

RESEARCH ARTICLE

Sustainable development practices in public higher education: A new conceptual framework for nurturing student satisfaction and reinforcing attractiveness to international students

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Abstract

Using a multi-layer review based on stakeholder, institutional and legitimacy theories, the current study presents and empirically analyses a novel conceptual framework addressing the relationship between sustainable development practices, internationalization and students' satisfaction in public higher education institutions. Based on participants' self-perception, a questionnaire was distributed to 738 students at seven Portuguese public higher education institutions. Structural equation modeling was utilized to estimate the multivariate causal relationships. The evidence shows that SDP are positively, directly, and significantly related to internationalization and students' satisfaction. Students' satisfaction is directly and significantly associated with internationalization, also revealing a moderating effect on the relationship between sustainable development practices and internationalization. To achieve legitimacy among their stakeholders, public higher education institutions must build an institutional commitment to sustainability by adopting and disseminating sustainable development practices with actions on a livable campus.

KEYWORDS

higher education, internationalization, legitimacy, perception, satisfaction, sustainability

1 | INTRODUCTION

According to Bonnett (1999), sustainability can be seen as a state of mind that emphasizes how people interact with things in their daily lives, including the practices they engage in. The same author argues that any meaningful development of consciousness occurs at this level, requiring a reevaluation of the goals and values that underlie daily existence. In this line of reasoning, higher education institutions (HEIs) can implement sustainable development through different dimensions beyond education, such as campus operations, institutional and business process management, and the external community, at the same time promoting active citizenship, leading to the adoption of ethical, healthy values among their stakeholders (Caeiro &

Azeiteiro, 2020). Measuring the impact and effectiveness of these dimensions of implementation allows evaluation of how sustainability is being applied in practice, as well as highlighting threats, opportunities, weaknesses and strengths for HEIs' improvement (Caeiro & Azeiteiro, 2020).

HEIs and their stakeholders play a significant role in adopting and addressing the targets of the Sustainable Development Goals (SDGs), which are defined in the scope of the United Nations Agenda (Leal Filho et al., 2021). The SDGs were the inspiration to rethink internationalization in HEIs, emphasizing their environmental impact inside and outside the institution (de Wit & Deca, 2020; Ramaswamy et al., 2021), and contributing to the development of approaches, methods and tools supporting this process (Filho et al., 2023). Thus, a

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key component of HEIs' internationalization is to satisfy all their stakeholders through creating strategic collaborations to incorporate global, multicultural, and international perspectives in teaching, learning and research (Sahasrabudhe et al., 2020). At the same time, sustainability in internationalization efforts must be ensured (Filho et al., 2023).

The integration of SD in HEIs involves different stakeholders and affects them differently (Ceulemans et al., 2015; Ferrero-Ferrero et al., 2018). In the case of students, authors such as Mintz and Tal (2014) highlight that despite some examples of well-designed education for sustainability or awareness of sustainability initiatives in HEIs, such initiatives per se do not affect students' attitudes or guarantee their behavior. There is a need for greater involvement in initiatives related to HEIs' sustainability that would enable them to develop skills in their lives and to deal with sustainability experiences directly (Chaudhary & Dey, 2021). According to Leal Filho et al. (2021), students' involvement in processes of assessing SD in HEIs depends on their own perceptions and practices, which ends up influencing not only the organization's performance, but also their own behavior (Ribeiro et al., 2019). Students find satisfaction in making an impact, having social interactions, and learning through their engagement with sustainable activities (Lootens, 2017). In addition, Siming et al. (2015) highlight that those experiences provided to students are considered one of the primary elements in determining students' satisfaction.

As highlighted by Lozano et al. (2022), developing students' critical thinking is highly interrelated with their engagement with sustainability and a practice-oriented approach rather than the content received during lectures. Consequently, all the experiences occurring in the sphere of the academic campus are important factors in developing students' critical thinking and a healthy climate, with continuous learning, having repercussions in students' satisfaction. So, measuring students' satisfaction as consumers of HE services helps to improve quality and customer appreciation (Brooks, 2021). HEI managers should ensure students' needs are met and provide experiences that create emotional connections, improving the institution's image and thereby contributing to the retention (loyalty) and enrolment (recommendation) of more students (Pedro et al., 2016), contributing also to internationalization.

In the global competitive market, students' satisfaction surveys have become increasingly important for the internationalization of many HEIs interested in improving the quality of teaching, learning and diversity (Knight, 2004; Williams & Mindano, 2015). In creating and communicating a positive image, HEIs will influence the choice of potential foreign students who will contribute to the institution's internationalization (Paula & Fragouli, 2018; Wilkins & Huisman, 2013). Students' satisfaction, as already mentioned, is one of the main objectives for the internationalization of many HEIs, knowing that international students now evaluate the potential advantages and disadvantages of attending international rather than domestic institutions (Ramaswamy et al., 2021).

Although some studies concentrate on students' perception of SD (e.g., Johnsson et al., 2020) so far, none has been found to study SDP, internationalization and students' satisfaction at the same time,

as knowing how they are connected is important to both academics and HEI managers. So, to fill the existing gap, this research posits the following main research questions:

RQ1. Do HEIs' sustainable development practices contribute to internationalization?

RQ2. Do HEIs' sustainable development practices contribute to students' satisfaction?

RQ3. Does students' satisfaction contribute to HEIs' internationalization?

Previous studies (e.g., Anderson et al., 1994; Sunny & John, 2014; Youl, 2009) offer both theoretical justification and empirical evidence, which support the moderating role of satisfaction, affecting the strength and direction of a relationship between two different variables. In addition, considering that no previous studies address the moderating effect of students' satisfaction on the relationship between sustainable development practices and internationalization, this issue is addressed as a fourth research question:

RQ4. Does students' satisfaction moderate the relationship between SDP and internationalization?

In this study, following Silva Junior et al. (2018), sustainability is a principle that applies to dynamic systems that are always changing and require proactive solutions. SD refers to the social process that involves options and decisions aiming for sustainability, that is, SD is the means to accomplish a long-term end: sustainability (Olawumi & Chan, 2018). This paper is of interest to both the academic community and HEIs' leadership. Firstly, it gains academic relevance by stimulating discussions about theoretical development and HEIs' legitimacy, and secondly, from the methodological implications that can improve and strengthen this field of research to develop better SDP. Furthermore, it is of practical importance since it gives recommendations on how to construct a better instrument capable of assuring internationalization and students' satisfaction, therefore contributing to HEIs' sustainability. To emphasize the significance of gauging SDP, we adopted one student viewpoint based on SD and views on internationalization, and another based on life satisfaction.

Given the theoretical context of this study, the compatibility and complementarity of legitimacy, stakeholder, and institutional theories enable the establishment of a novel conceptual framework devoted to SDP adoption in HEIs, based on the following statements:

- i. First, as argued by Camilleri (2021), HEIs have changed or are attempting to adjust to a changing environment by focusing more on increasing organizational performance. Because HEIs are organizations, and given organizations' responsibility, SDP as performance indicators can be used to give those institutions legitimacy (DiMaggio & Powell, 1983), through spreading their practices and actions, providing society with an instrument for

evaluation and comparison, identifying the degree of connection between diverse categories of stakeholders (Manetti & Becatti, 2009). Higher education (HE) has gained legitimacy over time, due to an increase in enrolments, in the subjects offered, and in HEIs' missions (Krücken, 2011). Legitimacy is a psychological characteristic of an authority, organization or social body which causes those connected to them to consider they are adequate, sufficient and fair (Tyler, 2006). Obtaining and holding on to legitimacy in HE is a complex matter, due to the varied characteristics of the different national and international stakeholders whose requests they seek to satisfy (Del-Castillo-Feito et al., 2019). However, due to its flexibility, the very definition can be adjusted, to enter the social and/or environmental sphere, for example, in this specific case, the perception or assumption that universities' SDP are desirable, sufficient, or appropriate (Crossley et al., 2021).

- ii. Secondly, Stakeholders Theory is also used to discuss matters related to sustainability in HEIs (Silva Junior et al., 2018). This theory analyses the relationship between the organization and the economic and social actors either individually or collectively.
- iii. Thirdly, because Stakeholders Theory is closely linked to Institutional Theory, the latter postulating that organizational analysis encompasses the relation between the organization and its environment or context (Silva Junior et al., 2018). Understanding organizational field components, institutional management, regulatory organizations, and decision-makers at the organizational and national levels is made simpler in the context of higher education institutions by using Institutional Theory (Flach & Flach, 2010). Institutional rules, myths, and beliefs are viewed as legitimizing forces that allow social reality to be adapted (Berger & Luckmann, 1967). The adaptive organizational structure (Selznick, 1957) is determined by the qualities of individuals, as well as environmental factors and pressures (Scott, 1994).

The paper continues as follows: firstly, the state of the art on the importance of HEIs' SD, internationalization and student satisfaction is reviewed, to define indicators to measure those constructs and research hypotheses. Then a model is proposed, followed by structural equation modeling, using SmartPLS4 software, and finally the results and discussion, conclusions, implications and limitations of the study are presented.

1.1 | Conceptual framework

1.1.1 | Sustainable development in higher education institutions

From the early 1990s, the matter of SD in the HE sector has been discussed internationally through various declarations and initiatives. Nevertheless, it was the Decade of Education for Sustainable Development (2005–2014) (UNESCO, 2014) and the Rio 2012 summit (World Health Organization, 2012) that gave direction and space for

HEIs' formal involvement in SD in all aspects of their institutional operations (Leal Filho et al., 2021).

In addition, HE plays an important role in achieving the sustainable development goals (SDG) of the United Nations 2030 Agenda for Sustainable Development. As mentioned by Ramaswamy et al. (2021), referring to SDG4: Quality education, this core SDG for HEIs can be a central pillar for the achievement of other SDGs, including climate change, sustainable consumption and production, growth and employment, and health, all of which may have a favorable impact on HEIs' internationalization.

The paths of SD have been integrated into education, research and operations in HEIs (Leal Filho et al., 2021; Saric et al., 2023). HEIs need not only to focus on teaching and researching sustainability topics, but should also be oriented to managing sustainability, embracing professionals who manage sustainability, employees, students, public service providers and local community leaders who can proactively contribute to SD (Broadbent et al., 2010).

HEIs' involvement in global SD should be incorporated in their strategy (Ceulemans et al., 2015), in terms of teaching, research and the third mission (Lozano et al., 2015), with stakeholder groups, including students, playing a significant role in forming SD agendas (Blasco et al., 2021). Therefore, HEIs must be strongly committed to their mission, having a legitimate commitment to addressing, engaging in, and responding to current and emerging matters related to SD, through their policies, procedures, curricula, research and/or extension activities, including all their stakeholders in their actions (Leal Filho, 2019). When talking about organizations' engagement with and impacts to sustainability, Lozano (2023) states that institutions must adopt a holistic systemic perspective that considers the involvement of all elements of the system and how each of them contributes to sustainability and its dimensions. Nonetheless, Leal Filho et al. (2023) state that further study is needed to determine how SD is being positioned at HEIs while producing positive externalities for the academy, society, and the environment.

Four main dimensions have been proposed to measure SDP (see, Aleixo et al., 2016; Aleixo, Azeiteiro, & Leal, 2018; Lozano, 2011): environmental, economic, social/cultural, and organizational/educational/political. However, Aleixo, Leal, and Azeiteiro (2018) suggest that SD in HEIs is mainly associated with institutions' survival and the environmental dimension. These authors, investigating how the main stakeholders of Portuguese Public HEIs (including students), understand the concepts of sustainability and SDP in their institutions, conclude that although stakeholders have a clear view of the role of sustainability in Portuguese HEIs, issues related to the economic, social and organizational dimensions prevail when they develop their strategies and priorities. Thus, in the view of these authors, it is essential to have access to good practices within institutions, as well as examples of SD implementation in HEIs, as they can provide important clues about how Portuguese HEIs can face challenges related to competitiveness, funding, student attraction, institutional collaborations, internationalization and the quality and excellence of teaching and research (Aleixo, Leal, & Azeiteiro, 2018).

In this line of reasoning, knowing how the various dimensions of SDP are perceived within HEIs by their own students can help in the development of best practices, policies and strategies by those who govern them. For this reason, the following sub-research question is formulated:

SRQ. Which dimensions of HEIs' sustainability development practices (economic, organizational, social and environmental) are more important for SDP adoption in HEIs?

1.1.2 | Sustainable development in HEIs and internationalization

HEIs around the world are increasingly participating in international collaborations with a view to transferring knowledge and experience (Filho et al., 2023). Using their resources, approaching, engaging in and promoting the mitigation of negative economic, social and environmental health effects, they help society to change towards a more sustainable life (Velazquez-Contreras, 2002).

There are several approaches to internationalization. Some authors say that it can involve countries, cultures, educational systems (Knight, 2006), curriculum development, research, partnerships and mobility (de Wit, 2011). Others relate internationalization in a more comprehensive manner, based on the institution's culture and ideals. (Hudzik, 2011). De Wit et al. (2015) declare that internationalization is a purposeful process of incorporating an international, multicultural, or global dimension into the mission, functions, and teaching of HEIs. This aims to increase the quality of education and research for all students and faculty while also making a major contribution to society (Ramaswamy et al., 2021).

Internationalization can be achieved through research, teaching, courses, conferences, targeted programs, good practices within the institution, and the institution's reputation and image, often shown in international rankings (de Wit & Deca, 2020). Because HEI performance is primarily judged by these rankings, the expansion of cross-cutting issues like SD is sometimes jeopardized (Giesenbauer & Tegeler, 2020), if HEIs are not efficient in implementing good practices (Giesenbauer & Müller-Christ, 2020). This may jeopardize the institution's internationalization and viability as a result of the image and reputation that is passed on to its peers, which frequently results in a lack of demand from international students, employees, and researchers.

Another point worth mentioning is that activities held in the context of sustainability, such as conferences, workshops and seminars, promote the interchange of knowledge and experiences, allowing the establishment and extension of academic networks (Berchin et al., 2021). These networks can result in better cooperation between HEIs and other stakeholders, not just at the national level, but also internationally, contributing to greater internationalization. The chance to interact with individuals from all origins and cultures can help them create the beliefs and attitudes that will change society and

help them become more international (Lootens, 2017). In addition, providing new opportunities for SDP with different communities can help individuals to develop values and attitudes to restructuring society, making it more international and sustainable (Ramaswamy et al., 2021). Considering the above, the first research hypothesis is formulated:

H1. HEIs' sustainable development practices contribute directly and positively to HEIs' internationalization.

1.1.3 | Sustainable development in HEIs and Students' satisfaction

Students learn to be better citizens through various experiences within academia (Barnhardt et al., 2015). As mentioned by Bryant et al. (2012), students' personal characteristics and beliefs shape their civic views. In addition, Brammer et al. (2012) highlight that the general experience within the institution contributes to their civic commitments, skills and knowledge, while acting as a live laboratory for students to practice answering real public problems. Students have been showing concern and commitment to play a part in sustainability practices (Emanuel & Adams, 2011), and involvement in sustainability needs to occur while students are studying at university (Rademakers, 2016). Barth and Timm (2011) showed that students do not only have a good understanding of the SD concept, but also identify with its values. It makes them act ethically and responsibly (Nicolaidis, 2006), which contributes to their satisfaction (von der Heide & Lamberton, 2011). Nevertheless, insufficient research addresses the issue of SD from the student perspective (Chaudhary & Dey, 2021).

As a multi-dimensional process, various factors are associated with student satisfaction (Weerasinghe & Lalitha, 2017). For example, students' perception of service quality (Osman & Saputra, 2019); HEIs' image (Appuhamilage & Torii, 2019); values (Hadi et al., 2019); prominence and renown, adaptability in curricula and instruction, faculty concern, student-centeredness, students' growth and development, campus climate, institutional efficacy, societal circumstances (Douglas et al., 2006); and SDP (Chaudhary & Dey, 2021). However, according to Ozdemir et al. (2020), despite numerous studies on factors affecting students' satisfaction, few investigate the link with students' perception of the HEI's SDP. Therefore, the second research hypothesis is formulated:

H2. HEIs' sustainable development practices contribute directly and positively to students' satisfaction.

1.1.4 | Students' satisfaction and internationalization

Hakala and Nygrén (2010) highlight that providing services with quality is an essential strategy for organizational achievement and survival,

including in HEIs. Student satisfaction is an answer. Quintal et al. (2012) conclude that satisfied students are a strong source of live testimonials for HEIs. However, the same authors highlight that displeased students may criticize and have a negative impact on the HEI's image. The study by Alhaza et al. (2021) confirmed that student satisfaction contributes directly to a positive perception of Qatar's university image.

Bennett (2007) examined university advertising in the UK and showed how an image concerned with the social environment had a big impact on students' preferences. In the view of Paula and Fragouli (2018), for students who live outside Europe, the HEI's reputation may be a more crucial consideration, probably because of the additional costs involved (higher tuition fees, obtaining visas, etc.). The same authors concluded that in the case of students from outside Europe, they will do everything to ensure they choose the right institution. Other studies have shown that students' satisfaction has a positive impact on their motivation, therefore reducing the efforts needed to attract new students and increase retention and course completion rates, and the supply of finance (Helgesen & Nasset, 2007).

In this connection, HEIs have expressed greater commitment to their students' satisfaction, creating quality experiences (Yousaf et al., 2020), which increase loyalty, reputation, word-of-mouth and image, thereby contributing to HEIs' internationalization and sustainability. Considering the above, the third hypothesis is formulated:

H3. Students' satisfaction contributes directly and positively to HEIs' internationalization.

1.1.5 | The moderating role of satisfaction

Anderson et al. (1994) study the moderating effect of satisfaction on the relationship between physical and perceived service quality and customers' perceptions. Youl (2009) studies the moderating role of satisfaction in the relationship between physical retail service quality and brand equity. Sunny and John (2014) study satisfaction as a moderator of antecedent factors (service quality, customer value, brand image, switching cost, customer services and social affinity) in the intention to use the link of Global System for Mobile Communication. The aforementioned scholars agree on the function of students' satisfaction as a moderator. As a result, no study on the moderating effects of student satisfaction on the link between SDP and internationalization has been conducted thus far. Keeping in mind that customer satisfaction helps consumers overcome the unavoidable swings in constructing views and behaviors (Youl, 2009), the knowledge that students' satisfaction can have a mediating effect on the relationship between SDP and internationalization can have important implications for HEI management. Taking this into account, the fourth research hypothesis is formulated:

H4. Students' satisfaction is a significantly positive moderator of the relationship between students' perceptions of HEIs' sustainable development practices and HEIs' internationalization.

Considering the research questions, the literature review and the research hypotheses formulated, Figure 1 presents a conceptual model of analysis.

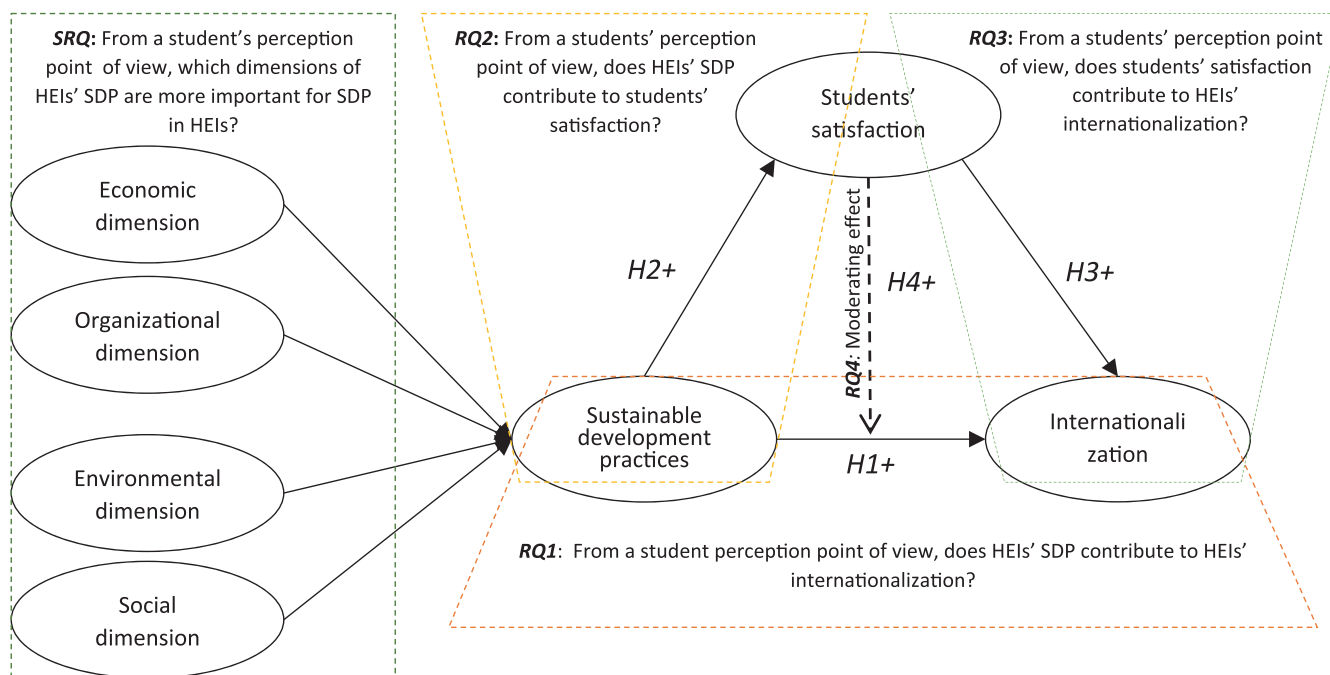


FIGURE 1 Sustainable development practices and internationalization of HEIs: Proposal of a conceptual model of analysis. Source: Own elaboration.

TABLE 1 Variable metrics of SDP, internationalization, students' satisfaction, acronyms and source/author.

Variable	Variable metrics	Acronym	Source/author
Sustainable development	Economic (ECO1 + ECO2 + ECO3)	ECONOMIC	Elkington (2000)
	<ul style="list-style-type: none"> Positive development of the financial situation. 	ECO1	
	<ul style="list-style-type: none"> Increased scientific productivity and economic value of research results. 	ECO2	
	<ul style="list-style-type: none"> Strengthening pro-efficiency orientation, reducing operating costs. 	ECO3	
	Organizational (ORG1 + ORG2 + ORG3 + ORG4)	ORGANIZATIONAL	Aleixo, Azeiteiro, and Leal (2018); Chaudhry et al. (2014); Findler et al. (2018)
	<ul style="list-style-type: none"> Students with high levels of satisfaction. 	ORG1	
	<ul style="list-style-type: none"> Provide value through student activities 	ORG2	
	<ul style="list-style-type: none"> Retaining and attracting new students 	ORG3	
	<ul style="list-style-type: none"> Attain the desired levels of growth 	ORG4	
	Environmental (ENV)	ENVIRONMENTAL	Aleixo, Azeiteiro, and Leal (2018); Findler et al. (2018)
	<ul style="list-style-type: none"> Reinforcing the pro-sustainability orientation, decreasing the impact of environmental activities. 	ENV	
Social (SOC)	SOCIAL	Findler et al. (2018); Pedro et al. (2020); Tonial et al. (2019)	
<ul style="list-style-type: none"> Evidence of social impact and openness to society. 	SOC		
Internationalization (INT1...INT11)	(Collaboration)	INT1	Altbach and Knight (2007); Altbach (2013)
	<ul style="list-style-type: none"> Adequate number of existing contracts/cooperation agreements/international protocols (teaching/research/technology and knowledge transfer) with organizations (public and private). 	INT2	
	<ul style="list-style-type: none"> Increased collaboration of researchers in international publications with one or more international co-authors. 	INT3	
	(Reputation)	INT4	de Wit and Deca (2020)
	<ul style="list-style-type: none"> International public recognition, through number of national/international awards received. 	INT5	
	<ul style="list-style-type: none"> Good image/opinion/reputation (society, media, etc.) at an international level. 		
	(Research)	INT6	de Wit (2019); Ramaswamy et al. (2021)
	<ul style="list-style-type: none"> Continuous effort to increase the number of post-doctoral researchers or visiting professors and researchers on short stays. 	INT7	
	<ul style="list-style-type: none"> Good research results/productivity (e.g., articles published in high-impact scientific journals with international circulation). 		
	(Staff)	INT8	de Wit (2019); Ramaswamy et al. (2021)
	<ul style="list-style-type: none"> Increase in the total number of international staff. 	INT9	
<ul style="list-style-type: none"> Adequate number of international speakers invited for learning programs. 			
(Students)	INT10	de Wit (2019); Ramaswamy et al. (2021)	
<ul style="list-style-type: none"> Increase in the number of international students. 	INT11		
<ul style="list-style-type: none"> Large number of foreign students (bachelor, master, doctorate) and in postgraduate programs. 			

TABLE 1 (Continued)

Variable	Variable metrics	Acronym	Source/author
Students' Satisfaction	• Students' overall satisfaction with academic and social life at the university.	SAT1	Bianchi (2013); Chaudhary and Dey (2021); Elliott and Healy (2001); Elliott and Shin (2002); Weerasinghe and Lalitha (2017)
	• Students' expectations at the university	SAT2	
	• Student feels physically healthy at the university.	SAT3	
	• Student feels safe at the university.	SAT4	
	• Student feels that expenses at the university are generally acceptable.	SAT3	

Source: Own elaboration.

1.2 | Methodology

1.2.1 | Research method

This study uses a quantitative survey. This survey was built based on the items identified through the literature review (see Table 1), with respondents being invited to state their level of agreement with each, on a scale of 1–7 (1 = I totally disagree and 7 = totally agree), based on their perception of what is happening at their HEI. Partial Least Squares Structural Equation Modeling (PLS-SEM) is used. According to Hair et al. (2019), when the analysis concerns testing a theoretical framework from a predictive perspective and when the structural model is complex and includes several constructs, indicators and/or model relationships, we can use PLS-SEM. SmartPLS4 software was used.

1.2.2 | Variable measurement

Sustainable development practices

The SD concept often includes economic, environmental, social (Giddings et al., 2002), and organizational dimensions (Aleixo, Leal, & Azeiteiro, 2018; Lozano, 2011; Pedro et al., 2020). In this study HEIs' SDP is based on these four dimensions. The economic dimension of SD concerns maintaining the institution's financial capital, economics in general, providing tangible assets with a monetary value (Elkington, 2000). This dimension involves economic viability and economic needs. It concerns economic performance, improved energy efficiency and financial arrangements for practices that promote SD.

The organizational dimension is achieved through strong inter-organizational relationships (Chaudhry et al., 2014), related to changes in organizational practices, sustainable lifestyles, and urban development (e.g., sustainable infrastructure) (Findler et al., 2018). This dimension refers to how HEIs structure their routine and values, and how distinct stakeholders perceive the approach and objectives of SD (Aleixo, Azeiteiro, & Leal, 2018). It includes transparency in governance, ethical commitments, declarations, and statements on the HEI's mission, vision, values and strategy.

The environmental dimension is a part of community well-being (Rela et al., 2020) and concerns HEIs' responsibility for the effects caused by their activities through using natural resources for production and consumption, without causing environmental damage (Tonial et al., 2019). It refers to including environmental concerns in the institution's strategy. Environmental concern refers to a belief about the state of the environment (Fawehinmi et al., 2022). It can include constructing sustainable buildings on campus, separating and recycling waste, and generating renewable energy (Aleixo, Azeiteiro, & Leal, 2018).

HEIs' social dimension of SDP will promote a better quality of life and well-being for those directly or indirectly affected by the institution's activities (Tonial et al., 2019). As highlighted by Aledo-Ruiz et al. (2022), to attract and retain students, HEIs must promote dialog with their students, including them in visible and transparent socially responsible projects, in order to provide a good image and a solid reputation for the institution. It refers to the actions of the institution's human resources or the neighboring community. These include policies to promote equality and diversity, projects related to social inclusion, scientific initiatives directed to the peripheral community, and developing and participating in cultural, recreational, or sporting activities (Pedro et al., 2020).

Internationalization

Some activities involving internationalization include cooperation through researchers and staff's involvement in international activities (Altbach, 2013; Altbach & Knight, 2007); reputation and branding (de Wit & Deca, 2020); top research, publishing in high impact journals, international recruitment of students and lecturers/researchers, and competition for outstanding results (de Wit, 2019); Ramaswamy et al., 2021). Taking the above into consideration, internationalization will be measured using indicators relating to cooperation, reputation, research, students, and staff.

Students' satisfaction

Students' satisfaction resulting from evaluating educational life experience, services and facilities during their life on campus is a short-term attitude (Elliott & Healy, 2001; Weerasinghe & Lalitha, 2017).

Students' satisfaction is defined as a subjective assessment of student attitude towards the academic results obtained and their experience of life on campus (Elliott & Shin, 2002). For Bianchi (2013), students' satisfaction is influenced by the course program, experienced lecturers, infrastructure, campus attractiveness, and socialization experiences. According to Elliott and Healy (2001), and Chaudhary and Dey (2021), students' satisfaction is measured considering: campus life; expectations; concern about health; campus safety and security; and financial effectiveness.

Table 1 displays all the variable measures of SDP, internationalization, students' satisfaction and their acronyms. It also shows the source/author of each scale/variable used in the study.

1.3 | Sampling

This study focuses on the universe of students in Portuguese State HEIs and guarantees one HEI per region at the NUTS II level, with a total of seven HEIs. A simple random sampling method was used to select participants. Firstly, the questionnaire was pre-tested, and some items were adapted accordingly. The final sample was collected by e-mail and in the classroom, between December 2017 and February 2018. Potential non-response bias was assessed through *t* tests, contrasting the responses collected by email (615) with those collected in the classroom (123). No significant differences were observed between the two groups. The final sample ($N = 738$) is composed of 452 females and 286 males. The demographic information is presented in Table 2.

2 | RESULTS AND DISCUSSION

In PLS-SEM, this study considers the procedures proposed by Ghasemy et al. (2020) and Ghasemy et al. (2021). The values for the descriptive statistics were found to be homogeneous, and for skewness and kurtosis, the values were within the acceptable range of -1 to $+1$ or very close to this, with no evidence of non-normal distribution (Hair et al., 2017). Multicollinearity was analyzed by applying the variance inflation factor (VIF). VIF values are below or very close to 3.3, meeting the criteria established by Kock (2015). Correlations revealed values below or very close to 0.750, suggesting no possible problems of autocorrelation (see Table 3).

2.1 | Assessment of the measurement models

Following Hair et al. (2018) and Ghasemy et al. (2020), this section involves examining indicator reliability, internal consistency reliability, convergent validity and discriminant validity.

For indicator reliability, it is usual to examine the correlations between each indicator and the loadings/correlation weights (Hair et al., 2018). Loadings must be above 0.708 (Ghasemy et al., 2020).

TABLE 2 Demographic information about students ($N = 738$).

Variables	Frequency	%
Gender		
Female	452	61.2
Male	286	38.8
Age-group		
17–25	628	85.1
26–35	52	7.0
36–45	25	3.4
46–55	22	3.0
>55	11	1.5
Study cycle		
First degree	481	65.2
Master	164	22.2
PhD	42	5.7
Integrated Master	51	6.9
Area of study (Code ^a)		
Arts and humanities (2)	30	4.1
Social sciences, trade and law (3)	364	49.3
Science, mathematics & computers (4)	48	6.5
Education (1)	28	3.8
Engineering, manufacturing and construction (5)	195	26.4
Health and social protection (7)	61	8.3
No answer	12	1.6
Total	738	100

^aCode according to CNAEF - National Classification of Areas of Education and Training.

Except for five indicators, all values are within the recommended range (see Table 5). Following Hair et al. (2011), they can be kept if they do not cause issues for the model analysis and are near to the reference value.

For internal consistency reliability, it is usual to estimate Cronbach's alpha, composite reliability (CR) and Rho_A (Dijkstra & Henseler, 2015). No values give cause for concern because they are all above 0.7 and below 0.95. Convergent validity is evaluated through average variance extracted (AVE). AVE values must be above 0.5, and they meet that criterion (see Table 4).

The heterotrait-monotrait (HTMT) ratio is detected through discriminant validity (Ghasemy et al., 2020). The HTMT value should be <0.85 ($HTMT_{0.85}$) for conceptually distinct constructs; and <0.9 ($HTMT_{0.9}$) for conceptually similar constructs. All the results reveal this last analysis agrees with those references except for the relationship "sustainable development - economic dimension", which is a little higher (0.903). According to the same authors, bootstrapping will be used to test whether the HTMT value is significantly lower than unity (1). The results reveal that no interval has the value of one (see Tables 5 and 6).

TABLE 3 Descriptive statistics, kurtosis, skewness and VIF, and correlation between all the indicators.

Indicators	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
ECO1	1																									
ECO2	0.666**	1																								
ECO3	0.580**	0.561**	1																							
ORG1	0.578**	0.617**	0.452**	1																						
ORG2	0.549**	0.590**	0.480**	0.793**	1																					
ORG3	0.504**	0.572**	0.419**	0.739**	0.751**	1																				
ORG4	0.578**	0.605**	0.488**	0.723**	0.715**	0.746**	1																			
SUS	0.540**	0.594**	0.542**	0.512**	0.522**	0.521**	0.504**	1																		
SOC	0.510**	0.617**	0.488**	0.629**	0.638**	0.627**	0.586**	0.591**	1																	
INT1	0.436**	0.553**	0.342**	0.534**	0.516**	0.536**	0.544**	0.433**	0.504**	1																
INT2	0.475**	0.534**	0.349**	0.629**	0.616**	0.639**	0.593**	0.462**	0.547**	0.597**	1															
INT3	0.576**	0.558**	0.472**	0.543**	0.527**	0.515**	0.566**	0.479**	0.483**	0.475**	0.520**	1														
INT4	0.468**	0.587**	0.434**	0.452**	0.442**	0.394**	0.484**	0.434**	0.451**	0.513**	0.453**	0.500**	1													
INT5	0.489**	0.541**	0.432**	0.521**	0.523**	0.448**	0.491**	0.411**	0.489**	0.497**	0.515**	0.530**	0.545**	1												
INT6	0.531**	0.612**	0.403**	0.541**	0.508**	0.498**	0.512**	0.494**	0.525**	0.501**	0.542**	0.551**	0.482**	0.526**	1											
INT7	0.499**	0.591**	0.392**	0.578**	0.548**	0.520**	0.534**	0.462**	0.530**	0.566**	0.563**	0.514**	0.558**	0.522**	0.549**	1										
INT8	0.353**	0.464**	0.254**	0.490**	0.442**	0.520**	0.422**	0.391**	0.467**	0.447**	0.455**	0.380**	0.511**	0.419**	0.442**	0.455**	1									
INT9	0.336**	0.440**	0.290**	0.442**	0.440**	0.495**	0.431**	0.376**	0.377**	0.417**	0.425**	0.375**	0.431**	0.525**	0.477**	0.412**	0.564**	1								
INT10	0.432**	0.481**	0.356**	0.402**	0.388**	0.322**	0.404**	0.362**	0.373**	0.370**	0.355**	0.460**	0.676**	0.505**	0.460**	0.455**	0.425**	0.398**	1							
INT11	0.519**	0.568**	0.490**	0.502**	0.505**	0.455**	0.517**	0.468**	0.482**	0.494**	0.523**	0.588**	0.592**	0.718**	0.603**	0.532**	0.389**	0.523**	0.561**	1						
SAT1	0.453**	0.492**	0.319**	0.653**	0.623**	0.605**	0.545**	0.414**	0.531**	0.436**	0.528**	0.463**	0.367**	0.417**	0.443**	0.503**	0.426**	0.373**	0.298**	0.355**	1					
SAT2	0.482**	0.504**	0.351**	0.715**	0.679**	0.646**	0.611**	0.458**	0.579**	0.460**	0.561**	0.503**	0.397**	0.455**	0.470**	0.520**	0.408**	0.412**	0.333**	0.428**	0.802**	1				
SAT3	0.369**	0.393**	0.257**	0.560**	0.544**	0.485**	0.447**	0.360**	0.454**	0.350**	0.429**	0.328**	0.292**	0.364**	0.332**	0.399**	0.330**	0.327**	0.235**	0.294**	0.692**	0.700**	1			
SAT4	0.163**	0.210**	0.163**	0.323**	0.336**	0.341**	0.279**	0.300**	0.372**	0.158**	0.258**	0.186**	0.128**	0.168**	0.188**	0.291**	0.260**	0.191**	0.066	0.138**	0.438**	0.442**	0.519**	1		
SAT5	0.272**	0.305**	0.214**	0.361**	0.394**	0.331**	0.304**	0.328**	0.312**	0.213**	0.224**	0.284**	0.202**	0.244**	0.231**	0.273**	0.250**	0.231**	0.191**	0.188**	0.424**	0.422**	0.425**	0.433**	1	
Mean	4.539	4.783	4.579	4.977	5.110	5.355	5.035	4.893	5.243	4.571	4.865	4.810	4.989	5.176	4.921	4.904	4.527	4.560	5.447	5.156	5.377	5.329	5.431	5.787	5.429	
Standard deviation	1.378	1.214	1.147	1.422	1.332	1.311	1.328	1.242	1.196	1.422	1.212	1.365	1.395	1.526	1.396	1.210	1.342	1.407	1.229	1.298	1.404	1.445	1.350	1.180	1.389	
Kurtosis	0.193	0.617	0.788	0.403	1.243	1.845	0.784	0.550	1.290	-0.024	0.577	0.114	0.220	0.479	0.189	0.528	0.210	-0.251	1.593	1.008	1.209	0.870	1.207	1.352	0.303	
Skewness	-0.628	-0.593	-0.396	-0.913	-1.113	-1.209	-0.839	-0.593	-0.949	-0.559	-0.537	-0.681	-0.700	-0.989	-0.703	-0.571	-0.48	-0.551	-1.033	-0.919	-1.191	-1.132	-1.132	-1.123	-0.816	
VIF	2.022	1.958	1.643	3.283	3.327	3.040	2.741	1.000	1.000	1.877	2.495	2.407	1.944	2.027	2.028	2.030	2.065	2.864	1.822	1.831	3.133	3.191	2.389	1.492	1.368	

***The correlation is significant at 0.01 (2 extremities).

TABLE 4 Correlation weights, reliability estimates and convergent validity statistics.

Variables	Indicator	Loading	Alpha	rho_A	CR	AVE
Sustainable development	ECONOMIC		0.820	0.826	0.893	0.735
	ECO1	0.874				
	ECO2	0.879				
	ECO3	0.818				
	ORGANIZATIONAL		0.921	0.922	0.944	0.808
	ECO1	0.907				
	ORG2	0.909				
	ORG3	0.898				
	ORG4	0.883				
	ENV	1.000				
	SOC	1.000				
Internationalization	INT1	0.735	0.916	0.919	0.929	0.545
	INT2	0.764				
	INT3	0.777				
	INT4	0.730				
	INT5	0.747				
	INT6	0.762				
	INT7	0.764				
	INT8	0.683				
	INT9	0.805				
	INT10	0.668				
	INT11	0.672				
Students' satisfaction	SAT1	0.892	0.849	0.904	0.892	0.628
	SAT2	0.899				
	SAT3	0.855				
	SAT4	0.645				
	SAT3	0.625				
Students' satisfaction × Sustainable development		1.000				

TABLE 5 Heterotrait–monotrait (HTMT_{0.85}) ratio.

Variables	1	2	3	4	5	6	7	8
Economic dimension								
Organizational dimension	0.801							
Environmental dimension	0.720	0.597						
Social dimension	0.694	0.719	0.591					
Sustainable development	0.903	0.890	0.739	0.804				
Internationalization	0.845	0.819	0.615	0.673	0.805			
Students' satisfaction	0.584	0.779	0.511	0.618	0.684	0.630		
Students' satisfaction × Sustainable development	0.450	0.522	0.315	0.392	0.520	0.347	0.542	

2.2 | Assessment of the structural model

The structural model is assessed through: (i) Determining the R² coefficient; (ii) verifying the indirect effects by estimating the f² effect size; (iii) using the Q² Stone–Geisser test to measure the predictive

relevance of the reflexive dependent constructs; and (iv) assessing collinearity, through the VIF (Ghasemy et al., 2020; Hair et al., 2019).

The research hypothesis is tested using a one-tailed test of percentile bootstrapping at a significance level of 5% and with 10,000 subsamples (Streukens & Leroi-Werelds, 2016). The results for the

TABLE 6 Heterotrait–monotrait (HTMT) ratio, using bootstrapping.

Variables	Original sample (O)	Sample mean (M)	5.0%	95.0%	Original sample (O)	Sample mean (M)	Bias	5.0%	95.0%
Economic dimension – > Sustainable development	0.261	0.262	0.230	0.295	0.261	0.262	0.001	0.228	0.294
Organizational dimension – > Sustainable development	0.378	0.377	0.338	0.415	0.378	0.377	–0.001	0.339	0.415
Environmental dimension – > Sustainable development	0.198	0.198	0.166	0.228	0.198	0.198	0.000	0.163	0.227
Social dimension – > Sustainable development	0.262	0.261	0.224	0.297	0.262	0.261	–0.001	0.224	0.297
Sustainable development – > Internationalization	0.721	0.721	0.658	0.780	0.721	0.721	0.000	0.656	0.778
Sustainable development – > Students' satisfaction	0.653	0.653	0.613	0.692	0.653	0.653	0.000	0.611	0.690
Students' satisfaction – > Internationalization	0.190	0.190	0.128	0.252	0.190	0.190	0.000	0.130	0.254
Students' satisfaction × Sustainable development – > Internationalization	0.088	0.085	0.047	0.123	0.088	0.085	–0.002	0.051	0.126

structural model, presented in Table 1, have a substantial predictive relevance (R^2) for “Sustainable Development” (0.893), and moderate for “Internationalization” (0.626), and “Students' Satisfaction” (0.427). The values for f^2 and Q^2 ranged from 0.893 to 0.470, indicating a large effect for all endogenous constructs (see, Barroso Castro et al., 2005; Cohen, 1988); and the higher VIF value is 2470, showing no problem with respect to collinearity (see, Hair et al., 2019). In conclusion, the adjustment and robustness of the data used to estimate the model and test the research hypothesis are good in terms of structural relations (see Table 7).

To complete this evaluation, Shmueli et al. (2019) recommend a PLS predict analysis to evaluate the out-of-sample predictive power of the model. To this end, the mean absolute error (MAE) and the Q^2_{predict} values of the PLS model and the MAE values of the linear model (LM) must be analyzed. The Q^2_{predict} values were positive; and MAE values show that all the indicators produced greater prediction errors compared to the naive LM benchmark, except for two of them. This indicates that the model has a medium level out-of-sample predictive performance (Ghasemy et al., 2021) (see Table 8)

The PLS final model with factor loadings, path coefficients, and the model's explanatory power for the endogenous construct is presented in Figure 2.

2.3 | Crossing empirical findings with the literature

None of the research hypotheses was rejected. Concerning H1, HEIs' sustainable development practices contribute directly and positively to HEIs' internationalization ($p = 0.721$). This result is in line with de Wit and Deca (2020), stating that internationalization can be achieved through good practices within the institution. These good practices, according to Giesenbauer and Müller-Christ (2020), if not well

implemented, can compromise the institution's SD and the internationalization itself, as these will not contribute to transmitting a favorable image and reputation, which may result in a lack of demand from students and staff in other countries. According to the same authors, HEIs must innovate in SD practices and progressively increase collaboration with all stakeholders in generating knowledge and solutions, expanding and providing intra and interorganizational networks, thereby contributing to internationalization.

In relation to H2, HEIs' sustainable development practices contribute directly and positively to students' satisfaction ($p = 0.653$). This result agrees with Chaudhary and Dey (2021) and ratifies the vision of Moosmayer and Siems (2012), pointing out that HEIs can improve students' satisfaction by implementing the sustainability mind-set on campus and creating opportunities for students to participate. Nevertheless, as pointed out by Lozano et al. (2022), it is fundamental to develop students' critical thinking about SD through practice-oriented activities and with students' engagement, that is, HEIs must “talk less and act more”. Summing-up, students' satisfaction is increased by the positive perception created through the HEI's SDP, which in turn can reinforce its attractiveness to international students.

Concerning H3, students' satisfaction contributes directly and positively to HEIs' internationalization ($p = 0.190$). This result confirms Helgesen and Nettet (2007), who conclude that students' satisfaction has a positive impact on their motivation, and can contribute to increasing the image and reputation, word-of-mouth and thereby contribute to HEIs' internationalization and sustainability. Therefore, stakeholder theory has been used to analyze the relationship between universities and students (Paula & Fragouli, 2018) and can be applied here. If the relationships between foreign students and the HEI where they choose to study are not favorable, and if students are dissatisfied (e.g., challenges connected to institutional procedures, culture,

TABLE 7 Structural model evaluation results.

Outcome	Path/hypothesis	Coefficient	t-statistic	p-value	Significant?/ supported?	VIF	f2	R2	Q2
	Economic dimension – > Sustainable development	0.261	13.190***	0.000	Yes	2.474	0.258		
	Organizational dimension – > Sustainable development	0.378	16.294***	0.000	Yes	1.937	0.189		
	Environmental dimension – > Sustainable development	0.198	10.375***	0.000	Yes	2.470	0.542		
	Social dimension – > Sustainable development	0.262	11.784***	0.000	Yes	2.208	0.290		
	Sustainable development – > Internationalization (H1)	0.721	19.342***	0.000	Yes	1.000	0.744		
	Sustainable development – > Students' satisfaction (H2)	0.653	27.366***	0.000	Yes	1.883	0.051		
	Students' satisfaction – > Internationalization (H3)	0.190	5.017***	0.000	Yes	1.896	0.732		
	Students' satisfaction × Sustainable development – > Internationalization (H4)	0.088	3.810***	0.000	Yes	1.481	0.033		
Sustainable development								0.893	0.891
Internationalization								0.626	0.649
Students' satisfaction								0.427	0.470

Note: f^2 : $0.02 \leq f^2 < 0.15$: small effect; $0.15 \leq f^2 < 0.35$: moderate effect; $f^2 \geq 0.35$: large effect). Q^2 : 0.02, 0.15 and 0.35 indicate that an exogenous construction has small, moderate, or large predictive relevance; VIF: < 3.

***Level of significance 1% (≥ 2.58).

TABLE 8 PLS predict results based on assessing MAE values.

Indicator	PLS results		LM results	
	MAE	Q^2_{predict}	MAE	$MAE_{\text{PLS}} - MAE_{\text{LM}}$
INT1	0.875	0.402	0.839	0.036
INT2	0.754	0.330	0.739	0.015
INT3	0.830	0.364	0.829	0.001
INT4	0.872	0.366	0.853	0.019
INT5	0.857	0.427	0.789	0.068
INT6	0.826	0.407	0.782	0.044
INT7	0.731	0.412	0.712	0.020
INT8	0.888	0.233	0.872	0.016
INT9	0.876	0.387	0.861	0.015
INT10	0.777	0.276	0.761	0.016
INT11	0.838	0.246	0.848	-0.010
SAT1	0.812	0.401	0.753	0.059
SAT2	0.783	0.463	0.701	0.082
SAT3	0.850	0.287	0.821	0.030
SAT4	0.845	0.130	0.810	0.036
SAT5	0.985	0.154	0.983	0.002
SD	158.759	0.890	161.598	-2.838

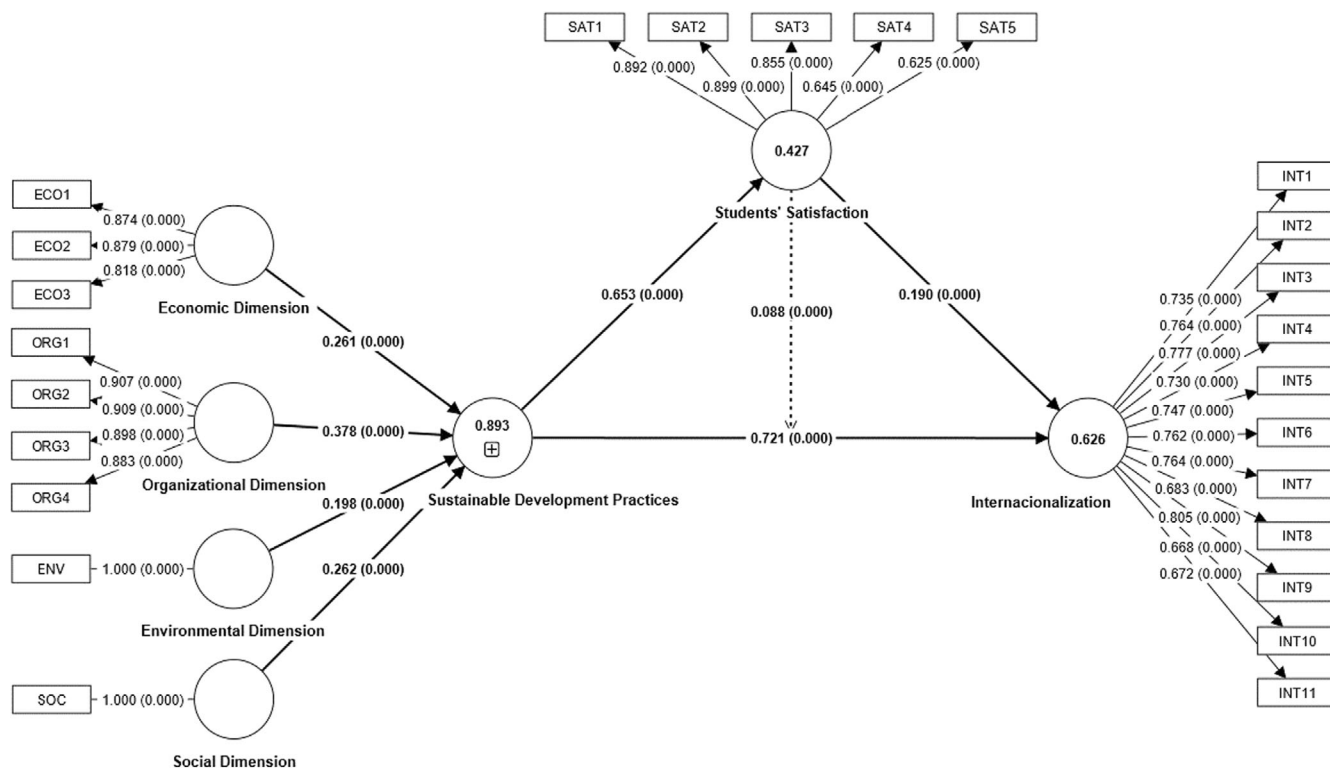


FIGURE 2 Final partial least squares model.

language, etc.), the HEI's image may suffer. Because foreign students prefer to form international communities/networks among themselves, this pervasive image may have long-term repercussions.

Finally, we have H4, confirming that students' satisfaction is a significantly positive moderator in the relationship between students' perceptions of HEIs' sustainable development practices and their internationalization ($p = 0.088$). This result, providing empirical evidence and supporting the moderating role that affects the strength between the two variables positively, confirms what is said by Anderson et al. (1994); Youl (2009); and Sunny and John (2014). Bearing in mind that satisfaction helps customers to build opinions and actions (Youl, 2009), the knowledge that students' satisfaction can have a positive mediating effect on the relationship between SDP and internationalization can produce important implications for HEI management. So, as advocated by Sahasrabudhe et al. (2020), establishing academic networks to share and exchange best SDP practices will benefit communities all over the world, instill skills and attitudes in students, and make them feel more satisfied and integrated, with more responsibility, thereby facilitating internationalization.

As a consequence of assessing the research questions: RQ1: Do HEIs' sustainable development practices contribute to internationalization?; RQ2: Do HEIs' sustainable development practices contribute to students' satisfaction?; RQ3: Does students' satisfaction contribute to HEIs' internationalization?; and RQ4: Does students' satisfaction affect the relationship between SDP and internationalization as a moderator?; all the responses are positive and supported by prior research. If SD is viewed as a state of mind, as claimed by Bonnett (1999), the

significance of those educational components not covered in the official educational curriculum must be emphasized. According to this author, the school's ethos and routine practices, the literature it assigns students, the versions of life it considers successful, and the significance it attaches to various activities and relationships will all represent a variety of pertinent student attitudes and values. We state that engaging stakeholders, especially students, in SDP is decisive for the credibility communicated through sustainability reports, as highlighted by Manetti and Becatti (2009). This legitimizes those reports and ultimately demonstrates how an institution responds to stakeholders' concerns (Ferrero-Ferrero et al., 2018), agreeing with what is proposed in the theories selected to support this study, namely stakeholder, institutional and legitimacy theories. Moreover, Wilkins and Huisman (2013) advocated that HEIs are now more concerned than ever in creating and sustaining a positive reputation in order to influence the choice of institution by prospective national and foreign students. This positive image can stem from students' satisfaction, which can act as a positive moderator in the relationship between SDP and internationalization by spreading their positive experiences and the institution's good name to the four corners of the globe, contributing to its legitimacy through internationalization and sustainability.

For students who were motivated to make a change, Lootens (2017) found there must be supporting structures for them to act upon this, so the interaction must start by elaborating support infrastructure that makes it possible to act accordingly. Students are often forgotten and left outside a university's sustainability efforts

(Lootens, 2017), and so institutional interaction is fundamental for a great number of students to achieve their potential as agents of change in SD. For Berger and Luckmann (1967), institutionalization arises when the regular actors have a reciprocal typification of actions. This means that institutional support, allocated resources, HEIs and governments' legitimacy are essential (Rademakers, 2016). Students will only feel appropriately involved in HEIs' SD goals if they are treated as vital players in the developing scenario rather than as mere observers.

Concerning the SRQ: *Which dimensions of HEIs' sustainability development practices (economic, organizational, social and environmental) are more important for SDP in HEIs*; although all dimensions have a good and substantial association in building the SDP construct, we can claim that the organizational dimension stands out in students' view. That is, anything that can demonstrate the organization's legitimacy and ensure that these practices are formed and well-maintained. This concerns HEIs' mission, vision, and value statements, strategic plans for SD, communicating SD activities, promoting SD training for teachers and staff, optional or mandatory curricular units on SD, transparency in governance, HEIs' social responsibility and HEIs' ethical commitments, among other things. (Aleixo et al., 2016). Keeping in mind Institutional Theory, the organization's structure is adaptable (Selznick, 1957) and depends on the qualities of participants, making it vital to understand how it travels across the many aspects of SDP. Only in this manner can HEIs construct routes that adapt to the many stakeholders, legitimizing the adaptation to the actual social situation (Berger & Luckmann, 1967).

3 | CONCLUSIONS

Using the triple bottom line approach to SD, this study assesses how HEIs that adopt SDP contribute to their own sustainability through internationalization and students' satisfaction. Empirical assessment of this novel framework shows that SDP in HEIs is predictive of internationalization and students' satisfaction. The latter predicts internationalization and acts as a positive moderator in predicting the association between SDP and internationalization; and the key feature of SDP in this study is organizational.

The results obtained are supported by stakeholder, institutional, and legitimacy theories, which help to establish a novel framework and establish the significance and understanding of the relationship between HEIs and students. Therefore, the novelty of this study's conceptual framework lies in conciliating the above theories, supporting the need to foster interaction between HEIs and their stakeholders, in order to ensure SDP. As stated by Ferrero-Ferrero et al. (2018), if on one hand, institutions must take into consideration the various perspectives and expectations of different stakeholders, who can affect HEIs' outcomes, on the other, to achieve legitimacy or prestige, institutions must respond to expectations in their environment, considering elements such as pressure groups, regulations, norms, ethics, and formal and informal rules. These aspects force institutions to adopt socially responsible attitudes and foster contact with all

stakeholders (national and international), as underlined by Ferrero-Ferrero et al. (2018), in order to secure external legitimacy and institutionalization on a global scale.

HEIs must also examine their surroundings for preserving healthy and sustainable behaviors that benefit the academic community. Furthermore, these institutions must consider the community of the hosting region, in order to mitigate the negative consequences that an increase in the seasonal multicultural population (school period) might cause, particularly in less favored places with fewer people, where this transition is more pronounced.

As a result, it is critical that a cultural shift occurs not only in students, promoting SDP from the moment they enter higher education, but also in the hosting region where the HEI is located, creating infrastructures of social support, information, and assistance through the dissemination of benchmarking SD practices.

In turn, students must perceive the HEIs and the hosting region as long-term partners, seeing themselves as "responsible key-players in tackling SD's challenges" rather than just transient visitors. Living and feeling this emotional connection to SD, will bring more benefits by nurturing students' satisfaction and positive feedback, which will be reflected in a high reputation and institutional legitimacy, with positive impacts on the international reputation and satisfaction of the academic community, expressed by an increasing satisfaction of their most important ambassadors and intangible assets, the students community.

3.1 | Implications

In terms of implications for HEIs, adopting SDP on livable campuses helps to improve: internationalization, either directly or indirectly through student contentment; and student satisfaction. This provides a valid rationale allowing the deduction that SDP can nurture students' satisfaction and reinforce the attractiveness to international students through a responsible image founded on sustainable development, aligned with the needs of internal stakeholders, embedded in institutional terms, and legitimized by external stakeholders.

An increased number of satisfied students leads to a better and stronger reputation, which may be translated into higher recommendations and loyalty, boosting retention and the enrollment of additional national and foreign students. HEI managers should implement SDP since it has been proven to be a really sustainable managerial tool. Furthermore, government must devise incentive programs to encourage HEI management to adopt SDP, with the cooperation of both internal and external stakeholders.

Through the implementation and strengthening of SDP, HEIs must encourage students to become more conscious of issues related to the world's sustainability. According to the findings, there is a further implication for HEIs to foster the curiosity and desire to obtain the information and skills required to develop a proactive SD mindset in the students' community and lead them to a more responsible and committed involvement and participation in decision-making in their academic and civic lives.

Another implication is the potential benefits of academic management at HEIs certifying and recognizing SD practices. As previously stated by Lozano et al. (2022), subjects such as student involvement; student motivation; cooperation; practice-oriented; students' awareness, and others are included in the tradeoff between the advantages and problems of student-centered teaching and learning activities. Thus, new pedagogical techniques and competencies are required, with a focus on the necessary balance between traditional teaching and learning activities and the development of a new set of SD competencies. As a result, the benefits of activities geared towards practice should be recognized and supported at HEIs by including formal and informal SD competencies for practicing into curricula.

3.2 | Limitations

As limitations, firstly, the sample was restricted to students, and only from Portuguese HEIs, which means the results cannot be generalized. Nevertheless, the study has a representative sample of HEIs and the results obtained are consistent and robust, allowing pertinent, enlightening conclusions to be drawn. Second, it is related to the indicators employed in the measurement of the constructs, since others might be utilized. For example, students' perceptions on academic quality of life extend beyond satisfaction, implying the need to further investigate the satisfaction construct as a cognitive component, incorporating both positive and negative emotions experienced in the domain of academic life as an affective component. The constructs and indicators utilized, however, were all based on previously published reference material, resulting in robust findings. Another issue is that the sample focuses just on students' satisfaction and internationalization rather than on additional advantages that might result from HEIs adopting SDP. However, the findings of this study are highly positive in the sense that SDP is predictive of those dimensions, paving the way for the formation of another sort of emotional relationship to be studied in future research.

Because research on the influence of SDP on internationalization and students' satisfaction in HEI settings is currently limited, the range of application of this study may be extended in the future by addressing more stakeholders, as well as different institutional or national contexts. Furthermore, several alternative constructs and assessment indicators might be investigated to confirm how HEIs can utilize the SDP to reinforce their legitimacy, with a major focus on students' satisfaction and the formation of an emotional connection encompassing HEIs, students and the hosting region. Another idea for future research is to look at what other sorts of benefits (such as academic achievement, student involvement, student motivation, teamwork, and student awareness) may be associated with SDP.

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CONFLICT OF INTEREST STATEMENT

The authors declare that there is no conflict of interest. There are no financial conflicts of interest to disclose and all funding bodies are acknowledged in the submission.

DATA AVAILABILITY STATEMENT

Data are available upon request.

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