEO about need for SiME
Kurucz et al. (2014)	Conceptualizing	Justification for integrating sustainability in management education	Argues for the need for SiME
Lee & Schaltegger (2014)	Conceptualizing	Justification for integrating sustainability in management education	Argues for the need for SiME
Lambrechts et al (2013)	Conceptualizing	How should sustainability be included	finds out how and to what extent sustainability-related competences are already integrated in the existing competence schemes of different study programs
Mahajan (2020)	Conceptualizing	Justification for integrating sustainability in management education	finds that academics consider implementing RME crucial In India
Marathe et al. (2020)	Conceptualizing	Assessing the impact of embedding sustainability in business schools	shows positive impact of SiME on empathy

Molthan-Hill et al. (2020)	Conceptualizing	What elements should SiME encompass	categorises macro- meso- micro- level influences on SiME and underlines the importance of the individual (micro) level
Mousa et al. (2020)	Conceptualizing	Justification for integrating sustainability in management education	finds that academics consider implementing RME crucial
Ndubuka et al. (2019)	Conceptualizing	Justification for integrating sustainability in management education	Argues that RME can contribute to SDG promotion
Nwagwu (2020)	Conceptualizing	Definition of sustainability in management education	argues for RME in relation to banking
Olyana et al (2023)	Conceptualizing	SiME and the hidden curriculum	analyses narratives by MBA students with relation to the hidden curriculum
Okechukwu Ugwuozor & Out (2020)	Conceptualizing	Assessing the impact of embedding sustainability in business schools	focuses on the effect of exposure to business ethics courses on students' perceptions of the linkage between ethics education and CSR
Palthe (2013)	Conceptualizing	Definition of sustainability in management education	argues for a stronger recognition of the social aspect of sustainability
Parkes et al (2017)	Conceptualizing	Definition of sustainability in management education	introduction to special edition
Ramos et al. (2015)	Conceptualizing	Definition of sustainability in management education	introduction to special edition
Rands (2009)	Conceptualizing	What competences need to be fostered	maps topics and skills that SiME should tackle

Smith et al. (2023)	Conceptualizing	SiME and the hidden curriculum	uses organizational ambidexterity as a parallel to the tensions between RME and a capitalist society
Starik et al. (2010)	Conceptualizing	Definition of sustainability in management education	introduction to special edition
Stead & Stead (2010)	Conceptualizing	Definition of sustainability in management education	Describes the evolution of the concept of SiME
Storey et al. (2017)	Conceptualizing	What elements should SiME encompass	Maps out existing global initiatives that engage HEIs and external actors for RME
Vargas-Merino et al. (2024)	Conceptualizing	Definition of sustainability in management education	Literature review focusing on the role of HEI and defining SiME
Walck (2009)	Conceptualizing	What elements should SiME encompass	Argues that deans can contribute to the transition
Wihlenda et al. (2023)	Conceptualizing	What elements should SiME encompass	Argues that sustainability-oriented student initiatives and associations strengthen RME
Wright & Wilton (2012)	Conceptualizing	Definition of sustainability in management education	Looks at sustainability knowledge among university stakeholders
Zhang & Szerencsi (2023)	Conceptualizing	Assessing the impact of embedding sustainability in business schools	Compares the students' awareness and attitude before and after the semester to measure the impact of RME and finds little change in behaviour but a positive attitude towards RME and already strong awareness in the students

9.1.2 Articles categorized under research stream ‘Implementing SiME in institutions’

Paper	Research strand	Sub theme	Main findings
Arruda Fihlo (2020)	Implementing	Barriers and Drivers	Looks at staff training initiative and finds positive impact
Avelar et al. (2022)	Implementing	Approaches to implementation	Bibliometric review of RME articles
Beddewela et al. (2017)	Implementing	Barriers and Drivers	looks at the perspectives of staff and students for barriers to implementation
Beddewela et al. (2021)	Implementing	Process of implementation	proposes a six-stage model, derived from relevant change management and institutionalisation models and literature, which business schools could adopt to institutionalise RME as an intra-organisational practice
Burchell et al. (2015)	Implementing	Barriers and Drivers	finds little evidence for PRME as a driver but says it serves as a facilitator of individual change agents' actions
Calitz et al. (2018)	Implementing	Current state of implementation	shows how business intelligence tools can be used to aid sustainability reporting for HEI
Cavalcanti-Bandos et al. (2021)	Implementing	Current state of implementation	Assesses the state of RME in Latin America (Peru, Brazil, Colombia)
Eustachio et al. (2024)	Implementing	Barriers and Drivers	looks at differences between PRME signatory and non-signatory business school professors in adopting sustainable development aspects in their teaching
Figueiró et al. (2022)	Implementing	Approaches to implementation	guide for integration based on four interdependent dimensions—contextual, organizational, curricular, and pedagogical
Fuchs et al. (2020)	Implementing	Current state of implementation	On green marketing of SiME

Galilei et al. (2022)	Implementing	Current state of implementation	Assesses the state of RME in Brazile
Greenberg et al. (2017)	Implementing	Process of implementation	Looks at the implementation process
Kanashiro et al. (2020)	Implementing	Barriers and Drivers	Teaching and students' contextual factors that facilitate learning SiME
Kolb et al. (2017)	Implementing	Process of implementation	Analyses a case study of implementation of SiME
Landrum (2021)	Implementing	Barriers and Drivers	Looks at a successful case study and identifies useful factors
Leon-Fernandex et al. (2015)	Implementing	Current state of implementation	Evaluates state of implementation in Spain and identifies actions taken
Malarski et al. (2023)	Implementing	Approaches to implementation	Creates a framework for RME implementation
Maloni et al. (2012)	Implementing	Barriers and Drivers	Looks at faculty support and its importance
Maloni et al. (2021)	Implementing	Current state of implementation	Finds mixed evidence for decoupling
Mendoza et al. (2019)	Implementing	Approaches to implementation	Framework on integrating circular economy principles in campus management
Mousa & Arslan (2023)	Implementing	Barriers and Drivers	Identifies barriers to implementation of RME in virtual learning environments
Mousa (2022)	Implementing	Barriers and Drivers	Identifies barriers for implementing RME in fragile states
Naeem & Neal (2012)	Implementing	Current state of implementation	Assesses state of implementation in Asia Pacific
Nicholson & DeMoss (2009)	Implementing	Current state of implementation	Assesses curriculum coordinators' perceptions of the level of inclusion of ethics and social responsibility at the level of specific programs and majors
Nicolaides (2006)	Implementing	Barriers and Drivers	Knowledge from the management of change to the introduction of sustainability in HEIs, providing a theoretical overview of barriers and of the implementation process, while also highlighting the imperative for sustainability to be integrated

Peschl et al. (2023)	Implementing	Current state of implementation	Presents a benchmarking framework for reporting
Preuss et al. (2023)	Implementing	Current state of implementation	Surveys RME practices in Europe
Roos & Gunther (2020)	Implementing	Current state of implementation	Reviews campus operations reporting systems
Rusinko (2010)	Implementing	Approaches to implementation	Categorises ways in which SiME can be incorporated
Russo et al. (2023)	Implementing	Approaches to implementation	Literature review on RME
Sekhar et al. (2020)	Implementing	Barriers and Drivers	Explores the barriers/difficulties/resistance to including sustainability in Indian HEIs
Seraphin et al. (2021)	Implementing	Approaches to implementation	Finds that PRME is not effectively embedded in tourism curricula and proposes that an ambidextrous management approach is needed when it comes to implementing PRME
Singh & Segatto (2020)	Implementing	Barriers and Drivers	Looks at drivers and barriers
Scholtz et al. (2018)	Implementing	Barriers and Drivers	Higher education institutions (HEIs) face a number of challenges sustainability reporting in effectively managing information, such as siloes of data and a limited distribution of information. BI can help.
Solitander et al. (2012)	Implementing	Process of implementation	Argues for the role of professors as champions for PRME
Stephens & Graham (2010)	Implementing	Process of implementation	Applies a transition management framework to highlight; highlights the across-time and multi-actor nature of SiME
Tahmassebi (2023)	Implementing	Current state of implementation	Creates a framework for assessment of RME implementation
Verhulst & Lambrechts (2015)	Implementing	Approaches to implementation	Looks at SD integration into the university system from the perspective of organisational change management and, more specifically, focussing on the human factors in this process

Weybrecht (2017)	Implementing	Approaches to implementation	Argues for an in-depth implementation of SiME and what aspects should be considered
Wu et al. (2010)	Implementing	Current state of implementation	Comprehensive review of the state of sustainability education in management schools worldwide
Wu et al. (2015)	Implementing	Current state of implementation	Evaluates the state of SiME in Asia
Yadav & Prakash (2022)	Implementing	Barriers and Drivers	Looks at major factors impacting the integration of the concept of sustainable development in management education in India.

9.1.3 Articles categorized under research stream ‘Practicing SiME in the classroom’

Paper	Research strand	Sub theme	Main findings
Arruda Fihlo (2017)	Practicing	Interdisciplinarity	Case study in Brazil
Chiang & Chen (2022)	Practicing	Interdisciplinarity	Walks through the design and implementation of a PRME-based ESD course
Gatti et al. (2019)	Practicing	Concrete examples	Describes a business simulation game for promoting sustainability critical thinking
Hoveskog et al. (2018)	Practicing	Concrete examples	Describes an Experiential Workshop for university undergraduates in which the Service-Learning pedagogic approach is taken and Flourishing Business Canvas is applied as a tool for collaborative visual business modelling
Landrum & Ohsowski (2017)	Practicing	Practical Tools	Identifies most frequently assigned reading materials in introductory business sustainability courses in the USA
Lavine & Roussin (2012)	Practicing	Concrete examples	Describes a semester-long action-learning project where undergraduate or graduate management students learn about ethics, responsibility, and organizational behaviour by examining the policy of their college or university that addresses academic integrity
Lee & Hales (2022)	Practicing	Reflexivity	Shows how reflexivity fosters RME
MacVaugh & Norton (2012)	Practicing	Teaching methods	Advocates for active learning
Martinez-Bravo et al. (2024)	Practicing	Teaching methods	Factor analysis of different learning approaches

Montiel et al. (2017)	Practicing	Practical Tools	Describes the use of an app that recommends sustainable products in class
Montiel et al. (2018)	Practicing	Practical Tools	Looks at case studies used in environmental sustainability management courses and classifies them
Schultz et al. (2020)	Practicing	Teaching methods	Finds that student-led social media analysis may enrichen responsible management education.
Shah (2023)	Practicing	Teaching methods	Looks at how educators interpret theirs and their students' responsibilities
Sidiropoulos (2014)	Practicing	Teaching methods	Ways of incorporating SiME and his experience
Springett (2005)	Practicing	Concrete examples	Description of the theoretical background (aims, objectives, terminology), content, and pedagogical method used in practice for two courses relating sustainability and business
Strydom & Kempen (2021)	Practicing	Teaching methods	Shows how apprenticeships can make SiME in action
Stubbs (2013)	Practicing	Interdisciplinarity	Presents the Knowledge-Skills-Attitudes (KSA) framework as a pedagogical tool for designing a curriculum
Viera Trevisan et al. (2024)	Practicing	Teaching methods	Talks about the learning processes and conditions for a sustainability-focused course
Weybrecht (2021)	Practicing	Concrete examples	Investigates actions taken by HEIs as described in their SIPs that target SDGs

Yang et al. (2021)	Practicing	Concrete examples	Advances a contemplative art-based project involving the creation of an electronic portfolio which consists of a student's digital photographs to boost their
Ziegler & Porto De Oliveira (2022)	Practicing	Concrete examples	Offers a view of how back casting is used in a course to foster sustainability thinking through projects in collaboration with external partners

9.2 List of barriers and drivers identified by the literature

Category	Factor	Role	Literature
Legislative enablers	Accreditation bodies	Driver	(Cooper et al., 2014; Wilson & McKiernan, 2011; Wu et al., 2010)
	Global policies (e.g. PRME)	Driver	(Burchell et al., 2015; Preuss et al., 2023)
	Governmental bodies	Barrier/Driver	(Avelar et al., 2022; Blanco-Portela et al., 2018; Mousa et al., 2020; Mousa & Arslan, 2023)
Institutional support	Lack of financial resources	Barrier	(Barth, 2013; D. N. Greenberg et al., 2017; Leal Filho & Wright, 2002; Mahajan, 2020; Mousa et al., 2020; Preuss et al., 2023; Sekhar, 2020; Singh & Segatto, 2020; Verhulst & Lambrechts, 2015; T. S. Wright & Wilton, 2012)
	Leadership	Barrier/Driver	(Beddewela et al., 2017; Blanco-Portela et al., 2018; Eustachio et al., 2024; Figueredo & Tsarenko, 2013; D. N. Greenberg et al., 2017; Gudz, 2004; Leal Filho et al., 2020; K.-H. Lee & Hales, 2022; Nicolaides, 2006; Preuss et al., 2023; Sekhar, 2020; Singh & Segatto, 2020; Verhulst & Lambrechts, 2015)
Engagement/resistance	From faculty	Barrier/Driver	(Beddewela et al., 2017, 2017, 2021; Burchell et al., 2015; Doh & Tashman, 2014; Dyllick, 2015; Gottardello & Pàmies, 2019; Kanashiro et al., 2020; Louw, 2015; Maloni et al., 2012; Millar & Price, 2018; Mousa, 2022; Ndubuka & Rey-Marmonier, 2019; Nicolaides, 2006; Preuss et al., 2023; Rasche & Gilbert, 2015; Shah et al., 2023; Sharland et al., 2013; Singh & Segatto, 2020; Tahmassebi & Najmi, 2023; Verhulst & Lambrechts, 2015; Yadav & Prakash, 2022)
	From students	Barrier/Driver	(Beddewela et al., 2021; Blanco-Portela et al., 2018; Mousa et al., 2020; Ndubuka & Rey-Marmonier, 2019; Tahmassebi & Najmi, 2023)
Complexity	Vagueness of instructions	Barrier	(Aleixo et al., 2018; Beddewela et al., 2017; K.-H. Lee & Hales, 2022; Ndubuka & Rey-Marmonier, 2019; Nicolaides, 2006; Preuss et al., 2023; Sekhar, 2020; Springett & Kearins, 2001; Storey et al., 2017)
	Lack of expertise	Barrier	(Beddewela et al., 2017; Burchell et al., 2015; Doherty et al., 2015; Figueiró & Raufflet, 2015; Kanashiro et al., 2020; Kumar, 2006; Maloni et al., 2012; Muff et al., 2013; Ndubuka & Rey-Marmonier, 2019; Nicolaides, 2006; Rasche & Gilbert, 2015; Sekhar, 2020; Shrivastava, 2010; Singh & Segatto, 2020)