

Editorial

Perspectives and Challenges on Sustainability: Drivers, Opportunities and Policy Implications in Universities

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Sustainability calls for contributions from all countries in the evaluation of all its components: nations and regions should invest in research and development, prioritizing the use of green and circular resources [1]. Furthermore, stakeholder engagement, collaboration amongst countries and the inclusion of both young talents and experienced professionals are required to spur a process towards a sustainable transition [2]. We submit that in order to define flexible, transparent and robust strategies for sustainability in the higher education sector, stakeholders must be involved [3] and such involvement should guarantee that interests must be composed to let the “sustainable hand” emerge. In fact, “sustainability does not belong to the selfish. It is a way of life, an approach to pass on to future generations that their dreams can come true” [4]. Some studies have underlined the importance of considering human resource management practices and related socio-economic and psychological supports to foster competitiveness in higher education institutions (HEIs) [5]. For decades, sustainability researchers have been adamant that HEIs should be transformed into more sustainable and inclusive contexts. HEIs have the potential to contribute significantly to the United Nations General Assembly’s 2015 Sustainable Development Goals (SDGs) and 2030 Agenda [6]. Historically, sustainability discourse has tended to focus on environmental and economic dimensions, while giving less emphasis to the social dimension. However, the COVID-19 pandemic underlined the importance of the social dimension, particularly with regard to student support during stressful periods [7]. More specifically, the pandemic highlighted critical issues in the education system, indicating an overall lack of resilience. The shift to online learning revealed that some professors were unfamiliar with information technology and some students did not have the resources to participate online; additionally, many students reported problems concentrating and struggled to follow the new educational model [8]. These challenges limited the extent to which SDG 4 could be achieved, as inclusive and accessible education for all did not materialize [9]. Indeed, SDGs are typically addressed more broadly, with SDG 4 and SDG 9 receiving the greatest and least attention, respectively [10]. Of course, the relevance of individual SDGs changes according to the priorities set by each country under consideration [11]. The issue of sustainability is well established, yet the pandemic period has underscored the urgency of finding sustainable solutions. As part of that challenge, HEIs are clearly called upon to provide responses to the various SDGs. An essential requirement is stakeholder engagement.

Research has highlighted that HEIs promote sustainability through the two main channels: institutional initiatives and campus operations [12] (e.g., concrete, “virtuous” projects [13] that are able to realize a zero-carbon solution [14]). Arguably, despite increased awareness of the SDGs, the majority of HEIs have not yet fully embraced sustainability in the curriculum; nor have they created appropriate learning environments. This is because, over the last decades, HEIs around the world have prioritized the high employability of



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their graduates [15]. We submit that it is time to rethink educational strategy given that sustainable issues have assumed a central position in business and government agendas [16]. In this way, a gap emerges that the literature needs to consider.

Some authors have proposed a tetrahedron framework, with students at the center and vertices representing student competence, teaching methodology, professors and alliances [17]. This framework aligns with the literature, which highlights that students may play a decisive role in the achievement of sustainability goals [18]. Whereas college students have been shown to present a moderate degree of knowledge about sustainability, their behaviors have been found to be insufficient to promote a sustainable transition [19]. Furthermore, some analyses have measured the impact of a university course on students' knowledge, showing an increase in sustainable attitudes and identifying two pillars of future civil society: sustainable education and youth confidence [20]. Young scholars have the opportunity to collaborate to address sustainability issues [21,22] and hone their green skills [23] to foster transformative innovation [24]. We submit that, in order to analyze whether HEIs are capable of equipping their students and scholars accordingly, new methodologies must be developed to assess sustainability learning practices [25,26]. It emerges that the goal of HEIs should be to create value for students, who should be given more attention.

Research has also highlighted the need to identify indicators to measure the impact of initiatives, emphasizing the need for policies with quantifiable effects [27]. Some policy suggestions call for the inclusion of sustainable topics in all professional curricula, as it has emerged that these topics are sometimes only loosely associated with relevant subjects, such as waste recycling and social inclusion [19]. Problems related to environmental pollution, resource scarcity and social inequalities highlight the need not only for trained graduates, but also graduates capable of putting their theoretical knowledge into practice. Encouraging results have emerged from approaches in which students propose projects to solve real problems [28]. Some analyses have shown that, after taking courses on sustainability topics, students tend to increase their focus on bio-products and bio-energy issues and develop a greater interest in careers in the bioeconomy [29]. The multidisciplinary nature of the course should respond to the need to strengthen and improve courses to meet current challenges by providing solutions. Moreover, the market itself may require new professional skills.

In this direction, encouraging results have emerged from approaches in which students propose projects to solve real problems [28]. One example of a student-centered model is project-based learning (PjBL), whereby students independently create their own learning experiences [30]. PjBL aims at enhancing students' critical thinking and ability to solve complex contextual problems. In particular, it emphasizes the need to stimulate emotional learning. The goal is for students to engage and interact with diverse communities, acquire information from multiple sources, enter into collaborative patterns and develop team-building strategies [31]. Additionally, the literature emphasizes the "living lab" model, which, unlike a traditional lab, operates in a real-world context, putting stakeholders at the center [32]. This approach will prompt many professors to review their knowledge transfer habits and encourage more collaboration with students in order to monitor the progress of project work.

A recent report released by carbon consultancy firm EcoAct aims to establish the level of emissions released by UK universities, and suggests a pathway to zero emissions that would include a variety of initiatives. These include an online portal where different emissions data are collected, so that universities can get a better idea of the emissions of the businesses they work with; an incentive system for graduates to offer their sustainability skills to the industry for placements and internships; and suggesting that students do not travel back home during vacations [33]. In their sustainability initiatives, we argue that HEIs should strike the right balance between internationalization [34] and connection with local realities [35]. In fact, some studies have highlighted the relevance of environmental education centers in adhering to the guiding principles of sustainable development while attending to local contexts [36]. Furthermore, the assessment and mapping of ecosystem

services may improve knowledge co-production for sustainable territorial management [37]. Indeed, institutional investors have been found to play an important role in the development of clean energy infrastructure, entrepreneurship, poverty reduction, corporate social responsibility and firm development [38]. Initiatives involving different universities should concern all countries, in order to prevent a hyper-concentration of certain countries over others [39]. Sustainability is therefore called upon to define the point of harmony between the needs of internalization and the development of local realities.

In fact, the world is increasingly interconnected, and internationalization is needed to learn about other cultures and to compete and grow amidst initiatives based in other countries. The Erasmus initiative has already fostered this perspective in students, and universities, more generally, may become places where knowledge ecosystems can be realized. Universities must be able to attract scholars from around the world to find solutions to problems and improve social welfare. They must also reward achievement and ensure the free exchange of knowledge. This may activate competitive advantages, with an eye to the balance of ecosystems. Training meetings should be encouraged, where participants can compare ideas from the academic, public and business spheres. In this context, attention should also be paid to student projects, which could benefit from being directly tested by a panel of stakeholders, with rewards offered for the most compelling projects and ideas.

This Special Issue, titled “Prospects and Challenges of Bioeconomy Sustainability Assessment,” suggests the need for multiple approaches (i.e., quantitative, qualitative, hybrid) applied across different sectors of sustainability, to illustrate the real advantage of sustainability. HEIs may play an essential role in sustainability, as key agents in the education of future leaders who will contribute to the dissemination of SDG principles. Academia has long recognized the importance of this role, and several studies have illustrated different approaches to promoting sustainability within HEIs, as well as visions that require immediate action. The sustainability challenge depicts ecosystems that are no longer in balance, due to human actions that have gone beyond that which is sustainable, resulting in objective environmental change. Importantly, some emerging phenomena may limit the extent to which current problems can be addressed. One example is “sustainable washing,” which describes the tendency to label oneself a sustainability expert despite lacking the necessary qualifications. To avoid sustainable washing, researchers must take care not to present themselves as experts in sustainability unless they have produced appropriate scientific papers on the topic or carried out sustainability projects. In addition, graduate courses should not be considered sustainable simply by virtue of the inclusion of symbolic words in the course title, if there is no accompanying real change in the teaching content.

The literature also indicates a need to develop interdisciplinary pathways to encourage group work that incorporates different perspectives and knowledge bases, as well as a mixture of resources and skills. Such group work may aim to propose solutions for everyday challenges, with a forward-looking perspective. In this vein, professors should challenge themselves to value the different perspectives of young people, giving them time to grow and establish relationships as they work to attain a degree. Collaborations may also involve the launch of start-ups, as innovation and sustainability march in the same direction. While these models already exist, it is not always clear what governs them or how young people can access them. Simplification and economic resources are needed to encourage youth in this direction. The aim of collaborations should be to identify and perceive new needs, select appropriate market segments and implement blue ocean strategies, where possible. However, there must be a clear awareness of the risk component concerning real markets, particularly with respect to global giants.

There are many drivers and opportunities related to the new role of universities. Their goal should be to govern the sustainability challenges and put students at the heart of the process, bestowing on them not only rights but also duties. Essentially, students must develop an ability to connect theoretical knowledge with practical experience, and acquire tacit and complex knowledge. Such knowledge takes a significant amount of time to ac-

quire and, as such, requires patience. Universities face multiple challenges. Suggestions for meeting these challenges may arise from evolutionary economics, which holds that successful organizations replicate successful organizational routines and abandon unsuccessful ones (e.g., looking solely at the enhancement of local resources), as well as the ecology of organizations, which holds that inertia is limited by the mechanism of selection (e.g., if curricula are not adjusted, enrolment will decrease). Moreover, the political context is also relevant. The use of public funding needs to be monitored, as unproductive public spending is unsustainable due to passing the interest on debt to future generations. However, it is necessary to invest in research, skills and the creation of hubs of excellence that can make universities protagonists within ecosystems.

To pursue the goal of sustainability, universities should lead cultural change by listening more to students, increasing their sense of responsibility to others and directing their assignments to impact the greatest number of people. At the same time, policymakers should propose solutions that accrue benefits to many, and not the few. Now is the time to build community, overcome selfishness and reduce stress. The needs of local territories must be met, but through sustainable and resilient solutions at the national level, to prevent a weakening of the system as a whole. Sustainable choices do not always require compromise, but choices must be forward-looking, even at the expense of a lack of consensus in the short term. The knowledge triangle (i.e., education, research, innovation) must be linked with the mission of service to society.

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