# Sustainability reporting, universities and global reporting initiative applicability: a still open issue

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## Abstract

**Purpose** – The porpose of this study is to critically consider the use of global reporting initiative (GRI) guidelines in universities' sustainability reports.. In light of the recent literature and Habermas's thinking, the study advances the research field by considering the process of internal colonisation from steering institutions and makes suggestions regarding the future role of GRI in the higher education (HE) context.

**Design/methodology/approach** – This study presents a systematic literature review and content analysis for enhancing the critical reading of GRI applications in HE studies. The results are analysed in light of Habermas's thinking, considering the GRI as a steering institution and its guidelines as steering mechanisms.

**Findings** – This study updates the literature review on sustainability reporting (SR) at universities and underlines the general trend in the employment of the GRI in this context. The results highlight the need to adapt the GRI to enhance its applicability in the HE context by considering additional dimensions such as research, teaching and operations. In doing so, the framework loses effectiveness and weakens the role of the GRI as a steering institution.

**Practical implications** – The results suggest that the GRI guidelines should be reframed to enhance comparability among reports and increase its wider employment at universities.

**Social implications** – Universities need to be guided in their accountability process towards SR by dedicated frameworks. This study suggests the potentially pivotal role that the GRI could play in providing dedicated tools for HE to steer and enhance the development of SRs at universities.

**Originality/value** – This study presents an updated review of studies on SR at universities and suggests possible paths for the future of the GRI framework applicability to universities' SR.

**Keywords** Global reporting initiative, Sustainability report, Universities, Literature review, Habermas, Internal colonisation

**Paper type** Research paper

## 1. Introduction

The 2030 Agenda has largely increased the responsibility of universities towards students and the community (United Nations, 2015) and has placed higher education (HE) as a pivotal actor in the transition towards sustainable development (Leal Filho, 2011; UNESCO, 2022). At the same time, the use of public resources and public management reforms has gradually steered a process of sustainability measurement improvements. In the wake of this



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responsibility, universities face the increasing need for a higher level of accountability (Sassen and Azizi, 2018a). As public sector organisations, many universities are also facing greater institutional pressures and requests from stakeholders for a higher level of commitment to disclose social and environmental information as responsible actors (Dumay *et al.*, 2010; Larrán Jorge *et al.*, 2019). In addition, given the role of universities in training new generations and society for a more sustainable future, it has become important to measure the impacts of higher education institutions (HEIs) in terms of sustainable development and sustainability impacts (Godemann *et al.*, 2014; Moggi, 2019). Therefore, universities have increasingly started to adopt sustainability reports and other voluntary disclosure tools to satisfy stakeholders' demands and respond to institutional pressures (Brusca *et al.*, 2018; del Mar Alonso-Almeida *et al.*, 2015; Larrán Jorge *et al.*, 2019). As a result of this growing need for a higher level of transparency in HEIs, there has been a rise in interest in sustainability reporting (SR) in HEIs in recent years (Moggi, 2019; Ntim *et al.*, 2017). However, despite this greater attention, SR practices at universities are still in their infancy (Adams, 2013; Sassen and Azizi, 2018b).

Because a sustainability report is a voluntary disclosure for universities and does not present a unique, recognised sustainability report standard, universities have developed a multitude of different practices. HEIs have applied many SR frameworks simultaneously (e.g. sustainability tracking, assessment and rating system [STARS], global reporting initiative [GRI]), with the GRI being the most widespread at the global level (Ceulemans *et al.*, 2015b; Yáñez *et al.*, 2019). The GRI welcomed universities' sustainability reports in its database but did not provide any sector supplements for these organisations. In this context, universities have adapted the GRI standard and integrated this framework with further indicators that are suitable to HEI missions and activities (e.g. research, teaching and services). Simultaneously, universities have applied further SR frameworks (e.g. STARS and Rete delle Università per lo Sviluppo Sostenibile [RUS]–Gruppo Bilanci e Sostenibilità [GBS]) (White and Koester, 2012). The result of this practice is providing reports that are not comparable because they present dissimilarities in terms of structure, contents and accountability scope (Bice and Coates, 2016; Fonseca *et al.*, 2011; Yalin *et al.*, 2019). Previous studies have stressed this issue and underlined the need to adjust the GRI standard for applications to HEIs (Caputo *et al.*, 2021; di Tullio and la Torre, 2022; Moggi, 2019). The applicability of the GRI to HEIs is a complex topic that the previous literature considers an issue for three main reasons: the deep measure of the requested disclosures; the selection of the additional indicators to apply in the HE context; and the shift from a dominant focus on local issues to the consideration of global issues (Bonatxea *et al.*, 2022). Thus, in-depth reflection on these concerns is needed. Through a critical point of view on the use of the GRI standard in HEIs, the present study explores the literature on this topic and proposes theoretical insights regarding the potential effect of the GRI as a steering institute and the GRI guidelines as steering media (Broadbent *et al.*, 2010; Habermas, 1985a). In doing so, reflections on the use of the GRI in the HE context and its applicability for the future will be provided.

In exploring the papers available in EBSCOhost, Web of Science and Scopus on SR at universities from 2006 (the first paper available on the topic) to the present, this research presents a systematic literature review and content analysis on the role played by the GRI in these studies (e.g. database employment, use of the framework for the analysis) and the main implications underlined by the literature in terms of the possible future of GRI applicability in HEIs. In doing so, two main research questions are defined:

*RQ1*. How and to what extent has the GRI been examined in studies on SR in HE?

*RQ2*. What is the future of the GRI framework in HEIs?

To improve the reading of the results, Habermas's thinking and the related theoretical approach proposed by Broadbent *et al.* (2010) and Moggi (2019) are used to consider paths for the future of GRI applicability in HEIs. In light of this critical approach, the GRI will be considered a steering institution that colonises the HE lifeworld. This study will reflect on the issues of this internal colonisation. In doing so, the contributions of the paper are twofold. Firstly, it provides a comprehensive and updated literature review of studies on SR at universities since Ceulemans *et al.* (2015b), as well as the use of the GRI in these practices. Secondly, it provides a theoretical understanding of the (unsuccessful) internal colonisation of GRI steering institutions in HE lifeworlds, suggesting possible actions for policymakers and regulators to overcome this impasse.

This paper is structured as follows. Section 2 presents an overview of the main studies on SR at universities and GRI application in the HE context. Section 3 outlines the theoretical approach, considering Habermas's thinking and the potential internal colonisation from GRI to HEIs. Section 4 describes the systematic literature review conducted on SR at universities and GRI concerns. Section 5 presents the main features of the reviewed studies, with a focus on the related GRI implications. Sections 6 and 7 provide a critical reflection of the potential of the GRI as a steering institution.

## 2. Sustainability reporting at universities

### *2.1 Sustainability reporting in higher education: an overview*

The sustainability assessment and reporting phase represents one of the most important dimensions to be considered in the commitment to implement sustainable development in the academic system (Lozano, 2006a). The concepts of sustainability assessment and the sustainability report are closely related, although they are often treated separately. The measurement of sustainability performance is an essential part of the process of making the report itself; however, the evaluation process does not automatically lead to the disclosure of information to the public (Ceulemans *et al.*, 2015b). Often, such measurements are only for internal decision-making and are not made accessible to stakeholders; thus, sustainable actions are little known outside the organisation (Fonseca *et al.*, 2011). However, in a context characterised by increasing complexity, universities have numerous tasks and an increasingly broad network of relationships to manage. This includes responding to increasing stakeholders' calls for transparency on the work of universities, the value created and how they aim to pursue their missions. In addition, universities are often public sector organisations, and the use of public funds requires a greater level of accountability to ensure the correct use of common resources (Moggi *et al.*, 2015; Trireksani *et al.*, 2021). However, while traditional accountability tools allow to respond to disclosure needs on economic–financial issues, they do not cover broader issues inherent to environmental and social impacts. More complex accountability claims have steered the development of additional tools comprehensive of social and environmental aspects (e.g. such as sustainability reports).

According to previous studies on SR, universities offer this kind of disclosure for two main reasons: to provide accountability to stakeholders and to assess their impact on sustainable actions (Chatelain-Ponroy and Morin-Delerm, 2016; Ntim *et al.*, 2017). Therefore, a sustainability report is a tool that is needed by HEIs and their leaders not only to fine-tune the current situation and efforts of the university but also to identify improvement actions and plan future efforts towards sustainable development. Therefore, a sustainability report constitutes valid support in the decision-making process and in the strategic planning of academic governance to improve performance over time (Ceulemans *et al.*, 2015b; Yáñez *et al.*, 2019). The sustainability report can also contribute to improving the visibility and

reputation of the university, thus strengthening its position compared to its competitors and attracting more funding and better students and researchers (del Mar Alonso-Almeida *et al.*, 2015; Moggi *et al.*, 2015). According to their public or private nature, universities respond to different pressures and face different challenges that steer their processes of accountability. Scholars underline that public universities are focusing their attention on internal measurements because their priority is the management of public funds. Private universities face more competition and are more focused on external initiatives and claims for proving funds (Othman and Othman, 2014; Son-Turan and Lambrechts, 2019; Trireksani *et al.*, 2021).

Despite the importance of universities in spreading sustainable development and their growing interest in developing sustainability practices, scholars have agreed that this reporting practice is still in its infancy at a global level (del Mar Alonso-Almeida *et al.*, 2015; Klußmann *et al.*, 2019; Velazquez *et al.*, 2006). Lozano *et al.* (2013a) reveal that the number of sustainability reports at universities progressively increased in the period between 2001 and 2013, but most of the HEIs (41 out of 65) did not publish any reports after the first report, and only three institutions have published five. Similar results can be found in a recent study by Yáñez *et al.* (2019), who analyse reports from 133 universities.

Furthermore, universities pay more attention to economic and environmental aspects, which may be because sustainability is often attributed primarily to environmental connotations and the economic data are derived from annual financial statements, whereas the social aspects appear to be more difficult to evaluate (del Mar Alonso-Almeida *et al.*, 2015). Moggi (2019), in analysing the trend in the publication of sustainability reports in the Italian context, underlines an evolution in the contents of sustainable development disclosure that has become more comprehensive over time.

Scholars have identified a series of barriers that can be the cause of poor dissemination of SR in the academic field. They distinguish between barriers that affect the adoption of this tool and barriers that are inherent to the reporting process (Moggi *et al.*, 2015). The former may be attributable to a low level of knowledge of the issues relating to social reporting or sustainability in the university; an existing commitment on the part of governance; a lack of government policies regarding sustainable work; and the essence of a universal and commonly shared standard. The latter may be a result of the scarce availability of resources (both financial and human); difficulties encountered during data collection; the structural characteristics of the organisation; and the lack of understanding of the responsibilities attributed during the document creation process. Finally, numerous studies have agreed on the issue that because SR is a voluntary practice for universities, these organisations develop reports following different standards and guidelines. This cherry-picking approach produces sustainability reports quite dissimilar that are based on different areas of assessment and almost not comparable (Bice and Coates, 2016; del Mar Alonso-Almeida *et al.*, 2015; Fonseca *et al.*, 2011).

### *2.2 Global reporting initiative application in higher education institutes*

The guidelines and standards for SR are tools that enable the development of reports following common principles and structures (Dumay *et al.*, 2010). Standards provide suggestions regarding the content and principles that should be embraced to obtain comparable documents over time and between different HEIs (Yuan *et al.*, 2013). The development of a framework aims to provide easy-to-understand and particularly detailed schemes with supplementary material to support the organisation's adoption (Rode and Michelsen, 2008) and render the reports comprehensible to a broad range of stakeholders (del Mar Alonso-Almeida *et al.*, 2015; Yuan *et al.*, 2013). Sustainability assessments are increasingly attracting attention in universities; in the past decade, numerous sustainability

assessment tools have been created and applied globally in response to the need for accountability (Adams and Petrella, 2010). In this context, the GRI guidelines are recognised as the most widely used in for-profit organisations (Dumay *et al.*, 2010) and are gradually increasing their application in universities (Ceulemans *et al.*, 2015b; del Mar Alonso-Almeida *et al.*, 2015; Sepasi *et al.*, 2018). The GRI guidelines provide a wide-ranging set of indicators that enable all types of organisations to disclose their social, environmental and economic sustainability performance (Bice and Coates, 2016; Huber and Bassen, 2018). In addition, the GRI has developed guidelines for specific sectors (e.g. oil and gas, agriculture) and, in 2005, it published the Sector Supplement for Public Agencies, which proposes guidelines for SR in public sector organisations (GRI, 2005). Scholars have suggested that the GRI guidelines, including this Sector Supplement, are not frequently mentioned in the SR of public sector organisations because of the lack of knowledge and resources (An *et al.*, 2017; Goswami and Lodhia, 2014; Guthrie and Farneti, 2008).

Despite their widespread application in different types of organisations, GRI frameworks are not designed for universities and do not completely meet their accountability needs. This issue has been underlined by previous studies, which have adapted the framework to universities' specific sustainability performance disclosure contents (Ferrero-Ferrero *et al.*, 2018). For example, Lozano (2006b) developed a tool for the Graphical Assessment of Sustainability in Universities (GASU) and integrated the GRI G2 guidelines (GRI, 2002), which consider HE-specific indicators for 45 aspects. Similarly, Fonseca *et al.* (2011) started from the GRI G3 guidelines (GRI, 2006) and embedded additional items for a total of 56 aspects. Both studies added research and teaching dimensions. Lozano (2006b) considered a further area on services, and Fonseca *et al.* (2011) included indicators on green building and procurements; in addition, scholars highlighted that when an indicator is missing, universities tend to integrate the disclosure with qualitative information (Dagilienė and Mykolaitienė, 2016; Mio, 2013). Fonseca *et al.* (2011) provided two reasons for using the GRI guidelines in these studies. Firstly, compared with other guidelines and standards, the use of the GRI is already widespread in several sectors as the world's leading reference for SR. Secondly, the GRI framework could harmonise the many approaches to SR taking place in HEIs and increase the comparability of reports (Fonseca *et al.*, 2011; Lozano, 2006a). Finally, del Mar Alonso-Almeida *et al.* (2015) discussed the main trends in GRI application on universities' SR, in which European and North American HEIs are the main users. Given the forecast on GRI future diffusion, their study predicted that, by 2022, around 300 HEIs would have adopted the GRI framework. Because the GRI database is no longer available, this prediction cannot be verified. However, given the number of HEIs around the world, the forecasted number of universities adopting the framework can be considered scant (del Mar Alonso-Almeida *et al.*, 2015). In summary, these studies do not propose a unique solution for integrating the GRI and rendering it suitable for HEIs. However, scholars agree on the need to rethink the framework and consider at least sustainability indicators on research, teaching and operations.

In parallel with the GRI guidelines, several HE-specific frameworks for SR and sustainability assessment at universities have been developed (Fischer *et al.*, 2015). The most known is the STARS, which is a framework for measuring sustainability performance specifically for campuses and universities. The most recent version, 2.0, was released in 2019 and contains 69 indicators divided into six main areas of assessment: institutional characteristics; academics; engagement; operations; planning and administration; and innovation and leadership. The sustainability report must be submitted on an online platform, and the university can decide whether to be audited (or not) for receiving a score (AASHE, 2019). This framework has been criticised by scholars: because it is voluntary and

provides a ranking system, it shifts the purpose of the report from being an accountability tool to being a competition tool. This aspect is a deterrent for some universities that evaluate the use of the framework (Fonseca *et al.*, 2011; Huber and Bassen, 2018). In addition, STARS originated in the American context and tends to emphasise the assessment of environmental performance (Leal Filho *et al.*, 2022). Universitas Indonesia (UI) proposed a similar system called GreenMetric and suggested a world ranking those measures six indicators for each participating university, mainly focusing on environmental aspects (e.g. setting and infrastructure, energy and climate change, waste, water, transportation and education) (UI, 2021).

Another framework recognised in the past at the international level was the Assessment Instrument for Sustainability in Higher Education (AISHE) (Roorda and Martens, 2008). This tool allows HEIs to self-assess their sustainability performance by considering five dimensions of assessment: operations, education, research, society and identity. However, the assessment is based on qualitative information, which hampers the reports' comparability (Ferrero-Ferrero *et al.*, 2018; Huber and Bassen, 2018). Finally, a recent standard called the "Sustainability Report for University" was developed by the Italian University Network for Sustainable Development (RUS) and the national group of research Reporting and Sustainability Group (GBS). This framework proposes a report structure that considers the specific mission and areas of action of universities (e.g. teaching, research, third mission and environmental aspects) (RUS-GBS, 2022). All of these frameworks vary in their purpose and contents and increase the heterogeneity among SRs at universities.

Although these frameworks have been designed to guide universities in the SR process, the most widespread remains the GRI (del Mar Alonso-Almeida *et al.*, 2015). Some studies have called for a Sector Supplement dedicated to HEIs in the belief that such guidelines will encourage more universities to take action towards sustainable development (Adams and Petrella, 2010; Moggi, 2019). Notwithstanding these scholars' expectations, the GRI has not provided specific tools for universities' SR or suggestions for possible future projects on HE. At the same time, the GRI open access database on SRs was recently shut, thereby removing researchers' access to an updated repository of current SR practices in HEIs. The availability of the GRI "disclosure database" permitted researchers to use a freely available and updated population of sustainability reports (Bice and Coates, 2016).

## 3. Habermas's thinking in the higher education lifeworld

Although many studies on SR at universities have used stakeholder theory, legitimacy theory or institutional theory as their theoretical approach (Klußmann *et al.*, 2019; Ntim *et al.*, 2017), the present study will consider a more critical point of view to seek an interconnection between the different levels of society (e.g. GRI and HE) and how they are articulated within the worldview (Gray *et al.*, 2010). To improve the understanding of the literature review and the main results arising from the reviewed studies, this section summarises some aspects of Habermas's thinking and considers its conception of society and its main applications to accounting research (Broadbent and Laughlin, 2013; Mazzotta *et al.*, 2020; Moggi, 2019). This lens provides the most sophisticated understanding of the interconnection between GRI and the HE context (Broadbent *et al.*, 1991, 2010).

According to the Habermas theory of communication, society is organised on three distinct but interconnected levels (Habermas, 1985a, 1985b). The most comprehensive level is defined as *lifeworlds*, which are symbolic spaces characterised by a different peculiar culture, tradition, identity, belief or action. *Systems* are the tangible expressions of lifeworlds as tangible organisations playing fungible operations. Between lifeworlds and systems, there are the *steering media*, which are mechanisms (e.g. power, money, law, funding and

resource flow) that steer the relationship between these two levels. The steering media together with the *steering institutions*, are media through systems that receive normative inputs from the lifeworld (Power and Laughlin, 1996). Steering mechanisms are issues by steering institutions and are regulations, norms and systems that "are amenable to defined values and concerns, which are referred to as 'lifeworld' demands" (Broadbent *et al.*, 2010, p. 463).

Broadbent *et al.* (1991) define steering institutions as those that are able to release social mechanisms. For example, in the case of the GRI, this steering institution made a concrete effort to release a few frameworks and standards that were steering mechanisms legitimised by the companies' lifeworld. The legitimation to act as a steering institution comes from the lack of a law (*steering media*) on non-financial disclosure (Adams *et al.*, 2022; Petera and Wagner, 2015). As a steering institution for the for-profit world, the GRI has recently called on to collaborate with the International Financial Reporting Standards and coordinate their common efforts as standard setters (steering institutions) on non-financial disclosure for European companies (de Villiers *et al.*, 2022).

In developing an organisational perspective, Broadbent *et al.* (1991, p. 463) support the idea that "steering media become societal institutions in organizational form, for example, department of government." At the same time, also organisations are systems, as universities are part of the HE systems. Broadbent *et al.* (1991) support the assumption that both the steering institutions and the organisations that have been steered are embedded in their lifeworld, steering media and systems. Since an organisation as a system belongs to its lifeworld, differences can be developed among lifeworlds because of the social evolution of culture, society and personality (Habermas, 1985b). With the concept of "culture", Habermas intends the knowledge shared by participants in the communication; "society" is the group in which participants are embedded and in which they secure solidarity; "personality" shows the competencies that permit subjects to transform words into actions (Habermas, 1985b). Broadbent *et al.* (1991), studying the UK National Health Service, underline how these elements are crucial in creating resistance to change when steering media or institutions try to impose a change on a system that is not in agreement with that steering action (e.g. new administrative procedures).

Because the lifeworld is a symbolic space in which culture, traditions, social integration and identities are protected and evolve, it naturally develops over time and becomes more and more complex (Thompson, 1983). To ensure that this change takes place also in the systems and not just in the lifeworld, there is a need to create "steering" that facilitates it. These changes can come from the systems as well and should be these systems to steer the change in the lifeworld. Systems and steering institutions can penetrate and impose new values and culture on the lifeworld through internal colonisation that enhances a symbolic reproduction of the lifeworld (Lawrence and Sharma, 2002). An example of internal colonisation is the role that the GRI, as a steering institution, has played in the past two decades in proposing frameworks and standards for voluntary non-financial disclosure. These frameworks, as steering mechanisms, were welcomed as legitimate to colonise the lifeworld of companies because they were the mirror of the companies' culture, stakeholder dialogue and the evolution of words coming from actions (e.g. companies already providing sustainability disclosure) (Gray *et al.*, 1995; Laughlin, 1991; Lehman, 1999).

Given the pivotal role that universities are playing towards more sustainable development, cultural change and an in-depth transformation in the HE lifeworld is ongoing. To achieve this change in a more complex HE lifeworld, new skills, values and attitudes are needed (Godemann *et al.*, 2014). HEIs, as places of production, perpetuation and dissemination of knowledge, have the potential to act as agents of change in society by

promoting the paradigms of sustainable development within their institutions and communities at local, national and international levels; therefore, they play a fundamental role in advancing more sustainable practices in different cultures and contexts (Stephens *et al.*, 2008). In summary, universities, as well as steering institutions (e.g. AASHE, UI), could potentially internally colonise the lifeworld because they are legitimate to propose projects, actions and frameworks consistent with the values of HE (Broadbent *et al.*, 2010). In the university context, many national and international declarations (e.g. Talloires Declaration, Copernicus University Charter and United Nations Decade for Education for Sustainable Development) and standards have been developed to foster sustainability, and many HEIs have voluntarily subscribed to programs and initiatives to enhance accountability in these aspects, such as STARS and GreenMetric (Lozano *et al.*, 2013b). This occurs because these frameworks are created as potential steering mechanisms, but they do not enhance significant progress in the field of university sustainability (Larrán Jorge *et al.*, 2019; Leal Filho *et al.*, 2018). According to Moggi (2019), this denotes their low (or absent) power as steering mechanisms, and it occurs when the lifeworld is not consistent with the lifeworld of the proposed steering mechanism that is pursuing an organisational change (Broadbent *et al.*, 2010; Nelson *et al.*, 2008). These declarations, frameworks and actions towards sustainable development are often the result of a local or national context and do not perfectly mirror the HE lifeworld but are just part of it. For example, the GreenMetric proposed by UI is mainly focused on a campus-related perspective, which is a view that is hardly applicable to historically rooted European universities.

## 4. Methodology

### *4.1 Research design and publications collection*

To answer the research questions, a systematic literature review was developed to consider the studies available on EBSCOhost, Web of Science and Scopus (Silva and Schaltegger, 2019). Systematic reviews follow a clear and replicable protocol to search and assess literature. This protocol points to reducing bias and requests well-identified research questions, defining inclusion and exclusion criteria for selecting publications and specific rules for analysing and summarising the resulting data (Dienes *et al.*, 2016; El-said *et al.*, 2022; Tranfield *et al.*, 2003). The research design was developed under the protocol proposed by Denyer and Tranfield (2009) and was developed in the following five steps:

(1) *Research question development*: The research questions were developed in light of the literature gap and the research aim (Section 1).

(2) *Material collection*: In this stage, the publications were collected according to defined search criteria and organised into the hermeneutic unit folder.

(3) *Selection and evaluation*: The relevant paper for answering the research questions was selected.

(4) *Descriptive analysis and content analysis*: The data were analysed considering the main characteristics of the papers and by a content analysis on the GRI-specific contents.

(5) *Results*: The results section provides descriptive analysis of the paper's main features and describes the issue that arises from the content analysis in light of the research questions (Section 5).

The papers in the literature review were identified using three meta-search engines: EBSCOhost, Web of Science and Scopus (Dienes *et al.*, 2016). The systematic review of the existing research was conducted by using keywords presented in previous research on SR at

universities through the use of Boolean operators ("AND" and "OR"), combining keywords such as "sustainability report*", "sustainability disclosure", "social and environmental report*", "universit*" and "higher education" [1]. The same formula was applied in the three databases. The decision to exclude words such as "measurement" and "assessment" derives from the focus on the use of GRI frameworks on reports and reporting and reducing the number of biases.

The enquiry explores the title, abstract and authors keywords and includes all types of available documents (i.e. journal articles, conference proceedings and book chapters). Papers in the available languages were included considering manuscripts written in English, Spanish, German and Portuguese. After screening to remove duplicates, documents not available and irrelevant records – particularly those without references to SR – a total of 82 papers were considered in the hermeneutic unit for the analysis. Figure 1 summarises the systematic literature review framework.

*4.2 Descriptive analysis and content analysis of publications*

Once the hermeneutic unit was defined, content analysis was carried out in two main steps. The first step of analysis considered the papers' basic information: year of publication, author/s, title, type of publication (journal article, book chapter or conference proceeding), source title, methodology, country of focus and period of analysis. The second step was carried out according to the content analysis approach and explored the relevant evidence on the use of the GRI. Because no previous studies have approached this specific analysis, the codes were built through a test–retest procedure that, according to Krippendorff (2013), improves the stability of the content analysis in defining the emerging patterns and recurrent themes (Milne and Adler, 1999; Moggi, 2019). The resulting codes were clustered in the five dimensions of analysis described in Table 1:

(1) reference to the GRI in the study;

(2) version/s of the GRI used in the study;

(3) use of the GRI database;

(4) use of the GRI for the carried-out analysis; and

(5) use of the GRI for building a new theoretical approach.

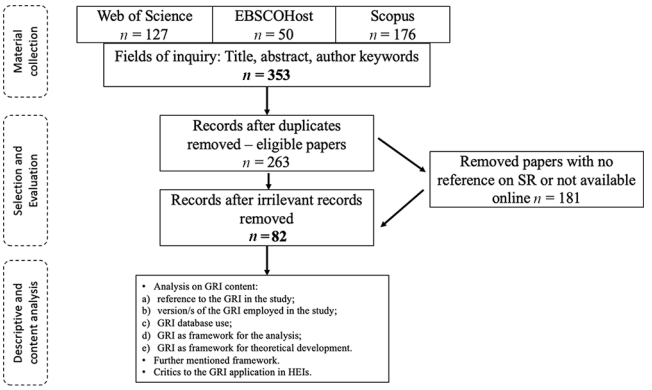


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**Figure 1.**
Summary of the systematic literature review protocol

| Categories | Codes options | Description |
|---|---|---|
| Reference (REF) | Based on (BO) | The study is grounded on the GRI framework and analyses GRI aspects |
| | Mentioned (M) | The study just mentioned the GRI but is not based on it |
| | Not Mentioned (NM) | The study does not mention the GRI |
| Version (VER) | G2 2002; G3 2006; G3.1 2011; G4 2013 | The study considers one or more framework proposed by the GRI |
| Database use (DATA) | Presence (✓)/absence | The study is based on the data and/or SRs available in the GRI database |
| Framework for the analysis (FRAME) | Presence (✓)/absence | The study uses the GRI frameworks for analysing SRs published by HEIs |
| Theoretical (THR) | Presence (✓)/absence | The study starts from a GRI standard or guideline for proposing a new framework for HEIs |
| Further mentioned frameworks (OTHER) | (STARS, GreenMetric, AISHE, etc) | The study mentions frameworks for SR at universities that are not the GRI |

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**Table 1.**
GRI coding categories and abbreviations

An example of the phases of the content analysis is presented in the Appendix (Figure A1). The presence (or absence) of each aspect was coded into the coding sheet according to the defined categories (Guthrie and Abeysekera, 2006). A further dimension was considered for detecting mentions of other standards (e.g. STARS, GreenMetric and AISHE) (Table 1). Finally, following the qualitative content analysis approach, critical issues on the GRI application to SR at universities were considered. The complete hermeneutic unit and a summary of the analysis are reported in the Appendix (Table A1).

Finally, the researcher summarised the findings taking into account the main implication of the GRI frameworks used in SR at universities and in the related studies (e.g. gaps and potentialities). These results were then discussed according to Habermas's thinking, suggesting possible solutions to improve the use of SR in HEIs.

## 5. Results

### *5.1 Descriptive analysis*

In the first step, the bibliographic data of each of the 82 papers were described. Figure 2 shows that the number of studies presents a slightly increasing trend, and publications on this topic started in 2006 with two former studies from Lozano (2006b) and Fonseca *et al.* (2011).

Because the extraction from EBSCOhost, Web of Science and Scopus produced different types of publications (i.e. journal articles, book chapters and conference proceedings), the next step was to reorganise the studies according to the type of publication. The results highlight the presence of 63 journal articles, 10 book chapters and nine conference proceedings. Given the paucity of studies on this topic, conference proceedings were also included in the analysis. Table 2 presents the papers according to the main source of publication. As noted, studies on SR at universities are mainly published in the *International Journal of Sustainability in Higher Education* (17), followed by *Sustainability* (8), the *Journal of Cleaner Production* (7), *International Business, Trade and Institutional Sustainability* (4) and *Administrative Science* (3). The residual category "other" embeds sources (e.g. journal, conference and book) that are mentioned twice or less.

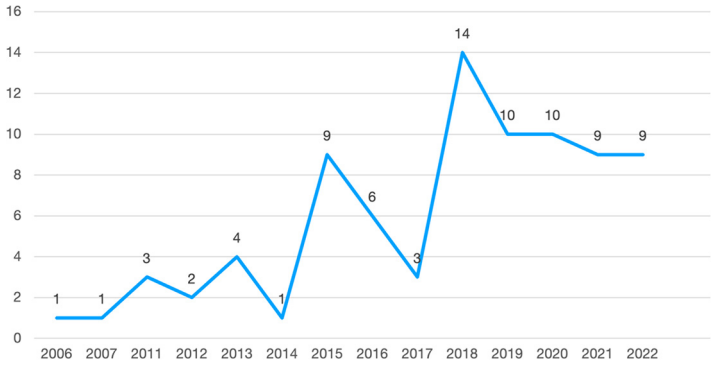


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**Figure 2.**
Year of publication

| Source title | No. of papers |
|---|---|
| *International Journal of Sustainability in Higher Education* | 17 |
| *Sustainability* | 8 |
| *Journal of Cleaner Production* | 7 |
| *International Business, Trade and Institutional Sustainability* | 4 |
| *Administrative Sciences* | 3 |
| Other | 43 |
| Total | 82 |

**Source:** Created by Author

**Table 2.**
Type of source title

Regarding the geographical area, the studies mainly focused on European countries (e.g. Spain, Italy, UK and Germany) (32), followed by research at the global level (20) and in America (9), Oceania (7), Asia (6) and Africa (5).

According to the methodological approach and the research design, the studies were clustered into five main groups:

(1) *Content analysis* focuses on the reported dimensions of the analysed sustainability reports considering their main contents and features.

(2) *Case studies* include observations and analysis of a research field embedded in the boundaries of a few or a single HEI (e.g. university, campus and institute).

(3) *Quantitative studies* embrace the use of regressions and other statistical analyses for defining the relationship among different variables, such as the influence of institutional factors on the level of sustainability disclosure.

(4) *Theoretical studies* propose a theoretical or critical overview on SRs at universities in which empirical analyses are used just for testing theoretical propositions.

(5) *Literature reviews* provide state of the art on sustainability reports and reporting studies or discuss general trends and future directions on SR at universities.

As shown in Figure 3, the prevalent methodology type used in studies on SR at universities is content analysis (40), followed by the qualitative approach in case studies and multiple

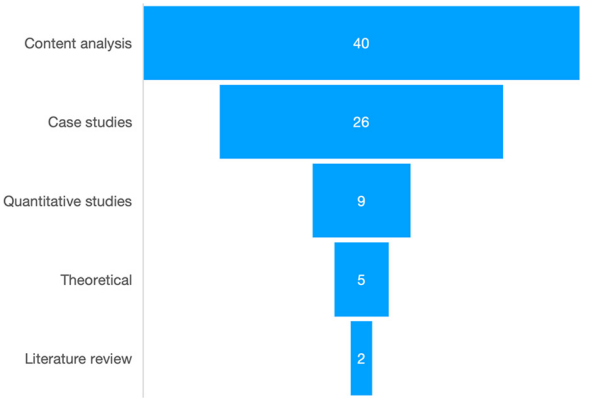



**Figure 3.**
Types of methodologies

**Source:** Created by Author

case studies (26). The quantitative studies are mainly based on regression analysis, such as logistic curve regression (9). For providing insights on this undeveloped field of research, five publications use a theoretical approach and other two a literature review.

### *5.2 Global reporting initiative application in higher education institutions' sustainability reports*

To answer the research questions, the content analysis focused on how the GRI has been used in the collected studies. Critically, it considered the effect of GRI application in HEIs in accordance with their results. Table 3 summarises the main results of the analysis focused on GRI application.

An initial screening was conducted to distinguish the studies that were based on the GRI database and frameworks and those that just mentioned (or did not mention) the GRI. In the analysed studies, all of the GRI guidelines had been used – sometimes more than one simultaneously. Among the 82 studies on SR at universities, nine did not mention the GRI. In 34 cases, the GRI was just mentioned in the paper as a framework followed by HEIs. Most of the studies (39) considered the GRI the focus of attention in terms of its application to case studies or considering the completeness of sustainability reports according to the GRI original guidelines or their further adapted versions.

**Table 3.**
Summary of the GRI use in universities' SR studies

| GRI mention | No. of papers |
|---|---|
| Based on | 39 |
| Mentioned | 34 |
| Not mentioned | 9 |
| *Total* | *82* |
| GRI database use | 15 |
| GRI as framework for the analysis | 29 |
| GRI as framework for theoretical development | 17 |

**Source:** Created by Author

On GRI use, 15 studies based their analysis on the reports available on the GRI database. Considering how the GRI frameworks can be used in research, 29 studies considered these guidelines a starting point for carrying out their analysis: 12 used the framework in one of its original versions, and 17 integrated and modified the framework to improve its applicability to the HE context. In this second case, these studies consider previous research such as Fonseca *et al.* (2011) and Lozano (2011) (5) or add new dimensions through an inductive approach based on the previous literature (An *et al.*, 2020) or a case study analysis (An *et al.*, 2017; Sassen and Azizi, 2018b; Sepasi *et al.*, 2019) (12). As a theoretical contribution, these studies provided a new framework for testing that framework at an empirical level or, rarely, they maintained the research at a theoretical level (Ceulemans *et al.*, 2015b; Sepasi *et al.*, 2018).

The main results proposed by the 39 studies based on the GRI agree that SR at universities is a practice still in its infancy and that presents a slow positive trend that in some contexts is quite plateaued (An *et al.*, 2017; del Mar Alonso-Almeida *et al.*, 2015; Lozano, 2006a). Despite this, there is a large application of the GRI among the HEIs that published a sustainability report (del Mar Alonso-Almeida *et al.*, 2015; Gamage and Sciulli, 2017); however, the use of this framework is not unique. The literature review identified studies that at least mentioned the STARS (33), Global Compact (20) and GreenMetric (15). Studies discussed national or local frameworks (e.g. AISHE, Campus Sustainability Assessment Framework [CSAF], Learning in Future Environments [LIFE]), but International Integrated Reporting Council (IIRC) was mentioned rarely (Brusca *et al.*, 2018). STARS was also used as a framework of analysis for studying American universities (Hansen *et al.*, 2021; Pelcher *et al.*, 2021; Sassen *et al.*, 2022).

According to the analysed studies, universities mainly report environmental performance rather than social and economic aspects, and this can occur for two main reasons (Gamage and Sciulli, 2017; Sassen and Azizi, 2018b; Sepasi *et al.*, 2018). Firstly, because this practice is still at its beginning in universities, the environmental measurements are closer to the first attempt at greening universities or to the early experiences in sustainability (Lozano, 2011; Moggi, 2019). At the same time, it is more difficult for complex organisations to collect and measure social aspects. Secondly, the first standards and frameworks specifically designed for universities and campuses largely considered the environmental aspects to assess – in particular, for those universities that had joined STARS or GreenMetric (Bice and Coates, 2016). Despite this, a few studies have underlined increasing attention on social aspects such as human rights and society, and, at public universities, on the economic aspect related to the use of funds and financial incentives (Huber and Bassen, 2018; Larrán Jorge *et al.*, 2019; Sassen and Azizi, 2018b; Sepasi *et al.*, 2018). Studies that had integrated the GRI frameworks with additional dimensions related to the HE context (e.g. teaching, research, procurement and services) underlined a lack of disclosure in these areas and did not propose a unique solution for integrating the GRI indicators. According to these researchers, this can occur because these aspects are not included in the GRI guidelines, and universities do not feel pressure from external stakeholders to disclose them (Lozano, 2011; Othman and Othman, 2014; Son-Turan and Lambrechts, 2019). According to Larrán Jorge *et al.* (2019), the need to adapt the GRI framework reduces its efficacy towards applicability in HEIs. In addition, Ceulemans *et al.* (2015a) underlined the difficulty of identifying key information or themes to report on, which is another barrier that hampers the disclosure of sustainability in HE. Rather, di Tullio and La Torre (2022) highlighted the risk that the dispersion of sustainability information on universities' websites will deinstitutionalise the practice of SR. Moreover, as noted by Brandao *et al.* (2019), the high complexity of the universities' administrative

structure and the co-existence of several campuses can increase the complexity and hamper the data collection during the reporting process.

*5.3 Critical issues in the global reporting initiative application in higher education*

The studies on the GRI at universities agree on the undiscussed usefulness of the GRI guidelines in its several versions. Lozano (2011, p. 68) noted that:

> Among the different guidelines, the GRI Sustainability Guidelines offers one of the best options [. . .] However, the GRI guidelines were not developed for universities (Cole, 2003). Therefore, they need to be modified and complemented to include the core competence of universities, the educational dimension.

Fonseca *et al.* (2011, p. 27) reached a similar conclusion, underlining how:

> A limitation of the GRI guidelines is that it does not cover indicators related to the incorporation of sustainability in research and curriculum, as well as with green buildings, food services, among other issues relevant to colleges and universities.

To overcome this gap, studies on SR and universities in practice have integrated the GRI considering the use of further standards such as local/national assessment tools (Bonatxea *et al.*, 2022) and internationally recognised tools such as STARS and GreenMetric. These studies demonstrate the need to integrate the GRI guidelines with additional dimensions that are suitable for universities, such as sustainability in research, teaching, services and operations (Bice and Coates, 2016; Larrán Jorge *et al.*, 2019; Moggi, 2019). A possible supplement sector for HE, claimed by universities and their scholars, could potentially be the result of the collaboration between the GRI and other international organisations that have already developed frameworks for SR at universities (e.g. AASHE and UI) (Adams and Petrella, 2010; An *et al.*, 2017; Bice and Coates, 2016). However, there are still pending issues regarding its applicability.

## 6. Implication for the future of the global reporting initiative applicability at universities

As a result of the increasing attention that universities are paying to their impact on sustainable development and the rise of stakeholders' claims in terms of a higher level of accountability, HEIs have developed voluntary practices for showing their impact on sustainability. The analysed studies confirm that SR practices in these organisations are still in their early stages, and further efforts are needed to increase their diffusion (An *et al.*, 2017; Ceulemans *et al.*, 2015b; Larrán Jorge *et al.*, 2019). In the past decade, scholars have paid growing attention to these practices and proposed insights into SR development as well as enablers and obstacles that hamper the process of its diffusion (Lozano, 2006a). The analysed literature highlights that the most diffused framework followed for SR at universities is the GRI, even though the guidelines were designed for companies. Because the GRI guidelines do not cover all of the HE accountability dimensions, they lack the effectiveness for assessing and reporting universities' sustainability actions (Larrán Jorge *et al.*, 2019). In accordance with Habermas's thinking, the language proposed in the GRI guidelines is derived from the companies' lifeworld and is not always adaptable to the HE context, or its adaptation proposes a range of options that is too broad. This issue is mirrored in the difficulty involved in comparing universities' sustainability reports – following the GRI integrated with HE-related dimensions (e.g. research, teaching and operations) – that present different structures and contents (An *et al.*, 2017; del Mar Alonso-Almeida *et al.*, 2015). The GRI institution and its guidelines – as steering mechanisms – do

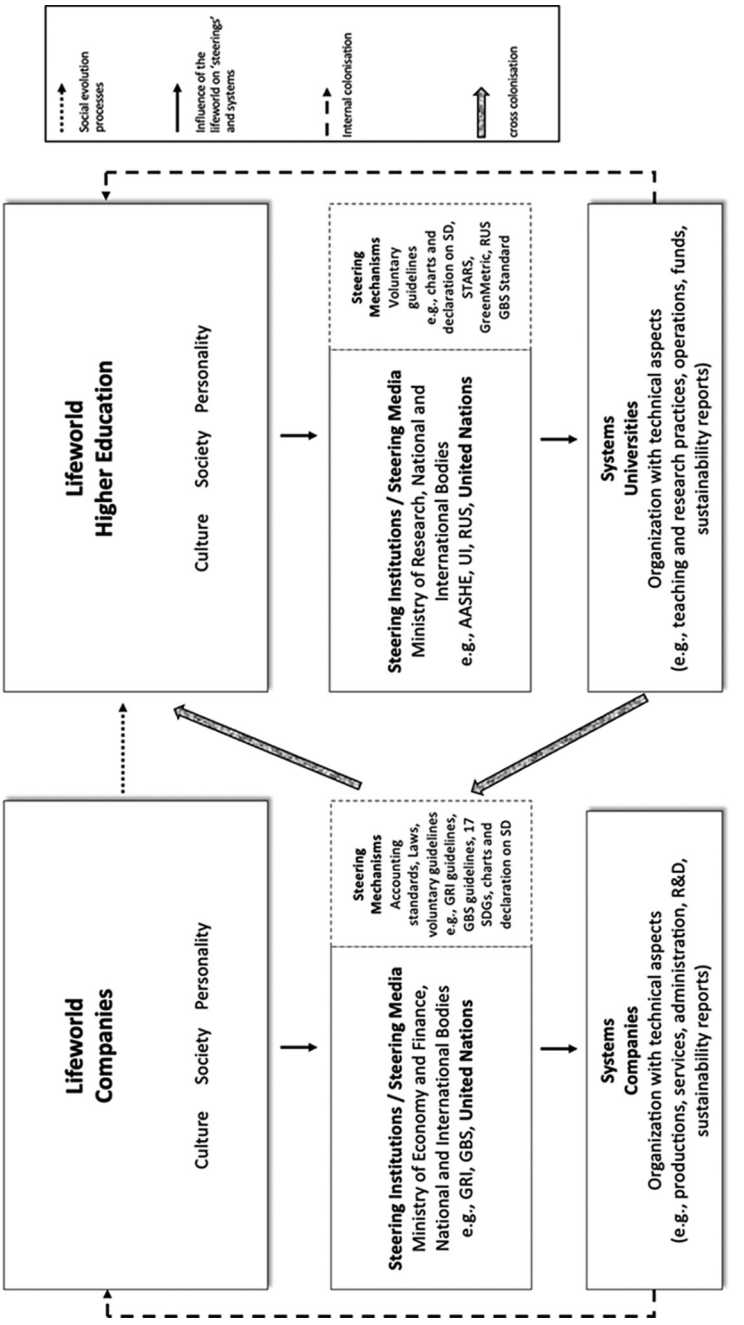
not work properly in universities that are systems that belong to a different lifeworld. As noted by Moggi (2019), the HE lifeworld embeds beliefs and actions that are gradually facing the challenge of education towards sustainable development. Meanwhile, the GRI is a steering institution that derives from a lifeworld in which beliefs and values are closely related to investors' claims. Therefore, the GRI standard is a steering mechanism that has internally colonised the companies' lifeworld and enhanced SR in a for-profit context. Figure 4 depicts the tentative cross-colonisation from the GRI to the HE context.

At the same time, according to the present study, scholars agree that existing frameworks and guidelines for sustainability measurement and reporting at universities exhibit weaknesses (Fonseca *et al.*, 2011; Huber and Bassen, 2018). Standards that are properly for HE, such as STARS and GreenMetric, are proposed by steering institutions that do not have the power to enhance the internal colonisation of the HE lifeworld because they are inspired by their local origin. Consequently, the standards they produce are difficult to adapt to the entire HE lifeworld, and none of these have been established as a recognised and applicable SR standard for HEIs at the global level (Huber and Bassen, 2018). The internal colonisation from local systems or national steering institutions steers changes in their lifeworld that mirror these systems' specific beliefs, values and actions. As a result, the related steering mechanisms and media cannot be applied at the global level. For this research, a standard for SR at universities must be designed following the HE lifeworld. This avoids the generation of local-referred standards where a specific dimension of accountability prevails over others (e.g. environmental, historical origin, campus view and religion) (Ariesanti *et al.*, 2019; Bonatxea *et al.*, 2022; Larrán Jorge *et al.*, 2019). Once the general framework has been designed, it can be adapted from steering institutions (e.g. AASHE, UI and RUS) to their own lifeworlds. In the proposed literature review, this is confirmed by the use of different standards simultaneously and the difficult comparability among sustainability reports in different HEIs (Bice and Coates, 2016; Fonseca *et al.*, 2011). Previous studies have confirmed doubts about the applicability of the GRI frameworks for SR at universities because they respond to companies' accountability needs (Bonatxea *et al.*, 2022; Fonseca *et al.*, 2011; Moggi, 2019). For this reason, these frameworks do not mirror the HE lifeworlds or its systems. In the HE lifeworld, we cannot witness the same pressures that steered the process of internal colonisation guided by the GRI to the companies' lifeworld and that have positively influenced the spread of voluntary disclosure practices in the past 10 years (de Villiers *et al.*, 2022).

Adams and Petrella (2010) suggested collaboration among standard setters and universities, whereas You (2022) were more critical of this possibility. In both cases, they called for further studies to shed light on the possible use of the GRI in HEIs. The present research considers these perplexities and proposes a critical reading of the GRI as a steering institution. According to previous studies, a concrete effort from the GRI towards a standard dedicated to universities will increase the practice of SR (Adams and Petrella, 2010; del Mar Alonso-Almeida *et al.*, 2015; Gamage and Sciulli, 2017). A unified system of indicators for SR could also answer stakeholders' claims because the information disclosed would naturally be of interest to them (Sassen and Azizi, 2018b).

Although these studies underline – at different times and on several occasions – the need to define a specific GRI standard for universities, this has not yet even been hypothesised. The intentions of the GRI in this sense have never been formalised, and with the recent closure of the GRI database, research on universities' SR practices has also been made more complex.

Therefore, the question is whether the GRI is interested in its guidelines' applicability in HE (An *et al.*, 2017) and the creation of a supplement sector that should be internationally




**Source:** Created by Author

**Figure 4.**
Internal colonisation from the GRI to HE lifeworld

recognised. This would require the GRI's willingness to collaborate with other steering institutions with specific skills in the HE lifeworld that are recognised at a global level (e.g. the United Nations). The GRI's actual low effectiveness as a steering institution in HE and the lack of compulsory regulations as steering media suggest that sustainability assessment in universities is still a challenging goal (Leal Filho *et al.*, 2018). Expectations could be placed on the United Nations and its likely role as a steering institution in the HE lifeworld in light of its values, beliefs and actions towards sustainable development (UNESCO, 2022).

## 7. Conclusions

This article critically explored the use of the GRI in universities' SR and demonstrated the importance of steering institutions in the development of these practices. By considering the main research on this undeveloped issue, this study presented the most up-to-date literature review on SR at universities since the study by Ceulemans *et al.* (2015b). In analysing such publications, the present research revealed that the GRI database and guidelines are important enablers in the rise of accountability for sustainability in universities and campuses. Following Habermas's thinking and its application in the HE context (Broadbent *et al.*, 2010; Moggi, 2019), universities can be influenced by many steering media that are not always effective in their application because they are not perceived as the results of the HE lifeworld in terms of shared values and actions. The GRI guidelines application in HEIs is not producing encouraging results in boosting SR at universities. Because these guidelines are designed for companies and respond to accountability claims from specific stakeholders (e.g. investors), their attempt at internal colonisation HE lifeworlds is not effective.

As with all literature reviews, this study has some limitations. Firstly, the use of specific key search terms involves weaknesses. Secondly, in defining the clear boundaries for the systematic review, three databases were analysed, excluding, for example, the wider repository of Google Scholar. Finally, a further examination is needed on the different applicability of the GRI for private and public universities.

Despite these limitations, this study suggests some pivotal routes to follow for the future of the GRI in the HE context and its applicability to universities' sustainability disclosure. Because the GRI guidelines need to be adapted for their employment, a serious rethinking must be planned under the values, beliefs and mission of the universities' lifeworld. Policymakers and regulators should consider that a peculiar framework for HE should come from specific professionals' competencies raised inside the HE lifeworld on teaching, research and operations. In this sense, two possible paths can be supposed.

The first solution views HE systems internal colonising HE lifeworlds through steering media that are designed in accordance with the HE accountability needs coming from stakeholders' claims. This means reconsidering universities' traditional steering media, such as resource funding (*money*) and the different accountability needs of public and private universities to define proper guidelines (Dumay *et al.*, 2010; Othman and Othman, 2014; Son-Turan and Lambrechts, 2019; Trireksani *et al.*, 2021). This first path does not necessarily involve the GRI competencies that are based on companies' culture (knowledge), society and personality (practical competencies). However, increasing knowledge on measuring sustainability is a long journey (Adams and Petrella, 2010) because it is just possible through the social evolution process that permits successful internal colonisation from universities to the HE lifeworld.

The second path suggests a collaboration between the GRI and another powerful steering institution that acts in accordance with the HE lifeworlds' values and culture and can provide a successful internal colonisation. In this case, local and national steering

organisations should be avoided because they have their own lifeworlds and systems (Adams *et al.*, 2022); rather, a partnership with a global steering institution mirroring HE's values and beliefs (culture, society and personality), such as the United Nations or the AASHE, is preferable. Through a standard release by recognised steering institutions, SR could become the mirror of the attitude and values representative of the HE lifeworld. If this occurs, in a contest that is increasingly committed to the pursuit of the 2030 Agenda, SR becomes a tool to legitimise universities as an agent of change for future generations and society.

## Note

1. Formula applied in data search: "sustainability report*" and "higher education" (Title) or "sustainability report*" and "higher education" (Abstract) or "social and environmental report*" and "universit*" (Title) or "social and environmental report*" and "universit*" (Abstract) or "sustainability report*" and "universit*" (Title) or "sustainability report*" and "universit*" (Abstract) or "social and environmental report*" and "higher education" (Title) or "social and environmental report*" and "higher education" (Abstract) or "sustainability disclosure" and "universit*" (Title) or "sustainability disclosure" and "universit*" (Abstract) or "sustainability disclosure" and "higher education" (Title) or "sustainability disclosure" and "higher education" (Abstract) or "social and environmental disclosure" and "higher education" (Title) or "social and environmental disclosure" and "higher education" (Abstract) or "social and environmental disclosure" and "universit*" (Title) or "social and environmental disclosure" and "universit*" (Abstract) or "sustainability report*" and "higher education" (Author Keywords) or "sustainability report*" and "universit*" (Author Keywords) or "social and environmental report*" and "higher education" (Author Keywords) or "social and environmental report*" and "universit*" (Author Keywords) or "sustainability disclosure" and "higher education" (Author Keywords) or "sustainability disclosure" and "universit*" (Author Keywords) or "social and environmental disclosure" and "higher education" (Author Keywords) or "social and environmental disclosure" and "universit*" (Author Keywords)

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## Appendix

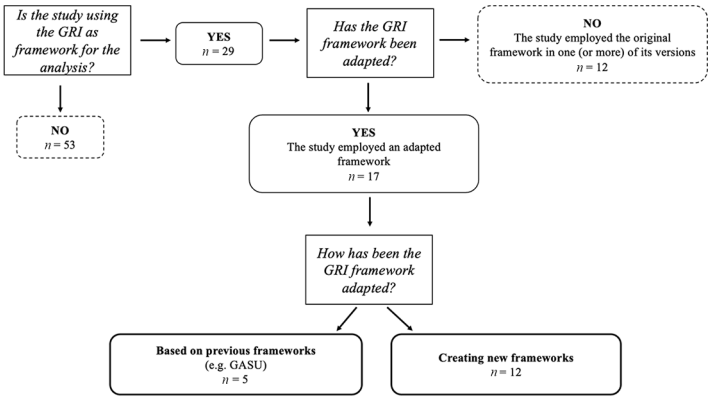


**Figure A1.**
Example of the phases of the content analysis

**Source:** Created by Author

**Table A1.**
Contents of the systematic literature review

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2006 | Lozano R. | A tool for a Graphical Assessment of Sustainability in Universities (GASU) | Journal article | *Journal of Cleaner Production* | Theoretical | NA | NA | BO | G2 2002 G3 2006 | | | ✓ | GreenMetric |
| 2007 | Albrecht P.; Burandt S.; Schaltegger S. | Do sustainability projects stimulate organizational learning in universities? | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | Europe | 2006 | M | G3 2006 | | | | |
| 2011 | Fonseca A.; Macdonald A.; Dandy E.; Valenti P. | The state of sustainability reporting at Canadian universities | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | America | 2006–2008 | BO | G3 2006 | | ✓ | ✓ | Star |
| 2011 | Lozano R. | The state of sustainability reporting in universities | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Worldwide | 2002–2008 | BO | G2 2002 | ✓ | ✓ | ✓ | |
| 2011 | Madeira A.C.; Carravilla M.A.; Oliveira J.F.; Costa C.A.V. | A methodology for sustainability evaluation and reporting in higher education institutions | Journal article | *Higher Education Policy* | Case studies | Europe | NA | M | NA | | | | AISHE |
| 2012 | Musyarofah S. | The need for new paradigm of sustainability reporting in higher education | Conference Proceeding | *International Journal of Economic Policy in Emerging Economies* | Case studies | Worldwide | 2008–2010 | BO | G3 2006 G3.1 2011 | | | | |
| 2012 | White G.B.; Koester R.J. | STARS and GRI: Tools for campus | Journal article | *Sustainability and Climate Change* | Theoretical | NA | NA | BO | NA | | | | Star |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | greening strategies and prioritizations | | | | | | | | | | | |
| 2013 | Adams C.A. | Sustainability reporting and performance management in universities: Challenges and benefits | Journal article | *Sustainability Accounting, Management and Policy Journal* | theoretical | Worldwide | 2012 | M | G3.1 2011 | ✓ | | | Global Compact GreenMetric AA1000 |
| 2013 | Derrick S. | Time and sustainability metrics in higher education | Book chapter | *Sustainability Assessment Tools in Higher Education Institutions* | Content analysis | Worldwide | 2005–2011 | NM | NA | | | | Star LiFE |
| 2013 | Lozano R.; Llobet J.; Tideswell G. | Developing a university sustainability report: Experiences from the University of Leeds | Book chapter | *Sustainability Assessment Tools in Higher Education Institutions* | Content analysis | Europe | 2011 | BO | G3 2006 | ✓ | ✓ | ✓ | |
| 2013 | Siboni B.; Del Sordo C.; Pazzi S. | Sustainability reporting in state universities: An investigation of Italian pioneering practices | Journal article | *International Journal of Social Ecology and Sustainable Development* | Content analysis | Europe | 2009 | M | G3 2006 | | | | Italian Standards |
| 2014 | Lopatta K.; Jaeschke R. | Sustainability reporting at German | Journal article | *International Journal of Education* | Content analysis | Europe | 2011 | BO | G3 2006 | | ✓ | | Star |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | and Austrian universities | | *Economics and Development* | | | | | | | | | |
| 2015 | Dagiliene, L; Mykolaitiene, V. | Disclosure of social responsibility in annual performance reports of universities | Conference Proceeding | *20th International Scientific Conference Economics and Management (ICEM)* | Content analysis | Europe | 2012–2013 | BO | G4 2013 | | ✓ | ✓ | Global Compact |
| 2015 | del Mar Alonso-Almeida, Maria; Marimon, Frederic; Casani, Fernando; Rodriguez-Pomeda, Jesus | Diffusion of sustainability reporting in universities: current situation and future perspectives | Journal article | *Journal of Cleaner Production* | Quantitative studies | Worldwide | 2001–2012 | BO | G2 2002 G3 2006 | ✓ | | | Global Compact |
| 2015 | Hinson R.; Gyabea A.; Ibrahim M. | Sustainability reporting among Ghanaian universities | Journal article | *Communication-South African Journal for Communication Theory and Research* | Content analysis | Africa | 2012 | BO | G3 2006 | | ✓ | ✓ | |
| 2015 | Moggi S.; Leardini C.; Campedelli B. | Social and environmental reporting in the Italian Higher Education System: Evidence from two best practices | Book chapter | Integrative approaches to sustainable development at university level | Case studies | Europe | 2013 | M | G3 2006 | | | | |
| 2015 | Romolini A.; Fissi S.; Gori E. | Quality disclosure in sustainability | Journal article | *Transylvanian Review of* | Content analysis | Worldwide | 2012 | BO | G3.1 2011 | ✓ | ✓ | | |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | reporting: evidence from universities | | *Administratice Sciences* | | | | | | | | | |
| 2015 | Scozzi B.; Bellantuono N.; Pontrandolfo P. | Sustainability reports for universities | Conference Proceeding | *IFKAD 2015: 10th international forum on knowledge asset dynamics: culture, innovation and entrepreneurship: connecting the knowledge dots* | Case studies | Worldwide | 2013–2014 | BO | G3.1 2011 G4 2013 | ✓ | ✓ | | Star |
| 2015 | You X. | Sustainability Reporting in Universities A Comparison between China and Foreign Countries | Conference Proceeding | *Proceedings of the International Conference On Management, Computer and Education Informatization* | Case studies | Asia | 2011–2013 | BO | G3 2006 G3.1 2011 | | | | |
| 2015 a | Ceulemans, K.; Molderez, I.; Van Liedekerke, L. | Sustainability reporting in higher education: a comprehensive review of the recent literature and paths for further research | Journal article | *Journal of Cleaner Production* | Literature review | Worldwide | 2000–2014 | M | NA | | | ✓ | Star AISHE ULSF |
| 2015b | Ceulemans K.; Lozano, R.; del Mar Alonso-Almeida M. | Sustainability Reporting in Higher Education: Interconnecting the Reporting Process and Organisational | Journal article | *Sustainability* | Quantitative studies | Worldwide | 2004–2013 | M | NA | ✓ | | | Star |

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**Table A1.**

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2016 | Bice S.; Coates H. | Change Management for Sustainability University sustainability reporting: taking stock of transparency | Journal article | *Tertiary Education and Management* | Content analysis | Worldwide | 2012–2013 | BO | G3 2006 G3.1 2011 | ✓ | ✓ | | Star |
| 2016 | Calitz A.P.; Cullen M.D.M.; Bosire S. | Sustainability Reporting by South African Higher Education Institutions | Conference Proceeding | *Springer Proceedings in Business and Economics* | Quantitative studies | Africa | NA | M | NA | | | | Global Compact |
| 2016 | Chatelain-Ponroy S.; Morin-Delerm S. | Adoption of sustainable development reporting by universities: An analysis of French first-time reporters | Journal article | *Accounting, Auditing and Accountability Journal* | Case studies | Europe | 2007–2013 | M | NA | | | | |
| 2016 | Dagilienė L.; Mykolaitienė V. | Sustainability reporting in the higher education sector - Case study of Lithuania | Journal article | *Journal for Public and Nonprofit Services* | Content analysis | Europe | 2013–2014 | BO | G3.1 2011 | | ✓ | | Global Compact |
| 2016 | Jiménez C.G.; Martínez A.G.; López M.A. | Proposal for University Social Responsibility indicators according to GRI G4 guidelines: The case of the University of Cordoba (Spain); | Journal article | *CIRIEC – Espana Revista de Economia Publica, Social y Cooperativa* | Case studies | Europe | 2011–2012 | BO | G4 2013 | | ✓ | | |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | [Propuesta de indicadores de la Responsabilidad Social Universitaria conforme a la guía G4 del GRI: El caso de la Universidad de Córdoba] | | | | | | | | | | | |
| 2016 | Richardson A.J.; Kachler M.D. | University sustainability reporting: A review of the literature and development of a model | Book chapter | *Handbook of Sustainability in Management Education* | Theoretical | NA | NA | M | NA | | | | Star |
| 2017 | An Y.; Davey H.; Harun H. | Sustainability Reporting at a New Zealand Public University: A Longitudinal Analysis | Journal article | *Sustainability* | Content analysis | Oceania | 2011–2015 | BO | G4 2013 | | ✓ | ✓ | |
| 2017 | Gamage P.; Sciulli N. | Sustainability Reporting by Australian Universities | Journal article | *Australian Journal of Public Administration* | Content analysis | Oceania | 2013 | M | NA | | ✓ | | Global Compact Star |
| 2017 | Huerta-Riveros P.; Gaete-Feres H. | Responsabilidad social universitaria a través de los reportes de sostenibilidad del Global Reporting Initiative: | Journal article | *Revista Iberoamericana de Educacion Superior* | Case studies | America | 2015 | BO | G4 2013 | | | ✓ | Global Compact |

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**Table A1.**

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018 | Ariesanti A.; Irianto G.; Sukoharsono E.G.; Saraswati E. | Experiencia de una universidad pública Islamic Perspective on University Sustainability Reporting | Conference Proceeding | *Proceedings of the 5th annual International Conference on Accounting Research (AICAR 2018)* | Case studies | Asia | NA | NM | NA | | | | |
| 2018 | Corretgé Bergua, R.; Miret Marti, J. | Adaptation of GRI Standards and Creation of USR Indicators: A Joint Effort between Universitat de Barcelona and Universitat Pompeu Fabra | Journal article | *Revista Digital de Investigacion en Docencia Universitaria* | Case studies | Europe | 2014–2018 | BO | G4 2013 | | ✓ | ✓ | |
| 2018 | Brusca I.; Labrador M.; Larran M. | The challenge of sustainability and integrated reporting at universities: A case study | Journal article | *Journal of Cleaner Production* | Case studies | Europe | 2009–2017 | M | G3.1 2011 G4 2013 | | | | IIRC |
| 2018 | Calitz A.P.; Bosire S.; Cullen M. | The role of business intelligence in sustainability reporting for South | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | Africa | NA | M | NA | | | | Global Compact GreenMetric STAR |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | African higher education institutions | | | | | | | | | | | CSAF AISHE |
| 2018 | Calitz, A.P.; Zietsman, J.F. | An Adapted Framework for Environmental Sustainability Reporting using Mobile Technologies | Journal article | *African Journal of Information Systems* | Case studies | Africa | NA | BO | G4 2013 | | ✓ | ✓ | Star |
| 2018 | Ceulemans K.; Stough T.; Lambrechts W. | Pioneering in Sustainability Reporting in Higher Education: Experiences of a Belgian Business Faculty | Book chapter | *Handbook of Sustainability Science and Research* | Case studies | Europe | 2010–2014 | BO | G3 2006 G3.1 2011 G4 2013 | ✓ | | | Star CSAF AISHE |
| 2018 | Ferrero-Ferrero I.; Angeles Fernandez-Izquierdo M.; Jesus Munoz-Torres M.; Belles-Colomer L. | Stakeholder engagement in sustainability reporting in higher education An analysis of key internal stakeholders' expectations | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Worldwide | 2014 | BO | G4 2013 | ✓ | ✓ | | Global Compact |
| 2018 | Huber S.; Bassen, A. | Towards a sustainability | Journal article | *International Journal of* | Theoretical | Europe | 2015 | M | G4 2013 | | | | Global Compact |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | reporting guideline in higher education | | *Sustainability in Higher Education* | | | | | | | | | AISHE<br>CSAF<br>Star |
| 2018 | Sassen R.; Dienes D.; Wedemeier J. | Characteristics of UK higher education institutions that disclose sustainability reports | Journal article | *International Journal of Sustainability in Higher Education* | Quantitative studies | Europe | 2012-2013 | M | NA | | | | |
| 2018 | Scholtz B.; Calitz A.; Haupt R. | A business intelligence framework for sustainability information management in higher education | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | Africa | NA | M | NA | | | | Star |
| 2018 | Sepasi S.; Rahdari A.; Rexhepi G. | Developing a sustainability reporting assessment tool for higher education institutions: The University of California | Journal article | *Sustainable Development* | Case studies | America | 2015 | M | NA | | | ✓ | Global Compact<br>GreenMetric<br>Star<br>College Sustainability Report Card |
| 2018 | Zorio-Grima A.; Sierra-Garcia L.; Garcia-Benau, M.A. | Sustainability reporting experience by universities: a causal configuration approach | Journal article | *International Journal of Sustainability in Higher Education* | Quantitative studies | Europe | 2015 | M | NA | | | | |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2018a | Sassen R.; Azizi L. | Voluntary disclosure of sustainability reports by Canadian universities | Journal article | *Journal of Business Economics* | Content analysis | America | 2016 | BO | G4 2013 | | ✓ | ✓ | Star |
| 2018b | Sassen R.; Azizi L. | Assessing sustainability reports of US universities | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | America | 2014 | BO | G4 2013 | | ✓ | ✓ | Star |
| 2019 | Brandao M.S.; Ometto A.R.; Silva Leme P.C.; Lima Ranieri V.E.; de Andrade Filho M.G. | Enablers and barriers to environmental management development in higher education institutions: an analysis of sustainability reports of Global Reporting Initiative | Journal article | *Engenharia Sanitaria e Ambiental* | Quantitative studies | Worldwide | 2008–2013 | BO | G3 2006 G3.1 2011 | ✓ | ✓ | | |
| 2019 | Capocchi A.; Orlandini P.; Vallone C.; Harasheh M.; Amelio S. | The Important Role of Universities in Enhancing Sustainability: The Case of the University of Milano-Bicocca | Book chapter | *Social Responsibility and Sustainability* | Case studies | Europe | 2018 | BO | G4 2013 | | ✓ | | Star |
| 2019 | Farinha C.; Caeiro S.; Azeiteiro U. | Sustainability strategies in Portuguese higher education | Journal article | *Sustainability* | Content analysis | Europe | 2004–2014 | M | NA | | | | |

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**Table A1.**

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | institutions: Commitments and practices from internal insights | | | | | | | | | | | |
| 2019 | Klussmann C.; Sassen R.; Gansel E. | Structural key factors of participatory sustainability reporting for universities | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | Europe | NA | M | NA | | | | |
| 2019 | Larrán Jorge M.; Andrades Peña F. J.; Herrera Madueño J. | An analysis of university sustainability reports from the GRI database: an examination of influential variables | Journal article | *Journal of Environmental of Planning and Management* | Content analysis | Worldwide | 2017 | BO | G3 2006 G3.1 2011 G4 2013 | ✓ | ✓ | | Global Compact Star |
| 2019 | Moggi, S, | Social and environmental reports at universities: a Habermasian view on their evolution | Journal article | *Accounting Forum* | Content analysis | Europe | 2006–2011 | BO | G3 2006 | | ✓ | | GreenMetric |
| 2019 | Sepasi S.; Braendle U.; Rahdari A.H. | Comprehensive sustainability reporting in higher education institutions | Journal article | *Social Responsibility Journal* | Content analysis | Worldwide | NA | M | G3 2006 G3.1 2011 G4 2013 | | | | Star |

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| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2019 | Son-Turan S.; Lambrechts W. | Sustainability disclosure in higher education: A comparative analysis of reports and websites of public and private universities in Turkey | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Europe | 2016–2019 | BO | G3 2006 | | ✓ | | Global Compact GreenMetric Star SCN-GULF |
| 2019 | Yalin L.; Erli D.; Yiwei G.; Xiaohua S.; Xiaoyan L. | Government-led Sustainability Reporting by China's HEIs | Journal article | *Journal of Cleaner Production* | Content analysis | Asia | 2012–2016 | BO | G4 2013 | | ✓ | ✓ | |
| 2019 | Yáñez S.; Uruburu Á.; Moreno A.; Lumbreras J. | The sustainability report as an essential tool for the holistic and strategic vision of higher education institutions | Journal article | *Journal of Cleaner Production* | Case studies | Europe | 2008–2016 | M | G3 2006 | | | | Star |
| 2020 | Alghamdi N. | Sustainability Reporting in Higher Education Institutions: What, Why, and How | Book chapter | *International Business, Trade and Institutional Sustainability* | Literature review | Worldwide | NA | M | G4 2013 | | | | GreenMetric Star |
| 2020 | An Y.; Davey H.; Harun H.; Jin Z.; Qiao X.; Yu Q. | Online sustainability reporting at universities: the case of Hong Kong | Journal article | *Sustainability Accounting Management and Policy Journal* | Content analysis | Asia | NA | BO | G4 2013 | | ✓ | ✓ | Star |

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**Table A1.**

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | Ceulemans K.; Scarff Seatter C.; Molderez I.; Van Liedekerke L.; Lozano R. | Unfolding the Complexities of the Sustainability Reporting Process in Higher Education: A Case Study in The University of British Columbia | Book chapter | *International Business, Trade and Institutional* | Content analysis | America | 2008–2014 | NM | NA | | | | Star |
| 2020 | Di Nauta P.; Iannuzzi E.; Milone M.; Nigro C. | The impact of the sustainability principles on the strategic planning and reporting of universities. An exploratory study on a qualified italian sample | Journal article | *Sustainability* | Content analysis | Europe | NA | M | NA | | | | GreenMetric |
| 2020 | Khoshbakht M.; Zomorodian M.; Tahsildoost M. | A content analysis of sustainability declaration in Australian universities | Conference Proceeding | *Proceedings of the International Conference of Architectural Science Association* | Content analysis | Oceania | 2017 | NM | NA | | | | |

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Table A1.

| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | Kirrane M.J.; Pelton C.; Mehigan P.; Poland M.; Mullally G.; O'Halloran J. | "Reaching for the STARS": A Collaborative Approach to Transparent Sustainability Reporting in Higher Education, the Experience of a European University in Achieving STARS Gold | Book chapter | *International Business, Trade and Institutional Sustainability* | Case studies | Europe | 2018 | NM | NA | | | | GreenMetric |
| 2020 | La Bara L.; Litardi I.; Fiorani G. | Sustainability reporting in universities. Comparison between two European universities | Conference Proceeding | *Strategica: Preparing for Tomorrow, Today* | Case studies | Europe | 2019 | M | G4 2013 | | | | |
| 2020 | Mauro S.G.; Cinquini L.; Simonini E.; Tenucci A. | Moving from Social and Sustainability Reporting to Integrated Reporting: Exploring the Potential of Italian Public-Funded Universities' Reports | Journal article | *Sustainability* | Content analysis | Europe | 2017–2018 | M | NA | | | | Star |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 | Melles G. | Sustainability Reporting in Australian Universities: Case Study of Campus Sustainability Employing Institutional Analysis | Book chapter | *International Business, Trade and Institutional Sustainability* | Case studies | Oceania | 2019 | M | NA | | | | Global Compact GreenMetric Star |
| 2020 | Sari M.P.; Hajawiyah A.; Raharja S.; Pamungkas I.D. | The report of university sustainability in Indonesia | Journal article | *International Journal of Innovation, Creativity and Change* | Content analysis | Asia | 2017 | BO | G4 2013 | | ✓ | | GreenMetric CSAF |
| 2021 | Caputo F.; Ligorio L.; Pizzi S. | The Contribution of Higher Education Institutions to the SDGs-An Evaluation of Sustainability Reporting Practices | Journal article | *Administrative Sciences* | Content analysis | Worldwide | 2021 | BO | NA | ✓ | ✓ | | |
| 2021 | de Souza T.C.G.; De Benedicto S.C.; da Silva, L.H.V. | Sustainability Report: proposal for application in a community Higher Education Institution in light of Global Reporting Initiative (GRI) | Journal article | *Reunir – Revista de Administracao Contabilidad e Sustentabilidade* | Content analysis | America | 2017 | BO | NA | | ✓ | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | Di Tullio P.; La Torre M.; Rea M.A. | Social Media for Engaging and Educating: From Universities' Sustainability Reporting to Dialogic Communication | Journal article | *Administrative Sciences* | Content analysis | Europe | 2019–2021 | M | NA | | | | |
| 2021 | Gutiérrez-Goiria J.; Amiano-Bonatxea I.; Sianes A.; Vázquez-De Francisco M.J. | Reporting the Social Value Generated by European Universities for Stakeholders: Applicability of the Global Reporting Initiative Model | Journal article | *Frontiers in Psychology* | Content analysis | Europe | 2018–2020 | BO | NA | | | | |
| 2021 | Hansen B.; Stiling P.; Uy W.F. | Innovations and challenges in SDG integration and reporting in higher education: a case study from the University of South Florida | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | America | 2019 | NM | NA | | | | Star USF |
| 2021 | Pelcher J.; McCullough B.P.; Trendafilova S. | Collegiate athletics environmental sustainability efforts within STARS reporting | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Worldwide | 2020 | NM | NA | | | | Star |

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| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2021 | Pujiningsih, S. | Exploration of University Sustainability Report Indicators: Evidence from Indonesia | Journal article | *Accounting and Finance/Oblik i Finansi* | Case studies | Asia | 2018 | BO | NA | | | | Global Compact GreenMetric |
| 2021 | Trireksani T.; Zeng Y.-T.; Djajadikerta H.G. | Extent of sustainability disclosure by Australian public universities: Inclusive analysis of key reporting media | Journal article | *Australian Journal of Public Administration* | Content analysis | Oceania | 2016 | BO | G3 2006 | | | ✓ | Global Compact |
| 2022 | Shan Y.G.; Zhang J.; Alam M.; Hancock P. | Does sustainability reporting promote university ranking? Australian and New Zealand evidence | Journal article | *Meditari Accountancy Research* | Quantitative studies | Oceania | 2005–2018 | NM | NA | | | | |
| 2022 | Bonatxea I.A.; Gutierrez-Goiria J.; Vazquez-De Francisco M.J.; Sianes A. | Is the global reporting initiative suitable to account for university social responsibility? Evidence from European institutions | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Europe | 2021 | BO | G2 2002 G3 2006 G3.1 2011 G4 2013 | ✓ | ✓ | | |

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| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | Di Tullio P.; La Torre M. | Sustainability Reporting at a Crossroads in Italian Universities: Is Web-Based Media Adoption Deinstitutionalising Sustainability Reporting? | Journal article | *Administrative Sciences* | Content analysis | Europe | 2021 | M | NA | | | | |
| 2022 | Leal Filho, W; Coronado-Marin, A; Salvia, AL; Silva, FF; Wolf, F; LeVasseur, T; Kirrane, MJ; Doni, F; Paco, A; Blicharska, M; Schmitz, M; Grahl, AT; Moggi, S. | International Trends and Practices on Sustainability Reporting in Higher Education Institutions | Journal article | *Sustainability* | Quantitative studies | Worldwide | 2020 | M | NA | | | | Star |
| 2022 | Fiorani G.; Di Gerio C. | Reporting University Performance through the Sustainable Development Goals of the 2030 Agenda: Lessons Learned from Italian Case Study | Journal article | *Sustainability* | Content analysis | Europe | 2020 | M | NA | | | | GreenMetric |

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| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | González-Torre P.L.; Suárez-Serrano E. | A framework for implementing and reporting United Nations sustainable development goals in Spanish higher education institutions | Journal article | *International Journal of Sustainability in Higher Education* | Content analysis | Europe | 2021 | M | NA | | | | Global Compact GreenMetric |
| 2022 | Hamilton S.N.; Waters R.D. | Mainstreaming Standardized Sustainability Reporting: Comparing Fortune 50 Corporations' and US News and World Report's Top 50 Global Universities' Sustainability Reports | Journal article | *Sustainability* | Content analysis | Worldwide | 2021 | M | NA | | | | Global Compact |
| 2022 | Melles G.; Lodewyckx S.; Hariharan T.S. | Campus sustainability in the Australian higher education sector: divergence and convergence in planning, reporting and tactics | Journal article | *International Journal of Sustainability in Higher Education* | Case studies | Oceania | 2014–2020 | M | NA | | | | Star |

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| Publication year | Authors | Title | Type of publication | Source title | Methodology | Country | Period of analysis | GRI (Table 1) REF | VER | DATA | FRAME | THR | OTHER |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 | Sari M.P.; Faisal F. | The Diffusion of Sustainability Reporting for Higher Education Institution Worldwide | Conference Proceeding | *IOP Conference Series: Earth and Environmental Science* | Content analysis | Worldwide | 2010–2020 | BO | NA | ✓ | | | GreenMetric |
| 2022 | Sassen R.; Azizi L.; Mertins L. | What are the motivations for and obstacles to disclosing voluntary sustainability information by US universities in STARS reports? | Journal article | *Journal of Cleaner Production* | Quantitative studies | America | 2004–2017 | NM | NA | | | | Star |