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Sopron, 2021. november 4.
4 November 2021, Sopron



**PANDÉMIA – FENNTARTHATÓ GAZDÁLKODÁS
– KÖRNYEZETTUDATOSSÁG / PANDEMIC
– SUSTAINABLE MANAGEMENT – ENVIRONMENTAL AWARENESS
KONFERENCIAKÖTET / Conference Proceedings**

Szerkesztette / Edited by: OBÁDOVICS Csilla, RESPERGER Richárd, SZÉLES Zsuzsanna

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Sustainability and Higher Education from a Three-dimensional Perspective

Dr. Rita LUKÁCS PhD

Associate Professor

Budapest Metropolitan University Faculty of Business Communication and Tourism

Absztrakt

A fenntarthatóság és a felsőoktatás kapcsolata igazán különleges, hiszen a felsőoktatási intézmények három különböző szerepben is részt vesznek a fenntarthatóság előmozdításában: fő tevékenységükön, az oktatáson keresztül formálhatják a jövő generációk szemléletmódját, emellett tudományos műhelyként hozzájárulhatnak környezeti, társadalmi és gazdasági problémák megoldásához, ráadásul működésük során jelentős kedvező és kedvezőtlen hatást gyakorolnak közvetlen környezetükre, amelyeket menedzselniük kell.

A tanulmányban nemzetközi példák segítségével fogom bemutatni az egyetemek jelentőségét a fenntarthatóság terén, illetve elemezni fogom a koronavírus felsőoktatásra gyakorolt hatásait is a fenntartható fejlődés szempontjából.

Kulcsszavak: fenntarthatóság, felsőoktatás, koronavírus

JEL-kódok: I23, Q01, Q56

Abstract

The relationship between sustainability and higher education is a unique one, as higher education institutes play three different roles in striving for a higher level of sustainability: through their core activity of education, they can shape future generations' attitudes, as scientific workshops they can contribute to solving environmental, social, and economic problems, while through their operations they have a significant positive and negative impact on their immediate environment to be managed.

In this paper, the importance of universities for sustainability will be illustrated with the help of several international examples, and the impact of the coronavirus on higher education will also be analysed from a sustainable development perspective.

Keywords: sustainability, higher education, coronavirus

JEL Codes: I23, Q01, Q56

1. Introduction

Major environmental, social, and economic impacts are usual cornerstones of corporate sustainability strategies. But what are the main activities and impacts of universities? At first sight, their impacts are non-comparable to industries traditionally considered significant polluters, like the oil, energy, or manufacturing industry. However, if we consider the long-term impacts of universities – educating future leaders, working on important research projects that will have significant impacts on the future – we can conclude that higher education has a significant role in shaping the state of the environment, society, and economy.

It is a reason why it is essential to examine the relationship between higher education and sustainability. Depending on the main profile of the university, higher education institutions can contribute to solving many of the environmental, social, or economic challenges through their staff and researchers. Educating the future leaders is another significant task for this sector, causing considerable secondary effects in the long term. Thinking about the size of university campuses draws attention to sustainability aspects of campus operations.

This paper reviews the relevance of the university sustainability concept. It introduces international best practices to raise awareness of sustainability's diversity and the importance of considering major impacts and stakeholder expectations.

2. Literature review

The literature review will summarise the main theoretical concepts of sustainability in higher education and has five sections: First sustainable development will be defined; the second part is dedicated to stakeholders. The third subchapter will focus on students' awareness of sustainability issues, followed by sustainability dimensions of higher education. The impact of the COVID-19 pandemic on the sector will close this chapter.

2.1. Sustainable development

Sustainable development is not a new concept; it was defined by United Nations 35 years ago. According to the definition of the United Nations: *“Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”* (United Nations World Commission on Environment and Development, 1987, 41)

Corporate sustainability tries to balance economic, environmental, and social dimensions. It is also called People-Planet-Profit or triple-bottom-line concept (Carroll et al., 2018).

The UN Sustainable Development Goals (SDGs) serve as a roadmap for sustainable development at the national and international levels. It was adopted by all United Nations Member States 7 years ago, in 2015, and built on the foundation of its predecessor, the Millennium Development Goals (MDGs), which dates to 1992. The main goal of the MDGs was to reduce extreme poverty by 2015. The current framework, the SDGs or “The 2030 Agenda for Sustainable Development”, defines 17 economic, environmental, and social goals; and summarises 169 global targets until 2030 (United Nations, s.a.). The 17 goals can be seen in *Figure Nr. 1*.



Figure 1: The UN Sustainable Development Goals

Source: United Nations (s.a.)

The SDG concept does not only serve as a global blueprint for tackling the most important global challenges; companies and other organisations started using the SDG concept as a framework for their sustainability strategy, among others, universities, as well. Besides customers, there are several target audiences of sustainability strategies, called stakeholders, because of having a stake in the organisation.

2.2. Stakeholders of universities

Stakeholders are all the individuals, groups, or organisations who can affect the organisations or are affected by their activities or decisions. The main stakeholder typologies distinguish between primary and secondary, external, and internal stakeholders. Primary stakeholders have a direct stake in the success of the organisation, for example, customers, employees, shareholders, local communities, or suppliers. Secondary stakeholders' stake is only indirect; however, they can be influential considering the success of the organisations. The government, NGOs, competitors, or media are typical examples for this stakeholder category. Contrary to external stakeholders, internal stakeholders are members of the organisation (Carroll et al., 2018). Universities are specific organisations because of the range of stakeholders and the main fields of activities.

In her research, Slabá (2015) adapted the stakeholder concept to private universities in the Czech market. Universities have several special stakeholder groups, as shown in *Table 1*. Students are customers of the university, while employees include both administrative staff and faculty. Not only prospective students but also their parents are external stakeholders. It is not usual that prospective customers' parents influence customers' decision-making process. Still, higher education is a unique service where parents can advise their children about their future career planning. High schools offer a unique chance for universities to reach prospective students a few years before their decision-making. Accreditation commission and ministries represent other influential primary stakeholders; they have a significant impact on the operation of a university. Considering the limited size of the higher education market, decisions by competitors can significantly influence the operations and strategy of universities. Employers have a special connection to universities, as universities are their suppliers, "delivering" them skilled graduates.

Table 1: Main university stakeholder groups

Primary internal stakeholders	Primary external stakeholders	Secondary (external) stakeholders
Current students Employees Management Marketing and PR department	Alumni Prospective students Parents Accreditation commission Donors Ministry	Media Local authorities Community Competitors Employers Government High schools

Source: Slabá (2015, 320)

Choosing a university and a degree is a complex customer decision, affecting students' life in the long term. They will spend several years at the university and practice their chosen profession for decades. There are many aspects to be considered, but is sustainability one of them?

2.3. Student awareness for sustainability issues

According to a recent study conducted by QS (2019), 43% of prospective international students would prefer a university to learn about reducing their environmental impact. They would like to learn more about solving problems by thinking about whole systems, including different connections and interactions (59%), understanding how to create change (57%), and how to use resources efficiently to limit the impact on the environment and other people (56%). The conclusion can be drawn that young people have already recognised their responsibilities as future leaders and would like to get prepared during their studies. Besides personal motivations, 41% of survey participants considered it very important and 47% essential that universities take actions to reduce their environmental impacts. However, they are not satisfied with the current environmental performance of higher education, as 94% agreed that universities could do more

to be environmentally sustainable. Only one-third of respondents found universities very environmentally friendly, while an additional 49% said they meet somewhat this expectation. Based on the responses of more than 3700 prospective international students following primary responsibilities of universities can be identified:

- Protecting the environment (66%).
- Developing sustainable technologies (65%).
- Developing green energy technologies (61%).
- Improving the quality of life in local areas (48%).

According to the prospective students, the five most important environmental activities for universities to engage in are:

- Increasing funding for research into sustainable initiatives.
- Reducing the amount of single-use plastics they use.
- Reducing the amount of waste that goes to landfills.
- Increasing how much energy comes from renewable sources.
- Installing energy-efficient lighting.

The identified main priorities refer to operations of the universities, except for funding for research. Campus operations seem to be one of the main priorities of sustainable universities. The next subchapter will identify the three main dimensions of sustainable development in higher education.

2.4. Sustainable development in the higher education

One out of the seventeen SDGs is about quality education (SDG 4) highlights the importance of education for society and the economy main responsibilities and commitments of higher education to society are teaching and research. As part of preparing students for future responsibility in their career, an increasing number of universities offer CSR modules in the curriculum, not only in business studies (Gerholz et al., 2015).

From a sustainability aspect, it is essential to note that the relationship between universities and their customers – the students – is exceptional. They spend a significant amount of time for several years at the headquarter of the organisation, the campuses. In many cases, they also live there, in the dormitories. Therefore, buildings are more significant and specific than average companies, having considerable environmental impacts. In many countries, university campuses operate like mini-cities, integrating various services. This is why campus operations are one out of three dimensions of the university sustainability model created by Mcmillin and Dyball (2009).

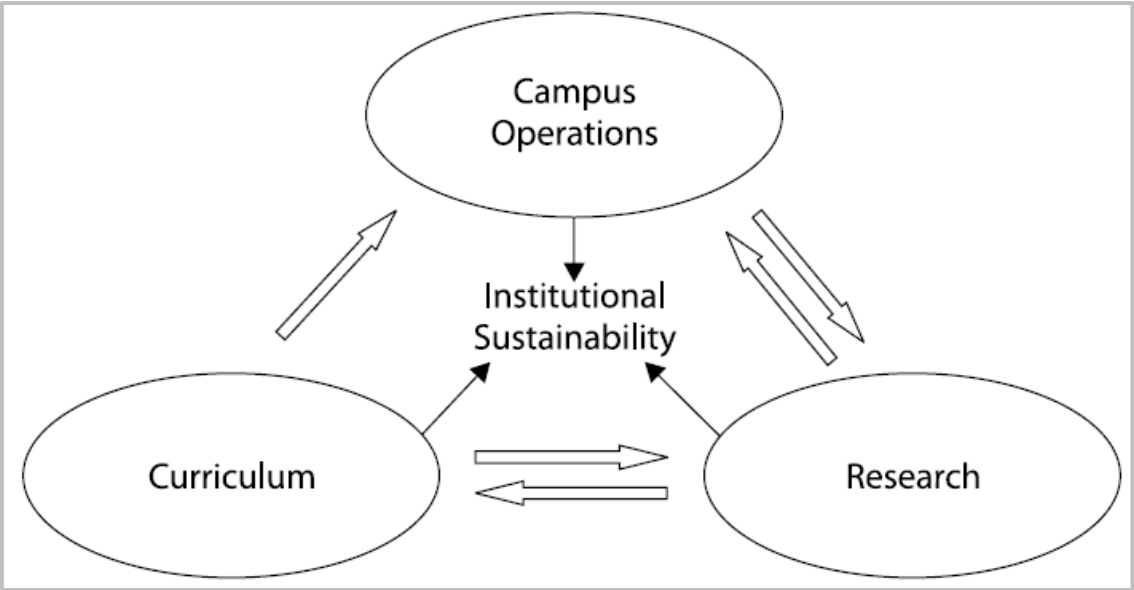


Figure 2: The three-dimensional model of sustainability at universities
 Source: Mcmillin–Dyball (2009, 57)

As Figure 2 illustrates, based on the core functions of the universities, three main dimensions of university sustainability can be identified – research, curriculum, and campus operations. Table 2 will list several examples for each category, based on the desktop research among websites and sustainability reports of leading universities. The two-way arrows represent significant elements of the model, as they show the interconnectedness of the three dimensions. Research projects and results can be integrated into the curriculum, or sustainable campus operations can become a research area. Students can also examine campus operations for formulating plans and suggestions for future development, as this can increase their awareness and engagement. If they experience sustainability during their life at the campus, they will get a better understanding of sustainability via a “shadow” curriculum (Mcmillin–Dyball, 2009).

Based on research results, prospective students prefer to learn about the environment in extracurricular activities within the departments (55%), as part of the coursework or dissertations to these issues, and through placements or work experience (54-54%) (QS, 2019).

Table 2 includes environmental, social, and economic examples for all three dimensions of university sustainability. Based on their impacts and stakeholders’ expectations, universities define their priorities for the long term while compiling and implementing their sustainability strategies.

Table 2: Sustainability activities in the higher education

Education	Research	Campus operations
<ul style="list-style-type: none"> • Subjects about sustainability • Integration of sustainability into the curriculum • Integration of sustainability into all subjects • Awareness-raising events • Competitions around sustainability • Individual challenges around sustainability • Gamification of sustainability • Sustainability-related projects • Sustainability-related volunteering opportunities • Sustainability-themed internship • Engagement of alumni 	<ul style="list-style-type: none"> • Researching sustainability of the university • Sustainability-related innovations and patents • Researching sustainability education practices • Collaborations with governmental bodies on research projects • Co-operation with the business sector on sustainability-related innovations • Contribution to solve local sustainability issues • Joint research activities in partnership with other universities 	<ul style="list-style-type: none"> • Staff engagement • Role as a local employer • Employee rights • Diversity • Wellbeing and mental health of staff • Supporting local suppliers • Environmental audit and management • Ethical investment • Sustainable sourcing • Sustainable buildings • Sustainable energy sources • Water management • Carbon reduction • Waste management • Recycling • Reduce paper use • Sustainable food • Less / alternative travel modes • Engagement of local community

Source: Own research

2.5. The impact of the COVID-19 pandemic on sustainability on higher education

The COVID-19 pandemic has significantly affected higher education in the last two years. A recent empirical study (Rodrigues et al., 2021) identified ten main fields being affected by the pandemic situation:

- *Change in priorities:* The focus has shifted from productivity to personal and collective wellbeing, recognising the diversity of needs and vulnerabilities.
- *Inequalities:* Universities should recognise how the crisis has widened gender, ethnic, and class inequalities, which universities should recognise. Vulnerable groups should receive additional funding and technical support.
- *Emergency support:* Funding for non-essential costs can be redirected to cover student and faculty emergencies as direct support.

- *Remote working*: Besides business-focused meetings, online supportive meetings are important during a crisis. After the pandemic, universities should consider teleworking and teleconferencing options if feasible.
- *Remote teaching*: During the crisis, it should be considered that students and teachers might have difficulties with participating in remote teaching and learning; therefore, the participation and evaluation criteria should be adjusted. After the pandemic, universities should consider the pros and cons of increased remote teaching.
- *Research*: To enable collaborative research and writing, new data collection and dataset sharing practices are necessary.
- *Dissemination*: Annual conferences could be replaced by smaller online meetings every two years to decrease carbon emissions and support the participation of geographically remote participants.
- *Productivity*: Productivity measures should be revised and extended by community-related activities, for example, supporting colleagues and students.
- *Evaluation*: Timelines for faculty promotion of grand eligibility should be extended by one year.
- *Hiring*: Long-term academic positions should be prioritised over short-term contracts. Adjunct teaching staff and online teachers should receive increased pay compensations.

This list of suggestions includes several ideas for decreasing negative environmental, social, or economic impacts and increasing positive ones. In the long term, these could become the “new norm”, not just a solution to a pandemic situation.

3. Sustainable university best practices

This chapter will introduce the Times Higher Education Impact Ranking, which is the only SDG-based university sustainability ranking and sustainability highlights of the top3 universities.

3.1. The Times Higher Education Impact Ranking

The Times Higher Education Impact ranking’s third edition was published with 1115 universities from 94 countries in 2021 (Times Higher Education, 2021a). It is the only ranking which assesses universities against the UN Sustainable Development Goals, based on the data provided. Among the sustainability goals, SDG Nr. 17, partnerships have the highest weight. The methodology focuses on the following four main areas (Times Higher Education, 2021b):

- Research (research about sustainability-related issues).
- Stewardship (resource management, treatment of employees, faculty, and students).
- Outreach (local, regional, national, international community relations).
- Teaching (developing skilled practitioners and alumni).

Table 3: The Times Higher Education Impact Ranking top list (2021)

Rank	Name of the university	Country	Total score
1	University of Manchester	United Kingdom	98.8
2	University of Sydney	Australia	97.9
3	RMIT University	Australia	97.8
4	La Trobe University	Australia	97.3
5	Queen’s University	Canada	97.0
6	University of Wollongong	Australia	96.1
6	Aalborg University	Denmark	96.1
8	University College Cork	Ireland	96.0
9	Arizona State University	USA	95.8
9	University of Auckland	New Zealand	95.8

Source: Times Higher Education (2021a)

Table 3 lists the first ten universities with the highest total score. 4 out of the top 10 universities operate in Australia, and there are only 3 European higher education institutes among the best ones. Considering the whole list, Russia and Japan are the most-represented countries with 75 and 73 institutions (Times Higher Education, 2021a).

There are altogether 6 Hungarian universities listed in the ranking (Times Higher Education, 2021a), but unfortunately, there are no universities among the leaders from this region.

- Rank 201-300: University of Pécs.
- Rank 301-400: University of Debrecen, University of Szeged.
- Rank 401-600: Semmelweis University.
- Rank 601-800: Eötvös Loránd University, Széchenyi István University.

The following subchapters will introduce the most sustainable universities of the latest impact ranking.

3.2. University of Manchester

The University of Manchester was the first university in the United Kingdom to place social responsibility as a core goal. The sustainability strategy is based on four main areas: research, learning and students, public engagement activity, and operations (University of Manchester, 2021). The latest sustainability report summarises performance along the 17 SDGs in these four areas, providing a clear and understandable overview, yet rich in data and initiatives

The university produced 4% of the United Kingdom's research across the 17 Sustainable Development Goals and delivered 5625 study units linked to them. The main research focus was good health and well-being (SDG 3), with more than 15 thousand of publications, while student engagement was the highest in the field of industry, innovation, and infrastructure (SDG 9), altogether more than 83 thousand units have been delivered regarding this topic. The institution is an active member of the local community, and it works in partnership with other organisations, authorities, and health experts on the Health Innovation Manchester. They aimed to solve healthcare challenges across the Greater Manchester region and improve the health and well-being of its 2.8 million citizens (University of Manchester, 2021).

The university is an accredited employer for Living Wage, Race, Gender, and LGBTQ+ equality. It is committed to becoming a zero-carbon campus by 2038. To decrease environmental impacts of operations, 232 tonnes of food waste was sent for anaerobic digestion instead of disposal. The university purchased vegetables from a local, organic, and ecological farm, Kindling Trust. Want Not Waste, the student-run, zero waste shop of the campus, holds a community fridge with unsold meals offered by local businesses and surplus raw ingredients from the catering outlets (University of Manchester, 2021).

In the Times Higher Education Impact Ranking, the university received highest scores at the following SDGs: Industry, innovation, and infrastructure (SDG 9), Sustainable cities and communities (SDG 11), Responsible consumption and production (SDG 12), Partnerships for the goals (SDG 17) (Times Higher Education, 2021a).

3.3. University of Sydney

University of Sydney is Australia's first university, with a rich tradition of developing leadership for good. The main sustainability priorities of the University of Sydney are the following (University of Sydney, 2020a):

- Establishing campuses as sustainability living labs.
- Foregrounding Indigenous knowledges and histories in sustainability work.
- Decreasing ratio of staff and students travelling to campus by private motor vehicle by 10% and 5%.
- Sourcing 100% of electricity from renewable sources.
- Becoming "single-use plastic-free" campuses.
- Reducing potable water use by 30% per person.
- Sending zero waste to landfill.
- Expanding the multidisciplinary sustainability education offerings.

Most of the main goals focus on more sustainable campus operations, but several goals emphasize the research and educational activities. The “Caring for Country” serves as a framework for the sustainability strategy with its three main pillars: enriching lives through research and education; enabling resilient places and a responsible footprint; empowering good governance and coordination (University of Sydney, 2020a). The first pillar can be translated to two main dimensions of university sustainability: curriculum and research, while the second and the third pillars correspond to campus operations.

The sustainability report of the university summarises the sustainability performance according to the 17 SDGs, focusing on education, research activities and operations. To support implementing SDG 6 (Clean water and sanitation), the institution offers a humanitarian engineering major program, focusing on the needs of global communities and sustainability. The own community garden of the university, “Ground Up”, open to both staff and students, was created in 2014. People can learn there how to grow and harvest organic fruits and vegetables but is also a good tool for educating urban agriculture to students and the wider community (University of Sydney, 2020b).

The latest sustainability strategy also addressed the new challenges caused by the COVID-19 pandemic. As a result of financial losses, several infrastructural developments envisaged by the sustainability strategy in 2019 had to be cancelled. Based on the understanding of the university, this crisis strengthens the need for a sustainability strategy aligning research, education, and operations and aiming for cultural and behavioural change. It plans to develop and pursue opportunities to improve sustainability-related education and translate academic research results into sustainable operational practices. As a gesture of solidarity, a “Solidarity Tree” initiative was started, where members of the community could show their support to the students whose studies were affected by the travel ban (University of Sydney, 2020a).

The university received best scores in the Times Higher Education Impact Ranking for its performance in the dimensions of Clean water and sanitation (SDG 6), Sustainable cities and communities (SDG 11), Life on land (SDG 15), and Partnerships for the goals (SDG 17) (Times Higher Education, 2021a).

3.4. RMIT University

The Royal Melbourne Institute of Technology (RMIT) has had a Sustainable Committee since 2018, being responsible for planning and implementing the university-wide sustainability strategy, focusing on research, learning, and teaching, operations, and governance. The project started with an awareness-raising stage, continued defining capabilities, looking for internal and external collaboration opportunities, and designing and implementing a sustainability measurement process. The latest sustainability report provides several examples for RMIT’s contributions to the SDGs framework. The “Propeller” Model of participatory, place-based, sustainable development emerged from a research project of RMIT European Union Centre’s Jean Monnet Sustainable Development Goals Network. The propeller has three main elements: relating, learning, and measuring; it portrays the forward movement through the interactions of these elements. The white paper “Towards a Sustainable Development Goals Transformation Platform at RMIT” has been published by two RMIT professors. It supported the university in embedding the SDGs in the strategic agenda of the institution and stimulated thinking and ambitions about the SDGs in particular areas like the education portfolio. Another project focused on mapping the SDGs and sustainability education, intending to report about SDG-related teaching and learning practices. United Nations Association of Australia published together with RMIT professors a research report about trends in sustainability reporting among the top 150 Australian public-listed companies. This research contributed to the further use of SDGs as a framework for sustainability reporting and sustainability performance management (RMIT, 2020).

Students at the university can use the “Know Your Money Mindset Credential” to learn more about their personal values and mindset that can impact their money habits and influence personal financial decisions. The credential supports them with valuable tools and resources to

help them further. During the pandemic, the university was forced to shift learning and teaching activities online, enabling the development of digital campuses, focusing on optimising the digital learning environment. After the pandemic, this can offer future opportunities, as students will be able to decide where and how they would like to learn. For example, students might not need to travel to the campus for lectures in the future. The university integrated sustainability considerations into its procurement practices considering sustainable campus operations. The sustainable procurement plan expects suppliers to meet minimum requirements (RMIT, 2020).

The university collected the highest scores at following Sustainable Development Goals: Decent work and economic growth (SDG 8), Industry, innovation, and infrastructure (SDG 9), Reducing inequalities (SDG 10), and Partnerships for the goals (SDG 17) (Times Higher Education, 2021a).

4. Conclusions

The higher education sector has several specialties in sustainability, considering its main activities, impacts, and stakeholders. The paper introduced the most relevant stakeholders, the three main dimensions of university sustainability, and a sectorial sustainability ranking. Summaries of best practices from leading universities highlighted relevant examples and drew attention to focus on local challenges and stakeholders' expectations.

Their expectations and pressure from their side are usually driving forces for organisations to become more sustainable. Research results show a significant interest from prospective students' side towards universities to focus more on their environmental, social, and economic impacts and activities.

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