Implementing sustainability as a quality factor in higher education institutions.

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STRUCTURED ABSTRACT

Purpose – This paper aims to study (identify and critically reflect on) the factors that prevent and/or allow us to implement sustainability as a quality factor in higher education institutions (HEIs).

Design/methodology/approach - The research carried out is based on qualitative analysis carried out manually (without using any computer analysis software) of the information and data collected in the literature review on the implementation of sustainability in HEIs.

Findings - It was found that in the vast majority of situations obstacles/barriers and challenges were identified rather than Critical Success Factors (CSF) and after analysis all of them will allow these organisations to be successful in their purposes.

Research limitations/implications- The limitation of this study is the fact that it is only a theoretical contribution, which needs to be validated.

Originality/value- We believe that the identification of these potential CSF associated with the implementation of sustainability in HEIs will enable them to be aware of its existence, and to foresee the need to anticipate actions, implement practices and prevent obstacles that limit it. Thus, associated to other management aspects and approaches such as Total Quality Management and continuous improvement, HEIs will be able to expect better academic results and to compete for the best students, researchers and better conditions contributing for all stakeholders.

Keywords: Sustainability, Higher Education Institutions, Critical Success Factors, Quality Factor.

Paper type: Literature review

INTRODUTION

In recent decades, a wide range of decision-makers have been interested in sustainable development. People and society can only flourish if all countries and regions experience continuous, inclusive, and sustainable economic progress (Fleacă *et al.*, 2018).

The Sustainable Development Goals (SDG) are part of the UN's "2030 Agenda for Sustainable Development" which was agreed by all UN Member States unanimously in 2015 as a "plan of action for people, planet, and prosperity" (Boeren, 2019). SDGs define and embody the global priorities for the 2030 Agenda, which has been signed by over 190 nations, and aim to bring global efforts around common goals and targets. Therefore, the United Nations' 2030 Agenda for Sustainable Development detailed the commitment of high-level stakeholders to sustainable development (United Nations, 2016). The fundamental shifts were identified and expressed in 17 universal Sustainable Development Goals (SDGs) and related targets that balanced all aspects of sustainable development, including economic, environmental, and social concerns (United Nations, 2016).

The Sustainable Development Goals create global goals and aspirations for 2030 within the boundaries of the planet, requiring worldwide action by governments, organizations, and civil society to eradicate poverty and provide a life of dignity and opportunity for everyone (Chaleta *et al.*, 2021) and serve as a rallying point for all countries — rich, poor, and middle-income – to collaborate in order to promote prosperity while protecting the environment. They recognize that reducing poverty requires approaches that encourage economic growth while also meeting a variety of social demands, such as education, health, social protection, and job opportunities, all while combatting climate change and safeguarding the environment (17 Goals to Transform Our World, 2021).

Poor alignment of aims and Goals with existing international accords and political processes; lack of efficient execution; conflicts between Goals (SDGs) and targets, non-quantified targets, and absence of and/or low-quality data for indicators were among the major flaws identified by Janouková et al. (2018).

“Higher Education Institutions (HEI) play a fundamental role in the formation of thoughts and opinions, being one of the main organs that can enhance the development of sustainable thinking (Gazzoni *et al.*, 2018, p. 48). Within this framework “universities are challenged to include the 17 Sustainable Development Goals (SDG) in the wide range of their training offers and that higher education is expected to contribute knowledge and innovation to meet societal, economic and environmental challenges through the training of both academic staff and students” (Chaleta *et al.*, 2018, p. 2).

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 directions. HEIs, like any other organization, require a huge number of available resources because of the large flow of people, information, and activities created and released. As a result, many businesses face major environmental risks, demanding the adoption of sustainable development strategies into their operations (Gazzoni *et al.*, 2018).

Those involved in the development of university activities must serve as a foundation for knowledge diffusion and the reinforcement of sustainable practices. Although there have been some advancements in higher education in terms of sustainability, there are still numerous obstacles to overcome (Leal Filho *et al.*, 2015).

The research and teaching objectives of HEI are all constructed to be met, and these goals are reinforced by the operational staff of the institutions (Davim & Filho, 2016; Galdeano *et al.*, 2019). Teaching and research, among other activities, can help institutions of higher education to promote sustainability (Evangelinos *et al.*, 2009; Gazzoni *et al.*, 2018).

Because of a lack of sustainability awareness, institutions and their employees are uninformed of the importance of comprehending the benefits and problems of sustainability (Salleh *et al.*, 2019).

The European Union (EU) acknowledged its commitment to sustainable development with a clear focus on three priorities for higher education systems, which are seen as the foundation of fair, open, and democratic societies, as well as sustained growth and employment, according to Fleacă *et al.* (2018): (i) quality and relevance of skill formation; (ii) more visible and comparable skills and qualifications, as well as advancement of skills intelligence; and (iii) informed career choices.

The critical factors that affect the success of sustainable development begin with a specific level of understanding from each higher education institution's stakeholders (Salleh *et al.*, 2019).

The lack of knowledge, capacities, skills, time management, and authority, as well as a lack of guiding material on sustainable development, are highlighted as challenges to implementing sustainable facilities management in universities (Awuzie *et al.*, 2015).

Since education is one of the critical success factors for HEI, several experts advocate incorporating sustainability into university curricula as a solid starting point for sustainability-related approaches (Minguet, 2011; Ahmed *et al.*, 2016; Salleh *et al.*, 2019). Aside from that, a lack of training among educators results in insufficient long-term benefits that may be provided to students, and student turnover may result in a consequence (Velazquez *et al.,* 2005).

The long-term sustainability of higher education institutions is considered as being aided by their sustainability. Environmental, economic, institutional, and integrated sustainability are all provided to the institutions (Aleixo *et al.*, 2016).

The promotion of sustainable development has heightened interest in the quality and internationalization of research in order to improve education quality (Salvioni *et al.*, 2017), demonstrating that a higher education institution with appropriate sustainable development and support will benefit in terms of quality improvement (Salleh *et al.*, 2019).

The purpose of this work is to analyse the variables that prevent and/or enable us to incorporate sustainability as a quality factor in higher education institutions (HEIs).

Apart from the introduction, the article is divided into four chapters: the framework of higher education sustainable development concerning the CSF and other relevant elements, the research methodology, results, and final considerations, study limitations, and future research.

HIGHER EDUCATION SUSTAINABLE DEVELOPMENT: CRITICAL SUCCESS FACTORS AND OTHER VERY IMPORTANT ELEMENTS

There are some studies that identify the Critical Success Factors, benefits, barriers, roles, challenges and eventually other elements associated with the sustainable development of higher education institutions. Therefore, in this section we will compile some information that we consider relevant about those elements and CSF in this type of institutions.

For sustainable development in Malaysian Public Higher Institutions, Salleh *et al.* (2019) identified knowledge, education, awareness, training, and organizational structure as critical success factors in their study. Environmental sustainability, integrated sustainability, promoting sustainability, institutional sustainability, and quality enhancement are among the benefits cited. Lack of involvement, lack of money, and lack of policy were recognized in this study as obstacles in higher education for sustainable development in Malaysian Public Higher Institutions.

Disterheft *et al.* (2015) had a different approach. They identify in their study critical success factors for participatory processes in sustainability initiatives in HEI. Therefore, the preliminary CSF presented were Communication, Enough time, Identification with goals, Making sure that the right people are at the table and that they are heard, Non-judging attitude, Personal strength and persistence, Starting on time, Stimulate positive feelings, Strategy with a goal, Support of top-management, Tangible objectives, To find out what people are caring about, Outcomes/Benefits, Capacity Building, Collaboration, Confidence, Empowerment, Increase of acceptance, More dialogue, Networking, Optimism, Positive image of the university and Raising champions. After defining several criteria,

the critical success factors were ranked according to four levels of importance from very important, to not very important. Communication was frequently cited as a "very significant" critical success aspect, along with strategy with a goal, although starting on time was regarded as "less" or "least vital." Overall, importance perceptions of the participating people differ greatly amongst items, resulting in a hazy picture of the CSF ranking. CSF were categorized into structure-, process-, and person-related concerns that are influenced by each other, resulting in three broad clusters. The preliminary list was expanded or amended to include more CSF. The structure allows for enough time and availability for a participatory approach, as well as eventual support from the university's senior board members (top management), which is critical if the sustainability programme is to have an institutional influence. The participatory approach should be guided by a communication strategy that aims to discover what people care about and is built on listening, providing feedback, and maintaining a non-judgmental attitude. This type of communication should allow participants to collaborate on a strategy with clear goals that they can identify with (goal identification) and that has measurable targets. Overall, the process should emphasize capacity-building, empowerment, and the ability to raise champions, stimulate positive feelings, and offer important stakeholders a voice. Without identifying the group of participants, the advantage, or even need, of having a dedicated facilitator to lead throughout the participatory process was underlined in the cluster relating to the participants. The facilitator, on the other hand, as well as the participants, should possess specific dispositions, abilities, and participatory competences. Communication abilities, as mentioned above, as well as intuition, personal strength and persistence, flexibility, and appreciation, are examples of these. Furthermore, genuine involvement and credibility from all parties engaged, including the university's senior management, should be demonstrated in order to avoid frustration and encourage further participation.

According to Aleixo *et al.* (2016), the findings reveal that, while all stakeholders are aware of the notion of sustainability, they are unfamiliar with the concept of sustainable higher education institutions. The greatest hurdle to sustained progress in higher education is seen to be a shortage of financial resources as a result of lower financing for higher education and a decrease in the number of Portuguese university students. Actions promoting sustainability in HEIs are hampered by obstacles and this also applies to Portuguese HEI. First, there's the ambiguity and complexity of the real idea of sustainability. The absence of financial means and funding is the second issue. Third, change resistance linked to behaviours, practices, or efforts. Fourth, organizational rigidity (conservative, traditional, and conventional) can result in (a) "inefficient communication and shared information both top-down and bottom-up", "barely open to new paradigms," and (c) focus on short-term profit as a result of managerial thinking and policy making in HE.

Fifth, professors, students, staff, management, and policymakers lack dedication, engagement, awareness, interest, and involvement. The achievement of sustainability in HEIs is dependent on senior management's support. Sixth, there is a dearth of sustainability training and expertise. To these authors the barriers are inextricably linked to the challenges and drivers. In summary, they identified the following barriers to sustainability to HEIs: financial factors, difficulty in attracting students, Competitiveness, mismatch between the needs of enterprises and labour market and the training offer of HEIs, difficulty of retaining talent, demographic factors of human resources, absence of autonomy, lack of integrated strategic planning lack of autonomy that characterizes public administration, unequal opportunities between institutions, difficulty of monitoring the innovation of enterprises and socio-economic factors. Results of the interviews on relevant issues for future of HEIs are fund-raising and financing, attracting students and foreigners, transfer of knowledge, excellence and quality, internationalization, autonomy, investment in R&D, response to market needs, development of networks and partnerships, development of interdisciplinarity, motivation of human resources, long term strategic planning, qualification of faculty members, and reorganization of the business structure of institutions.

Velazquez *et al.* (2005) on their study concerning the factors which influence sustainability in higher education institutions find out that there are insufficient circumstances for successful implementation of sustainability programmes. Many barriers stand in the way of sustainability efforts succeeding on campuses around the world. Despite these challenges, though, campus sustainability efforts are thriving. According to the authors, predicting the impact of a single or a mix of barriers to a sustainability initiative is difficult. Barriers were provided in this study from the highest to the lowest degree of incidence in the information sources used. The identified barriers are as follows lack of awareness, interest, and involvement, organizational structure, lack of funding, lack of support from university administrators, lack of time, lack of data access, lack of training, lack of opportune communication and information, resistance to change, profits mentality, lack of more rigorous regulation, lack of interdisciplinary research, lack of performance indicators, lack of policies to promote sustainability on campus, lack of standard definitions of concepts, technical problems, lack of designated workplace and the “Machismo”. One of the most effective ways for adopting sustainability measures appears to be cultural awareness. The most difficult challenges for those in charge of sustainability initiative appear to be a university's conservative organizational structure and a lack of knowledge among the academic community.

In Aleixo’s *et al* (2020) study the authors collected some important information concerning sustainable development and more precisely about SDGs with possible alignment with higher education sustainable development. To achieve these goals, sufficient resources must be made

accessible. These goals can only be achieved if all parties are involved and committed to taking responsibility for their actions. HEIs must recognize that by incorporating sustainability into all of their activities, particularly in education, they can provide students with the skills they need to address society's problems for future well-being. It is critical that Education Sustainable Development in higher education teaches graduates to make responsible decisions and improves employability skills.

Larrán Jorge *et al.* (2015) pointed out from other authors that a lack of support from university administrators, a lack of timely sustainability information and communication, a generalised lack of performance indicators, a lack of interest, awareness, and involvement, a lack of sustainability training, a lack of incentives, a lack of time, a lack of financial resources, and resistance to implementing sustainability initiatives in higher education institutions are all obstacles to success. They have determined on their study the factors that influence the implementation of sustainability practices in Spanish universities. They are students, society, staff, corporate governance, continuous improvement, environment and companies. These findings imply that the leadership role played by some universities may be one of the key elements in the implementation of sustainability policies by HEI.

Verhulst and Lambrechts (2015) state, based on studies, especially from the perspective of the university system, focus on and identify barriers to change and critical success factors. Based on multiple other authors and publications, the barriers to change in higher education are described as follows: lack of Sustainable Development (SD) awareness, insecurity and threat to academic credibility from teachers, over-crowded curricula, lack of support, SD considered to have little or no relevance to the course or discipline, uncertainty of the efforts required to engage with and incorporate SD, discipline restricted organisational structures; academic conservationism/traditions that tie universities to old mechanistic mental models. In their research the authors identify in literature several barriers and present them in three clusters: barriers related to the lack of awareness, to the structure of higher education, and to the lack of resources.

The barriers for the integration of SD in HE related to the lack of awareness are:

1. Lack of interest and involvement of the majority of the students and staff members
2. Lack of support by management and policy makers
3. Lack of professionalisation and training of teachers
4. Lack of policy making in order to promote sustainability
5. Lack of standard definitions and concepts of SD in HE
6. Lack of recognition, change agents for SD are often not taken seriously
7. SD seen as a threat to academic freedom and credibility
8. SD is not seen as relevant to a certain course or discipline.

The ones related to the structure of higher education are:

1. Conservative disciplinary structure of HEI, barely open to new paradigms
2. Inefficient communication and shared information both top-down and bottom-up
3. Resistance to change by education and research
4. Focus on short-term profit as a result of managerial thinking and policy making in, HE
5. Lack of interdisciplinary research as a result of insufficient coordination and cooperation
6. Overcrowded curriculum
7. Focus on content-based learning.

Those related to the lack of resources are:

1. Lack of money, SD is not seen as a priority for funding
2. High work pressure and lack of time, the responsible for SD combines this task often with other tasks
3. Lack of access to information, due to absence of measuring instruments or by unwillingness of staff
4. Lack of consistent legislation
5. Lack of qualitative and quantitative performance indicators
6. Technical problems
7. Lack of physical place.

The studies of the authors listed above and now analysed, allowed the identification of important elements for the implementation of sustainability in HEIs. Although each one reported these elements in different contexts and realities, namely the countries in which these studies were conducted, it is possible to verify the existence of common and also divergent obstacles/barriers and challenges. Considering the current importance that sustainability represents for HEIs, this constitutes as a quality factor, to be observed by them and to which they should pay the greatest attention in the context of compliance with the 2030 Agenda.

The added value of this information lies in the fact that it is possible to assess the possibility of obstacles/barriers and challenges being seen from the perspective of critical success factors and thus, HEIs are able to outline strategies, action plans and activities that enable them to achieve the sustainability for which they desire.

RESEARCH METODOLOGHY

The findings of this study are based on a qualitative examination of the subjects. A literature review was conducted in order to determine the Critical Success Factors related with the implementation of sustainability in higher education institutions.

The following were the steps performed to process the data:

- First step: Literature review
- Second step: Identifying the Keywords or Key-expressions
- Third step: Collecting systematized information on CSF, the barriers/obstacles, and problems/challenges associated to Sustainability
- Fourth step: Analysis of data from the identification of those factors in the implementation of sustainability for a better understanding of the Critical Success Factors in HEIs.

The data is examined qualitatively without the use of any other analysis software, and the results are organized in tables for easier understanding.

RESULTS

We shall proceed to the analysis of the results after studying the literature on the issues and gathering other information about higher education institutions.
Considering the information obtained in the various studies carried out by several authors, namely, Salleh *et al.* (2019), Disterheft *et al.* (2015), Aleixo *et al.* (2016), Velazquez *et al.* (2005), Aleixo's *et al* (2020), Larrán Jorge *et al.* (2015) and Verhulst and Lambrechts (2015) and described in the previous chapter, it was found that in the vast majority of situations obstacles/barriers and challenges were identified rather than critical success factors. Many of the identified elements are repeated, so it was necessary to make a first screening to eliminate the repetitions.

The barriers/obstacles and challenges listed by the various authors and identified in table 1 end up defining or establishing the critical success factors, which are nothing more than the elements or conditions that enable the success of something, and also the opportunities for improvement.

Table 1 – Obstacles/barriers and challenges in the implementation of Sustainability in HEIs.

OBSTACLES/BARRIERS	CHALLENGES
Ambiguity and complexity of the real idea of **sustainability** Lack of **sustainability training** and expertise lack of **policies** to promote **sustainability** on campus lack of **timely sustainability** information and **communication** **SD** seen as a threat to academic freedom and credibility **SD** is not seen as relevant to a certain course or discipline Lack of standard definitions and concepts of **SD** in HE lack of standard definitions of concepts	High work pressure and lack of **time**, the responsible for SD combines this task often with other tasks
Lack of **policy** making in order to promote **sustainability** **resistance** to implementing **sustainability** initiatives	
Absence of **financial** means and **funding** **financial** factors lack of **financial** resources lack of **funding** Lack of **money**, SD is not seen as a priority for **funding** socio-economic factors	**fund-raising and financing** **investment** in R&D
Professors, students, staff, **management** Lack of support by **management** and **policy** makers	
mismatch between the needs of enterprises and labour **market** and the **training** offer of HEIs Lack of professionalisation and **training** of teachers	response to **market** needs
Change resistance linked to behaviours, practices, or efforts Lack of recognition, **change** agents for SD are often not taken seriously **Resistance** to **change** by **awareness** and research	
organizational rigidity (conservative, traditional, and conventional) Conservative disciplinary **structure** of HEI, barely open to new paradigms	**reorganization** of the business **structure** of institutions university's conservative **organizational structure**
Policymakers lack dedication, engagement, **awareness**, interest, and **involvement** Focus on short-term **profit** as a result of managerial thinking and **policy** making in HE **profits** mentality lack of support from university administrators	cultural **awareness**
difficulty in **attracting** students	**attracting** students and foreigners
absence of **autonomy**	internationalization, **autonomy**
lack of integrated **strategic** planning	long term **strategic** planning
lack of opportune **communication** and information Inefficient **communication** and shared information both top-down and bottom-up	
Lack of interest and **involvement** of the majority of the students and staff members	
Lack of **interdisciplinary** research as a result of insufficient coordination and cooperation	development of **interdisciplinarity**
lack of designated **workplace**	
Lack of **physical place**	
lack of **knowledge** among the academic community	transfer of **knowledge**

Competitiveness unequal opportunities between institutions difficulty of retaining talent difficulty of monitoring the innovation of enterprises Lack of qualitative and quantitative performance indicators	development of networks and partnerships
Lack of access to information, due to absence of measuring instruments or by unwillingness of staff Overcrowded curriculum	excellence and quality
Focus on content-based learning	qualification of faculty members
lack of incentives	
demographic factors of human resources	motivation of human resources
lack of more rigorous regulation Lack of consistent legislation	
lack of data access	
technical problems “Machismo”	

Source: Adapted from Salleh *et al.* (2019); Disterheft *et al.* (2015); Aleixo *et al.* (2016); Velazquez *et al.* (2005); Larrán Jorge *et al.* (2015); Verhulst and Lambrechts (2015)

The table compiles a list of obstacles/barriers and challenges that HEIs may face when implementing the sustainability dimension as a quality factor. Although these elements are not identified or attributed any order of importance or relevance, we believe that institutions, in possession of this information, will be able to verify their importance and, furthermore, will be able to anticipate, in some way, any problem and avoid or eliminate the obstacles/barriers and overcome the challenges, successfully concluding the implementation of sustainability within their institution.

FINAL CONSIDERATIONS

According to Aleixo *et al.* (2020), sustainability is still a new political goal, but it is necessary for all institutions to perform their responsibilities to generate proactive interactions among institutions, agents, and people. According to Leal Filho *et al.* (2015), the Sustainable Development Goals may provide a chance to overcome problems in HEIs in order to achieve sustainability. Universities can now make a big contribution to the sustainability challenge because of their role as centers of learning, innovation, and research. Universities, on the other hand, can also take a range of approaches to sustainability challenges, all of which should be explicitly stated in their strategic plans (Sisto, 2020).

We believe that the strong alignment that exists between Critical Success Factors for implementing sustainability and HEIs' strong desire to be more sustainable would enable them to more readily contribute to the SDGs that they consider strategic and to achieve excellence in these dimensions. With this paper, we hope to contribute to the debate that has raged for at least two decades on sustainability literature and, more recently, the SDGs and their alignment with other themes like Total Quality Management. We also believe that, in addition to their own aspirations and strategies in terms

of quality and sustainability, HEIs should assess their alignment with the European Commission's published European university policy and the national strategy for higher education specified by each country.

The limitation of this research is the fact that it is only a theoretical contribution, which needs to be validated.

We propose that future studies examine the sustainability Critical Success Factors and compare them to the Critical Success Factors of Total Quality Management (TQM) implementation, which might have yet to be identified in this new context of the 2030 Agenda, in order to determine whether they should be considered as CSFs in TQM implementation as well.

A future study might focus on understanding how TQM and Sustainability CSFs relate to the SDGs and how HEIs can contribute to them in order to promote sustainability as a quality factor throughout time.

REFERENCES

- 7 Goals to Transform Our World (2021). Available online: https://www.un.org/sustainabledevelopment/ (accessed on 26 December 2021).
- Ahmed, U., Majid, A. H., Zin, M. L., Phulpoto, W., & Umrani, W. A. (2016), Role and impact of reward and accountability on training transfer. Business and Economics Journal, 7(1). http://dx.doi.org/10.4172/2151-6219.1000195.
- Aleixo, A. M., Leal, S., & Azeiteiro, U. M. (2016), Conceptualization of sustainable higher education institutions, roles, barriers, and challenges for sustainability: An exploratory study in Portugal. Journal of Cleaner Production, 1–10. https://doi.org/10.1016/j.jclepro.2016.11.010.
- Aleixo, A., Azeiteiro, U., Leal, S. (2020), Are the Sustainable Development Goals being implemented in the Portuguese Higher Education Formative Offer?, International Journal of Sustainability in Higher Education, 21(2), https://doi.org/10.1108/IJSHE-04-2019-0150.
- Awuzie, B., Emuze, F., Ngowi, A. (2015), Critical success factors for smart and sustainable facilities management in a South African University of Technology. In: Smart and Sustainable Built Environment (SASBE) Conference 2015. p. 377.
- Boeren, E. (2019), Understanding Sustainable Development Goal (SDG) 4 on "quality education" from micro, meso and macro perspectives. International Review of Education, 65(2), 277-294. https://doi.org/10.1007/s11159-019-09772-7.

- Chaleta, E., Saraiva, M., Leal, F., Fialho, I., & Borralho, A. (2021), Higher Education and Sustainable Development Goals (SDG) - Potential Contribution of the Undergraduate Courses of the School of Social Sciences of the University of Évora. Sustainability, 13(4), 1828. https://doi.org/10.3390/su13041828.
- Davim, J. P., & Filho, W. L. (2016), Challenges in Higher Education for Sustainability. London: Springer International Publishing Switzerland. https://doi.org/10.1007/978-3-319-23705-3.
- Disterheft, A., Caeiro, S., Azeiteiro, U. M., & Leal Filho, W. (2015), Sustainable universities–a study of critical success factors for participatory approaches. Journal of Cleaner Production, 106, 11-21. https://doi.org/10.1016/j.jclepro.2014.01.030.
- Evangelinos, K. I., Jones, N., & Panoriou, E. M. (2009), Challenges and opportunities for sustainability in regional universities: a case study in Mytilene, Greece. Journal of Cleaner Production, 17(12), 1154-1161. https://doi.org/10.1016/j.jclepro.2009.02.020.
- Fleacă, E., Fleacă, B., & Maiduc, S. (2018), Aligning strategy with sustainable development goals (SDGs): Process scoping diagram for entrepreneurial higher education institutions (HEIs). Sustainability, 10(4), 1032. https://doi.org/10.3390/su10041032.
- Galdeano, D., Ahmed, U., Fati, M., Rehan, R., & Ahmed, A. (2019), Financial performance and corporate social responsibility in the banking sector of Bahrain: Can engagement moderate? Management Science Letters, 9(10), 1529-1542.
- Gazzoni, F., Scherer, F. L., Hahn, I. S., de Moura Carpes, A., & dos Santos, M. B. (2018), O papel das IES no desenvolvimento sustentável: estudo de caso da Universidade Federal de Santa Maria. Revista Gestão Universitária na América Latina-GUAL, Florianópolis, v. 11, n. 1, 48-70. https://doi.org/10.5007/1983-4535.2018v11n1p48.
- Janoušková, S., Hák, T., & Moldan, B. (2018), Global SDGs assessments: Helping or confusing indicators?. Sustainability, 10(5), 1540. https://doi.org/10.3390/su10051540.
- Larrán Jorge, M., Herrera Madueño, J., Calzado Cejas, M. Y., & Andrades Peña, F. J. (2015), An approach to the implementation of sustainability practices in Spanish universities. Journal of Cleaner Production, 106, 34–44. doi:10.1016/j.jclepro.2014.07.035.
- Leal Filho, W., Manolas, E. & Pace, P. (2015), The future we want: key issues on sustainable development in higher education after Rio and the UN decade of education for sustainable development, International Journal of Sustanability in Higher Education, v. 16, n. 1, p. 112-129. https://doi.org/10.1108/IJSHE-03-2014-0036.

- Minguet, P. A., Martinez-Agut, M. P., Palacios, B., Piñero, A., & Ull, M. A. (2011), Introducing sustainability into university curricula: An indicator and baseline survey of the views of university teachers at the University of Valencia. Environmental Education Research, 17(2), 145–166. https://doi.org/10.1080/13504622.2010.502590.
- Salleh, M. I., Habidin, N. F., Noor, K. M., & Zakaria, S. Z. S. (2019), The development of higher education for sustainable development model (HESD): Critical success factors, benefits, and challenges. International Journal of Academic Research in Progressive Education and Development, 8(4), 47-54.
- Salvioni, D. M., Franzoni, S., & Cassano, R. (2017), Sustainability in the higher education system: An opportunity to improve quality and image. Sustainability (Switzerland), 9(6), 1–27. https://doi.org/10.3390/su9060914.
- Sisto, R., Sica, E., Cappelletti, G. M. (2020), Drafting the strategy for sustainability in universities: a backcasting approach. Sustainability, 12(10), 4288.
- United Nations (2016), Transforming Our World: The 2030 Agenda for Sustainable Development; United Nations: New York, NY, USA, available at: https://sdgs.un.org/2030agenda (accessed 20 March 2022).
- Velazquez, L., Munguia, N., & Sanchez, M. (2005), Deterring sustainability in higher education institutions: An appraisal of the factors which influence sustainability in higher education institutions. International Journal of Sustainability in Higher Education, 6(4), 383–391. https://doi.org/10.1108/14676370510623865.
- Verhulst, E., & Lambrechts, W. (2015), Fostering the incorporation of sustainable development in higher education. Lessons learned from a change management perspective. Journal of Cleaner Production, 106, 189–204. doi:10.1016/j.jclepro.2014.09.049.