Quality and Practices for Sustainability in Higher Education—An Impact Ranking Approach

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Abstract Higher Education Institutions (HEI) are critical to the growth of society since they are one of the key agents in the transformation of professionals who will shape the labour market and societal trends. Those interested in university growth must operate as a basis for knowledge dissemination and the strengthening of sustainable practices. The Times Higher Education (THE) Impact Rankings are the only global performance tables that link universities to the United Nations' Sustainable Development Goals (SDGs). It assesses how well universities around the world are achieving those SDGs. The third edition of the Impact Rankings, published in 2021, covers 1,118 universities from 94 countries and regions. This work is based on a qualitative analysis of the elements of sustainability and SDGs included in the THE Impact Rankings for 4 selected Portuguese HEIs and on the elements and documents about the issues available in their websites. The aim of this paper is to contribute to the theoretical reflection on the contribution of HEIs to sustainability and to the SDGs advocated in the 2030 Agenda. Through the study of the selected Portuguese HEIs it is intended to understand/corroborate how these institutions are committed and involved in sustainability practices and contribution to the SDGs and a more sustainable world. In conclusion, HEIs are committed and involved in sustainability practices, in a true contribution to the achievement of the goals outlined for 2030 through the SDGs. HEI are committed to ensure that no one is left behind or discriminated against, not compromising future generations.

Keywords Quality · Sustainability · Times higher education impact ranking

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1   Introduction

"Sustainable", "Sustainability", and "Sustainable Development" are concepts that have gained global relevance, initially connected with issues of planet preservation but now more related with human well-being and relationships with the earth for the well-being of several generations. These terms have had to be re-examined since society has used them ambiguously, mixing them with the concepts of growth, progress, maturity, evolution, and riches on several occasions [1].

Sustainability, according to Bañon Gomis et al. [2], is not merely a "fashion or trend" appreciated by external circumstances but is also linked to the ethics that guide human activity, representing the virtues of courage, prudence, and hope. Although the term "sustainability" has recently gained popularity, the concept has ancient and universal roots.

The United Nations' 2030 Agenda for Sustainable Development detailed the commitment of high-level stakeholders to sustainable development. The fundamental shifts were identified and expressed in 17 universal Sustainable Development Goals (SDGs) and related objectives that balanced all aspects of sustainable development, including economic, environmental, and social concerns [3].

The conceptual difficulties underlying the practice of supporting sustainable development are becoming increasingly important to higher education institutions (HEI). This function is both inevitable and necessary in the context of an urgent need for them to develop in a sustainable manner [4].

In 1990, 22 university delegates presented ten-point action plan for higher education institutions to contribute to a more sustainable future at an international meeting in Taillores, France [5, 6].

Higher Education Institutions (HEI) are critical to society's development since they are a key player in the transformation of professionals who will shape the labour market and societal trends. HEIs, like any other organization, require a great number of available resources due to the vast flow of people, information, and activities created and distributed. These businesses are left with a huge environmental obligation, necessitating the implementation of sustainable development strategies [7]. Higher education is becoming a more competitive field that aspires to greatness while also trying to meet the requirements of society and the labour market. Students, educators, staff, classes, and financial institutions are all common stakeholders of higher education institutions. However, societal impacts need universities collaborating with various types of communities or working with companies [8].

Teaching and research, for example, can all help to promote sustainability in higher education institutions [7, 9].

According to Brandli et al. [4], the implementation of sustainable practices at HEIs is hampered by the rigid bureaucratic and hierarchical system, the lack of awareness and commitment of the agents involved (teachers, students, and administration), and the lack of definition of short- and long-term institutional policies. The purpose of this study is to contribute to the theoretical discussion on higher education's contribution to sustainability and the 2030 Agenda's Sustainable Development Goals. It seeks to

understand/corroborate how these institutions are engaged and involved in sustainability practices and contributions to the SDGs through the study of a selection of 4 Portuguese HEIs, selected in Times Higher Education (THE) Impact Rankings [10]. This work is structured into 5 chapters. The first is concerned with the introduction, followed by a section dedicated to the sustainability of higher education institutions and the relationship with the THE Impact Rankings. The research methodology, the results obtained and the final considerations, limitations and future research, are the last three aspects to be considered in this article.

2 Sustainability of Portuguese Higher Education Institutions and the Times Higher Education Impact Rankings

This section is dedicated to the evaluation of the published results of the Portuguese HEIs accessible in 2022 in the Times Higher Education Impact Rankings [10]. and the information available on their websites.

The Times Higher Education (THE) World University Rankings, Impact Rankings 2021 [10]. are a global performance tables that evaluate universities in relation to the UN's Sustainable Development Goals (SDGs). It measures global universities' success in delivering the United Nations' SDGs. To give a complete and impartial comparison across four main areas: research, stewardship, outreach, and education, they use very precise calibrated metrics/indicators.

In order to obtain the data, the THE Impact Rankings used a methodology in which they firstly defined the concepts related to the 4 selected areas. The 17 United Nations' SDGs are included in the assessment, and university performance is evaluated in each of them using a different and specific methodology, depending on the SDGs chosen. Universities can provide statistics/data on as many of the 17 Sustainable Development Goals as they want or are able to. Each SDG has a set of indicators that are used to assess the university's progress toward that goal. The aggregate ranking includes any university that submits data on SDG 17 and at least three other SDGs. Any university that teaches at the undergraduate or postgraduate level is eligible for the rankings. Although research activities are part of the approach, there is no requirement for participants to complete a certain amount of research. The range for all SDGs is 0—100 and the calculation of the overall score is based on the following proportions: SDG 17: 22% and for the top three SDGs: 26% each. Figure 1 shows the scheme of calculation.

The third edition of THE Impact Ranking 2021 has registered 1,118 universities from 94 different countries and regions. However, of this universe of higher education institutions only 11 are Portuguese. According to the Directorate-General for Higher Education, Portugal has 99 HEIs [11]. In this way, it can be seen that only a very small percentage of only 11% is registered in the aforementioned ranking. Besides SDG 17, which is common to all HEIs, by imposition of the ranking rules, there is no great

Fig. 1 Calculation of the overall score. *Source* THE World University Rankings [10]
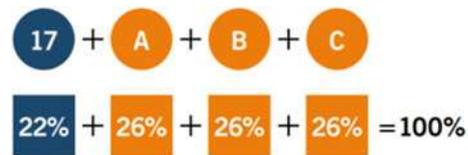
uniformity, by institution, in the 3 best ranked SDGs. Still, the common SDGs that appear in greater number are SDG 3 in 5 HEIs, SDG 9 in 4 HEIs and SDG 16 also in 4 which becomes interesting to check. SDG4 only appears in the Polytechnic Institute of Setúbal, which is curious considering that these are educational institutions in which the quality of education, should be present in all of them with high score.

This section describes the main findings of this research work. Looking at Table 1 it can be seen that there are some highlights worth noting. Of the 11 Portuguese HEIs, 2 stand out for their high position in the Ranking, namely the University of Coimbra, in 21st position and Nova University of Lisbon, in position 53.

It should also be noted that the overall score of the best ranked Portuguese HEI (University of Coimbra) differs from the worst positioned (Polytechnic Institute of Setúbal) by 45.1–36.2 points. The Catholic University of Portugal is the only HEI, from the private sector and Polytechnic Institute of Setúbal is the only HEI from the Polytechnic education system. It is also noteworthy that only 2 of the 11 Portuguese HEIs in the Ranking are located in the country side of Portugal. Only 4 Portuguese HEIs were selected for this study: University of Coimbra, University of Trás-os-Montes e Alto Douro, Catholic University of Portugal and Polytechnic Institute of Setúbal. The selection of these four HEIs is important due to the distinct characteristics they present and the contribution that the information on the strategic plan and on the evidence of events, activities and sustainable practices have for the development of this work. Information on the selection and the Portuguese HEIs is presented in the following sections.

3 Research Methodology

The research methodology is based on several steps, as described below:

- The first step is to do a literature review.
- The next step is to select the Portuguese Higher Education Institutions based on their geographical location, trying to ensure the greatest possible dispersion (country side or coast and north or south), their typology in terms of sector (public or private) and type of education system (university or polytechnic) as shown in Table 1.
- Collection of systematised information from each selected HEI, on their characteristics, strategic plans, sustainability plans, SDGs and activities within the scope of sustainability and/or associated with the SDGs as a third step.

Table 1 Portuguese HEIs in the times higher education impact rankings

HEI	Type of institution	Education system	Location	SDGs	Rank	Overall score	Decision and criteria
University of Coimbra	Public	University	Coast North	9, 2, 3, 17	21	92.7	Selected: Public University, Coast North best ranked
NOVA University of Lisbon	Public	University	Coast South	9, 16, 3, 17	53	89.4	Not selected
University of Algarve	Public	University	Coast South	16, 15, 10, 17	101–200	77.5–85.2	Not selected
University of Aveiro	Public	University	Coast North	15, 14, 6, 17	101–200	77.5–85.2	Not selected
University of Minho	Public	University	Coast North	9, 4, 8, 17	101–200	77.5–85.2	Not selected
University of Trás-os-Montes e Alto Douro	Public	University	Country side North	2, 7, 15, 17	101–200	77.5–85.2	Selected: Public University, Country side best ranked
ISCTE-University Institute of Lisbon	Public	University	Coast South	12, 9, 16, 17	201–300	71.0–77.4	Not selected
Catholic University of Portugal	Private	University	Coast South	16, 3, 10, 17	301–400	66.3–70.9	Selected: Only Private University Coast South
Universidade Aberta	Public	University	Coast South	8, 5, 10, 17	401–600	56.6–66.2	Not selected
University of Beira Interior	Public	University	Country side North	3, 12, 8, 17	401–600	56.6–66.2	Not selected
Polytechnic Institute of Setúbal	Public	Polytechnic	Coast South	4, 3, 1, 17	601–800	47.6–56.5	Selected: Only Public Polytechnic Coast South

Source Own elaboration

– Fourth step: Analysis of the data collected in the previous step in order to under-
stand the type of events and activities that translate into sustainability practices,
which HEIs adopt in order to become more sustainable and, in this way, of higher
quality for their stakeholders.

Without the use of any other analysis tools, the data is analyzed qualitatively, and
the results are presented in tables for easy comprehension.

The ranking has 11 Portuguese higher education institutions in very different
ranking positions from each other. 10 belong to the university sector and only 1
institution belongs to the public polytechnic sector. Of the 10 universities, 9 are
public and 1 is private. Table 1 presents the Portuguese HEI accessible in 2022 in
the Times Higher Education Impact Rankings.

Taking into consideration the universe of only 11 Portuguese HEIs registered in
THE Impact Ranking, the selection fell upon 4 institutions: University of Coimbra,
University of Trás-os-Montes e Alto Douro, Catholic University of Portugal and
Polytechnic Institute of Setúbal. In order for the sample to be representative of the
reality of Portuguese higher education, the choice was based on the criterion of
the largest possible geographical dispersion, the sector of the institution and the
education system. Thus, the criterion of geographical dispersion took into account
the location of the institutions, i.e., whether they were located inland or on the coast
and whether they were in the south or north of Portugal. The other selection criterion
focused on whether they belonged to the private or public sector. And, finally, whether
the education system was university or polytechnic. For the selection, the first best
ranked HEI in each rank was taken into account.

Being an ongoing study and based on the above criteria, and as presented in Table
1, the selection of the University of Coimbra (rank 21) was due to the fact that it is a
public university HEI of the northern coast, the University of Trás-os-Montes e Alto
Douro (rank 101–200) was selected for being a public university HEI of the northern
hinterland. The Catholic University of Portugal (rank 301–400) was selected for
being the only private HEI and the Polytechnic Institute of Setúbal (rank 601–800)
for being the only polytechnic higher education HEI, both in the south.

4   Results

These 4 institutions are presented below in terms of their characterization, strategic
plans and evidence of sustainability practices (activities, events, documents, etc.).

4.1   HEIs: Characterization and Strategic Plans

The following table presents a summary of the characterization and the strategic
plans of the selected Higher Education Institutions.

4.2 Evidences for Sustainability

This section presents the actions and activities undertaken by the selected HEI within their operational and management practices, in order to become more sustainable and contribute to achieving the Sustainable Development Goals (SDGs). Table 2 summarizes the evidences and the best ranked SDGs in THE Impact Rankings 2021 (Table 3).

Regarding the 4 HEIs selected, it can be seen that they belong to very different realities, starting by the year of their creation/implementation. The University of Coimbra has a history of approximately 700 years of life and the others, between 40 and 60 years.

The size and type of structure is different in the case of universities and polytechnics. While the first ones are organised by faculties, the polytechnic institute is organised by schools. With the exception of the Polytechnic Institute of Setubal which has on its website an outdated strategic plan that ended in 2018, the 3 universities present a current strategic plan that includes the sustainability pillar. Only the University of Coimbra has defined objectives, indicators and targets to be achieved, while the remaining institutions only present objectives and indicators, possibly considering as targets those defined for the SDGs. In a clear commitment to contribute to gender equality, the Catholic University of Portugal and the IPS present a plan to achieve this goal, also foreseen in SDG 5. It is worth emphasising the practices associated with sustainability that UC, UTAD and IPS have shown to have or have already had as a contribution to the most varied SDGs. It becomes curious to note that neither UCP nor IPS have SDG 5 in their ranking of top ranked SDGs in THE Impact Ranking 2021, although they do have a plan for gender equality. Unfortunately, in the analysis of the UCP web pages it was not possible to find evidence of events, activities or practices that demonstrate the development or implementation of the strategic plans, both regarding the sustainability dimension and gender equality.

5 Final Considerations

The 4 institutions analysed seem to be truly concerned with sustainability and its implementation in their respective organisations. Through the practices, events and activities carried out and planned, they also seem to want to ensure that this dimension is considered a quality factor to be appreciated by stakeholders. It is visible the number of evidences that it is possible to extract and that corroborates the contributions of these organisations to sustainable development and, consequently, to the SDGs. There is a real commitment from higher education institutions to ensure that no one is left behind or discriminated against, and that they will not compromise future generations.

Table 2 HEIs: characterization and strategic plans

	Characterization	Strategic plan
University of Coimbra (UC)	It was founded in 1290 and is one of the world's oldest universities as well as the oldest in Portugal. It was also the world's only Portuguese-speaking university until the early twentieth century. Its sixteenth century campus is a UNESCO World Heritage site, built on the grounds of a medieval palace. The institution, which is located in the historic city of Coimbra, has over 21,000 students, 10% of whom are international. It is divided into three campuses and has eight faculties that offer a wide range of aca-demic programs [12]	2019–2023: UC adopts a perspective of sustainable management of its activities and resources and social responsibility in its actions, allowing it to respond to the needs of the present, without compromising the future, strengthening awareness and civic action and as-sessing impacts. It is also part of the Sustainable Campus Network. There are two dimensions that, due to their relevance and emergence in the current context, determine a firm commitment to sustainable development and human rights: Environment and Climate Action and Citizenship, Equality and Inclusion. The adoption of the guidelines of the United Nations Agenda 2030 for Sustainable Development is a premise of this Strategic Plan. The strategic guidelines include the promotion of environmental and energy sustain-ability on the university campuses; the encouragement of behavioural change by combating waste and promoting an environmentally responsible campus; the adoption of a green public purchasing policy and ensuring the financial sustainability of the implementation of environmental measures, combating gender inequalities and ensuring equal opportunities by removing imbalances and barriers; promoting policies for social inclusion and protection of minorities, ensuring the right to difference and the right to have rights, ensuring equal access and conditions for success; and, promoting enlightened and responsible citizenship, social cohesion and human rights, defending civilizational and ethical principles and contributing to the integral formation of citizens [12]

Table 2 (continued)

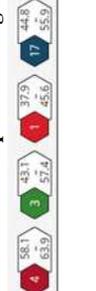|	Characterization	Strategic plan
University of Trás-os-Montes e Alto Douro (UTAD)	It is a public university in Vila Real, Portugal, in the north-east of the country. Despite the fact that the institution was founded in 1986, its roots may be traced back to the Vila Real Polytechnic Institute, which was founded in 1973. This original school, which functioned from 1973 to September 1979 and became the Trás-os-Montes and Alto Douro Higher Education Institute, was essential in the development of the area. The government raised the institution's status to a qualified university in less than a decade after its founding, owing to the remarkable work done at the institute in the domains of technological and scientific research and education. The university consists of four university schools and a polytechnic school, with the majority of facilities located on the Vila Real campus and the remainder on the Chaves campus [13]	2021–2025: Sustainability is one of the most structural axes. Intends to be a HEI aligned with the UN's Agenda 2030 and with the causes of the future and of the planet. Its aim is to make the world a better, more developed, free, and fair place by valuing the knowledge it produces and puts to the service of society while remaining in perfect harmony with nature. To provide the finest worldwide learning experience for all students by training competent professionals, socially aware humans who are integrated and autonomous, all while adhering to the ideals of active citizenship, respect for life, and environmental stewardship. Produce and disseminate creative scientific information in response to the requirements of society and businesses as a catalyst for economic development and the enhancement of people's quality of life, as well as a key component of territorial cohesion. For each strategic axis objectives are defined, to which are associated goals that the institution hopes to achieve in the period from 2021 to 2025

Table 2 (continued)

	Characterization	Strategic plan
Catholic University of Portugal (UCP)	It is the country's first private university. It was founded in 1967 in Braga as a philosophy faculty. Three years later, as part of a deal between the Catholic Church and the Portuguese government, the university expanded to the capital, Lisbon, where it is presently headquartered, and obtained official status. It has expanded since then to include two additional bases in Porto and Viseu, with the institution's 15 faculties dispersed throughout the four campuses. As private colleges have sprouted up in Portugal in recent decades, UCP's autonomy has grown less exceptional. Economics, education sciences, arts and humanities, as well as biosciences and bioengineering, are among the faculties [14]	2021–2025: UCP pursues its mission sustained on three pillars: (1) Teaching; (2) Research and In-novation; and (3) Service and University Social Responsibility. UCP promotes integral formation oriented towards the global reality, based on the principles of truth and respect for people and the environment. As part of its strategic development plan, UCP has defined its own sustainability agenda for the period 2021–2025 on 4 pillars of sustainability: governance, environmental, social and economic that are associated with the dimensions of mission (teaching, research and university social responsibility) and resources (people, economic-financial and infrastructures). For each one there is a vision and strategic objectives. There is a detailed plan for gender equality at various levels, however, and although there are indicators and a clear indication of their contribution to the SDGs, it is not possible to identify the targets they are intended to achieve or their timing [14]
Polytechnic Institute of Setúbal (IPS)	It was founded in 1979 and began teaching students in 1981. It focuses on health and social welfare, physics, mathematics, and computer science, as well as social sciences, business, and law. Setúbal Higher School of Technology (ESTSetúbal), School of Education (ESE), School of Business Sciences (ESCE), School of Technology of Barreiro (ESTBarreiro), and School of Health (ESS) are the current higher schools. It has two campuses in the Greater Lisbon Metropolitan Area, in the cities of Setúbal and Barreiro [15]	Although the Strategic Plan is not updated and referring to a recent past that end-ed in 2018, the IPS shows concern for sustainability having established objectives and targets. These goals can be seen on page 55 of the document PEDIPS (2016). IPS also presents a plan for gender equality for 2022–2023, without indicating targets, but with detailed objectives and indicators [15]

Source Own elaboration

Table 3 HEIs: SDGs and evidences for Sustainability

	Evidences for sustainability
University of Coimbra	Courses classified according to their contribution to the Sustainable Development Goals; scientific production and promotion of its dissemination with close links to the SDGs; structuring projects: Academy for the meeting of cultures and religions, Ageing Coimbra, EfS energy for sustainability, Healthy campus, RCR Sustainable Campus Network, etc.; Other initiatives: Ecoliteracy, Experimenta—Physical activity programme, Social Support Fund, Office for Cooperation and Development, Less equals more, Integrated programme for the promotion of equal opportunities and equity in access and attendance at the University of Coimbra, etc. Networks and partnerships: Alliance ODS Portugal, ORSIES—Observatory of Social Responsibility and Higher Education Institutions, Portuguese Pact for Plastics, European School of Sustainability Science and Research, etc.; Various documents: strategic plan, sustainability report, commitment of HEIs to sustainable development **SDG in THE Impact Ranking 2021**: 9 (99.3), 2 (87.2), 3 (83.8), 17 (73.5 / 83.8)
University of Trás-os-Montes e Alto Douro	Energy and environmental policy; Certification of the Energy Management System and Environmental System; Creation of an Eco campus; Gradual elimination, of environmentally un-friendly materials, existing in the built patrimony and adoption of strategies around sustainable construction in new buildings. Events: UTAD Healthy and Sustainable Food Charter, Commitment to Sustainability and 2021 European Learning & Teaching Forum: Embedding and facilitating sustainability l 18–19 February 2021 **SDG in THE Impact Ranking 2021**: 2 (70.0), 7 (54.8 / 63.9), 15 (65.3), 17 (88.9)
Catholic University of Portugal	Gender equality plan; UCP's Agenda for Sustainability; Alumni Association Católica-Lisbon draws up database for employing Ukrainian refugees **SDG in THE Impact Ranking 2021**: 4 (58.1 / 63.9), 3 (43.1 / 57.4), 1 (37.9 / 45.6), 17 (44.8 / 55.9)

(continued)

Table 3 (continued)

	Evidences for sustainability
Polytechnic Institute of Setubal	Antiracist Roadmap returns to the School of Education of the IPS; E^{3}UDRES^2 **Science Pub Quiz tests knowledge on sustainability; Projects: IPS** Eco, IPS Solidarity; For each of the SDGs the IPS developed initiatives: Solidarity Christmas, 2nd cycle of webinars on SDGs, Seminar Social Vulnerabilities and Health l Poverty, Social Exclusion and Health—an interdisciplinary view (2019), Sustainable IPS Competition, Unidos@IPS Programme, Environmental Awareness Action "The Sea is not plastic" (2019) **SDG in THE Impact Ranking 2021:**

16 | 80.6   3 | 63.9 – 70.0   10 | 57.0 – 68.6   17 | 44.8 – 55.9

Source Own elaboration adapted from https://www.timeshighereducation.com/impactrankings

Despite the difference between the institutions, it is important to check the alignment that exists between them on the importance of being registered in the impact ranking.

Considering the objective of this study, it is believed that with the data and the information collected and processed, there is added value to the theoretical discussion on the contribution of higher education to sustainability and to the Sustainable Development Goals of the 2030 Agenda. It was also possible to understand, through Portuguese HEIs, how these institutions are committed and involved in sustainability practices, in a true contribution to the achievement of the goals outlined for 2030 through the SDGs.

Limitations and future research

This study's limitation is that it is merely a theoretical contribution that needs to be tested. As a result, it is recommended that future research validate this study by using an appropriate instrument to get data that may support the theoretical foundations stated here.

As future research it would be very important to study why SDG 4 does not appear in all Portuguese HEIs in THE Impact Rankings 2021 list as it should be a strong and robust one since they are educational institutions that should have a high-quality education performance. Another research could be based on the 99 Portuguese HEIs, to which a survey on the sustainability practices used would be applied in order to map this reality and cross-reference this information with the strategy defined by the European Commission for Universities and with the national strategy for sustainability in the sector.

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