Journal of Sustainability Perspectives

journal homepage: https://ejournal2.undip.ac.id/index.php/jsp/

A Whole-Institution Approach Towards Sustainability at NOVA University: a Tangled Web of Engagement Schemes

J. Seixas[1], J. L. Rodrigues[2]*

[1]NOVA University Lisbon, Professor/Pro-Rector, Campus de Campolide 1099-085 Lisboa, Portugal

[2]NOVA University Lisbon, PhD student/ Sustainability Coordinator, Campus de Campolide 1099-085 Lisboa, Portugal

[*]corresponding author: julia.seixas@unl.pt

Article Info

Received:
23 May 2023
Accepted:
10 July 2023
Published:
30 July 2023

DOI:
10.14710/jsp.2023.19969

Presented in the 9th International Workshop on UI GreenMetric World University Rankings (IWGM 2023)

Abstract.

NOVA University Lisbon ambition to become a sustainable university following a whole-institution approach raises several challenges, due to the diversity of culture and governance of its nine schools spread over eight campuses in four municipalities. Engaging NOVA community is critical to achieve systemic changes, but very hard to carry coherently and at the same pace across all schools and throughout all its members. Different engagement schemes, interlinking a top-down one from the rector and the board of deans, who leads the vision, with several bottom-up schemes in education, research, value creation and operations are being implemented to carry out different purposes towards the common goal. NOVA for the Globe strategic platform and NOVA zero-waste task force are examples, among others, showing sustainability implementation at the university starts with people cooperation around the same ambition.

Keyword:

Strategic Thinking, Systemic Change, Engagement, University, Whole-Institution Approach.

1. Introduction

Currently, within the University's boundaries, every member of the community (i.e. professors, researchers, students, staff) is willing to take sustainability principles and objectives as a key driver for its tasks. However, in many occasions, a large proportion of those members are not able to adopt those principles and best practices in their working days. In most cases, this frustration is due to the absence of a common framework of skills and tools the University does not (but should) make available for its community.

Experts and world leaders in business, government and civil society place social and environmental issues at the top of the list of the most serious risks on a global scale for the

next 10 years [1]: (i) failure to mitigate climate action, (ii) failure of climate change adaptation; (iii) human inability to deal with natural disasters and extreme weather events, (iv) loss of biodiversity and ecosystem collapse, and (v) large-scale involuntary migration. The global scale, the complexity of natural systems' functioning and the long-term beyond our generation are levers of risks perceived by common people as very serious and gigantic. The University's community perceives these risks similarly or even bigger, and must assume its own responsibility to contribute to solutions, because it is a knowledge source, a technology provider and an open discussion space.

The University is the most privileged of organizations to deal with the challenges of sustainability, firstly because of the missions it delivers to society (i.e. education; research and innovation; creation of value), and secondly because of the responsibility in training young people, as future leaders and professionals. Education helps shape mentalities and assists in learning different skills, and is the gordian knot that deserves the highest priority. How to teach for a systemic transformation (for example, of economies) towards sustainability? How to teach to deliver effective contributions for sustainable development goals and for the Paris Agreement ambition? How the university should listen and understand the expectations of its students about the future they want for themselves, and how these are being integrating in the learning process? Are the tools sufficient and adequate to deal with the complexity of the interrelationships between human and natural systems? Do the learning models in place are adequate to foster the creativity and passion that each student has the potential to develop? It is up to the University to question itself about these and other questions with the humility to recognize what must change. The impact of teaching models is reflected in critical and active citizens, and in innovative and creative professionals. The University must urgently ensure knowledge and skills on the impact on the Planet's sustainability (understood in the environmental and social dimension), in all education programs.

Research and innovation are the most valuable assets of the University, as engines of human development. In every scientific scope, researchers must know how to answer the following question: How does my research contribute to sustainable development? The scope, the boundaries of the problem, the assessment tools must be part of any research plan, knowing that the potential contribution of research to the sustainability of the Planet is more likely to be achieved.

The University is an open organization with multiple interfaces with society and economy agents, which allows it to promote value creation and the impact of its knowledge. The challenges posed by sustainable development, taking its environment, social and economic dimensions, require the University to play a central role in the urgent systemic transformation, which will likely to occur only if settled in cooperation with market organizations and civil society. This is a demanding task that requires the University's availability to create dialogues and practices, taking for certain that science-based decisions (public or private) are more positive for the common good. The University is a safe space for the future of societies, whether in the creation of new products and services, or in the contribution to public policies. To this end, the University must assume the integration of sustainability principles, methods and objectives across all its missions.

Moreover, the University should lead by example, meaning that environment and social best practices must be in place in all the aspects of the organization, from academic management, to research practices and amenities and services provisions.

NOVA University Lisbon takes sustainability as a strategic value for its development, and aims to mainstream it into all aspects of the institution, which implies the implementation of sustainable principles, practices and tools throughout the institution, across its missions, thus adopting a "whole-institution approach", to achieve the potential to transform itself and to transform the world [2; 3].

In 2022, NOVA served 24 667 students, 23% from abroad. Together with 1760 faculty and 1236 staff, NOVA's population totals 28 261 people, organized in nine schools, spread over eight campuses located in four different municipalities [4]. Schools of science & technologies, of social sciences and humanities, of economics and business, of information management, of medicine, of public health, of tropical diseases, of law and biotechnology institute offer a wide range of scientific background and different cultures to cope with, when thinking and implementing a sustainability strategy.

The first challenge faced is mobilization: how to call up NOVA community of more than 28 000 people to the ambition of taking sustainability in their functions and tasks? Engaging NOVA's community is critical to meet the ambition and the actions towards the necessary organizational changes, and it is found hard to do it coherently across all schools and services and at the same pace. This paper shows a tangled web of engagement schemes NOVA University has been implementing taking the whole-institution approach and show how it enables the success with selected examples. The originality of this paper relies in the simultaneous top-down vision and bottom-up action approach NOVA is taking to engage all its community. Like a puzzle, students, faculty and staff representatives are part of multiple schemes and task groups to boost NOVA transformation towards a sustainable University. Suppliers and other third parties are not considered in this paper, since innovative schemes to engage them are still under testing, as they are crucial agents of transformation, either upstream (i.e. goods and services providers) and downstream (i.e. employers, partners).

2. Leadership is imperative: vision and decision

The Rector's 2017-2021 Action Program mentioned the intelligent specialization of NOVA's resources, especially research, to be guided by the national and European agendas for sustainable development. The implementation of this desideratum was embodied in the governance body named 'Strategic Platform', as stated in Article 35 of the NOVA University Lisbon statutes. The Strategic Plan 2020-2030 for NOVA, that guides the university agenda across its missions towards goals and milestones, explicitly considers the importance of the United Nations 2030 Agenda by aligning the importance of the triple mission of the University to contribute to each of the 17 sustainable development goals (SDG), and by operationalizing it through the NOVA 4The Globe (N4G) strategic platform. In the Rector's 2021-25 Action Programme, sustainability is central and is associated with NOVA's missions to contribute to the solution of global problems and as an element of its internationalization strategy. These documents make visible the top level vision on sustainability as a key enabler for the development of NOVA University Lisbon. Therefore, on November 2021 the sustainability policy paper was approved unanimously by the deans of all nine schools, taking the ambition and goals defined in the European Green Deal and in the Paris Agreement, while considering the ambitious targets of the UN SDGs. Following the Rector's action programs, leadership for sustainability at NOVA has been taken at different stages, namely:

i. the appointment of a pro-rector dedicated to the subject, who is in charge of proposing and coordinating the design, preparation and implementation of initiatives and

programmes towards sustainability goals;

ii. the NOVA 4The Globe strategic platform, coordinated by the pro-rector, with representatives from all schools, and with the role of strategic and systemic thinking across the three missions and operations of the University. NOVA 4The Globe includes two Councils: the Academic Council (totals 12) with faculty members representative from all schools, plus a student from NOVA Ágora (see section 5) and the Operational Council (totals 14) with staff members representative from all schools plus a student from NOVA Ágora, plus representatives of the Social Welfare Services and of the rectory. The Academic Council aggregates the knowledge with impact on the SDGs carried out at NOVA, while the Operational Council contributes with various initiatives and organizational practices and monitors the university's performance;

iii. board of the deans from nine schools, meets regularly once a month, to discuss and decide on sustainability matters within a coherent framework at the University level.

These governance bodies have been played a crucial role to facilitate the engagement of NOVA community in several schemes and initiatives, supporting that vision and ambition. Without a clear leadership on the importance of sustainability in the strategy of NOVA University, aspects like the engagement of staff for working groups or faculty for task forces for example, would be much more difficult or even impossible. Moreover, a clear connection with the schools' deans clarifies the decision making process, which impel people to work for effective proposals.

Each NOVA school may decide, based on its administrative and financial autonomy, on its own sustainability actions and own governance bodies (e.g. some schools has a deputy director in charge of sustainability, others do not), meaning some schools have in place more ambitious programmes than others. The pro-rector and the NOVA 4 the Globe strategic platform work to drive and boost all the schools and services to get common grounds, milestones and goals. This paper does not refer to any aspect of a particular school but focuses on the integrative framework at the University level, considering the different missions for which NOVA for the Globe platform works for.

Figure 1 illustrates the interlinked engagement schemes around faculty, students and staff and how they relate with leadership and decision. Next sections will go further on this tangled web of engagement schemes.

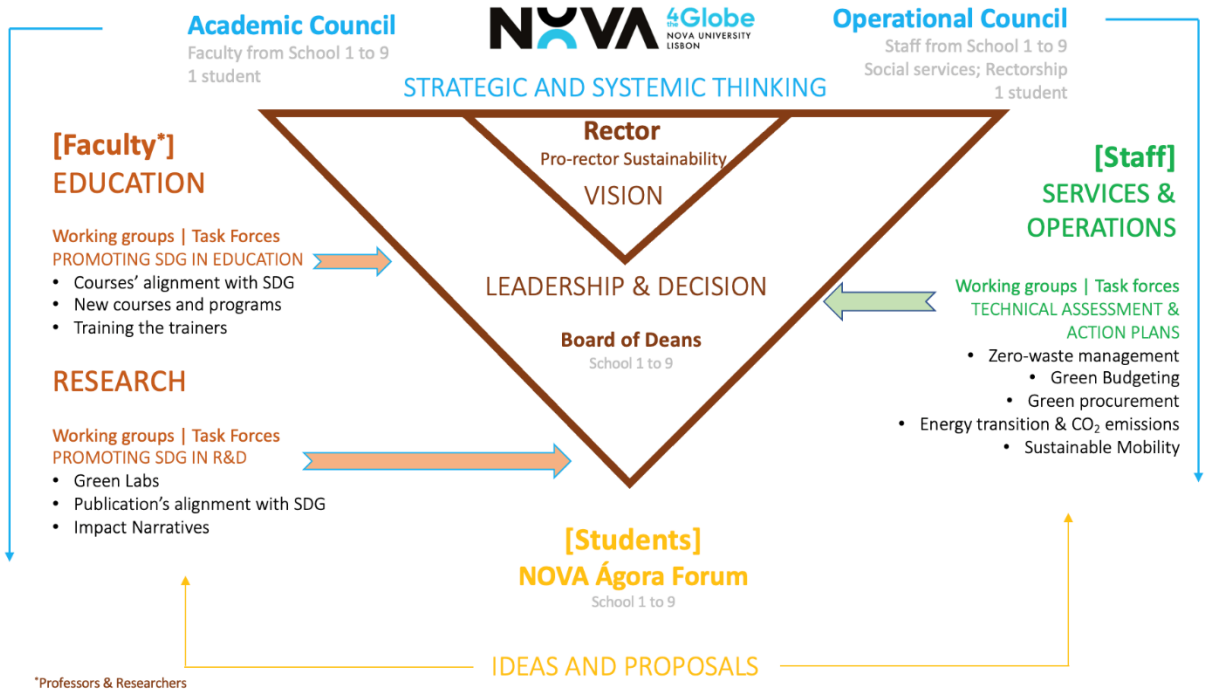


Figure 1. Tangled web of engagement schemes around faculty, students and staff and its linkages with leaders and decision makers at NOVA university level, covering its missions and operations

3. Faculty: builders of impact through research and education

The bottom line of research and education related with sustainability at NOVA is reasonable, as shown in Figure 2. In 2022, NOVA faculty included 1 244 professors and 516 researchers, 40% in social science, arts and humanities, 30% in health and 30% in STEM areas.

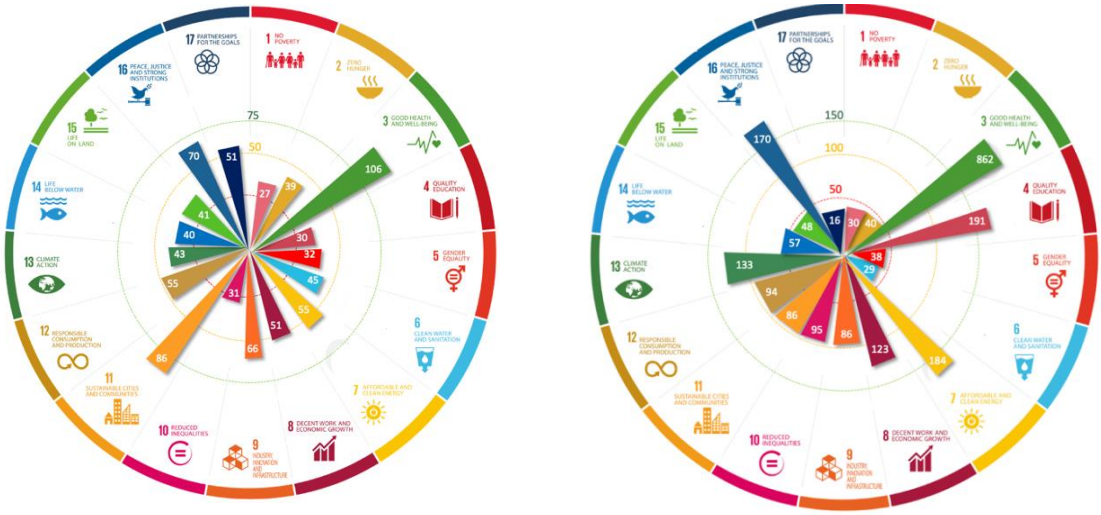
The nine schools offer more than 250 undergraduate, masters and PhD programmes, with almost 4000 courses, 372 (9%, mostly in masters' curricula) of them addressing at least one SDG. In 30% of these courses, a primary and explicit focus on sustainability was reported, and in 70% sustainability challenges, issues and concepts were referred. All SDGs have been addressed, with SDG3 and SDG11 being the most popular. SDG7, SDG8, SDG9, SDG12, SDG16 and SDG17 were addressed in more than 50 courses each. The network of coordinators of all education programs assure this analysis, under the guidance of the NOVA council for education chaired by the vice-rector for Education.

The methodology behind this assessment includes a yearly-updating survey answered by all courses' responsible regarding the nature of the course, following the criteria 'Sustainability course offerings' from STARS (The Sustainability Tracking, Assessment & Rating System, a programme of the Association for the Advancement of Sustainability in Higher Education), which include (A) sustainability-focused courses and (B) sustainability-inclusive courses [5]. The education program coordinators collect these answers and send them to NOVA council for education, who consolidate them and send to NOVA sustainability coordinator. This initiative has settled as a collaboration between pro-rector for sustainability with the vice-rector for education.

In order to tackle sustainability background education to all NOVA undergraduate students, independently of the programme they are enrolled with, a new course is under preparation through an innovative process: 'Sustainability for all' is organized around 12

stand-alone modules on SDG and an in-person final hackathon. Each module is prepared by at least two faculty from different schools to assure a multidisciplinary approach, meaning 30 faculty engaged from the nine schools. The final hackathon will join students from different backgrounds to gather the value of interdisciplinarity to solve complex problems around SDG.

Yearly, more than 300 professors (around 25% of NOVA professors) have been engaged into sustainability matters.



Courses alignment with SDG

Research publications alignment with SDG

Figure 2. Alignment of courses and research publications with SDG at NOVA for 2022

Regarding research, NOVA hosts 39 R&D Units, with 92% of them ranked as very good and excellent research units (FCT, 2019). In 2022, 32% of the total scientific publications referred direct contributions to SDGs, being SDG3 the most mentioned, SDG 4 the second most mentioned, and SDG16 the third. SDG 7 and 8 had more than 100 mentions in those publications. Research outputs regarding SDG were classified through the use of the Elsevier Sustainable Development Goals Mapping algorithm [6] over the NOVA's Current Research Information System, in particular over the Research outputs [7].

A new initiative engaging NOVA researchers to boost the impact of their research, has been promoting their learning on how to build impact narratives while looking deeper in sustainability issues. First edition of Research Impact Narratives Challenge (https://www.unl.pt/en/research/impact) received 29 applications, engaging almost 140 researchers. This initiative has settled as a collaboration between pro-rector for sustainability with the vice-rector for research.

Four of the nine NOVA schools develop research and education in the areas of life sciences, environmental engineering, chemistry and biochemistry and health, making intensive use of 198 wet labs. NOVA GreenLabs is a research-led group with 12 faculty from those schools to map, assess and change the way resources are used, namely single use plastics, energy and water, following the Laboratory Efficiency Assessment Framework [8]. Engagement schemes in each school/department are in place anchored in one champion in each lab to mobilize more than 5 500 researchers and students for sustainable practices.

4. Staff: game changers of operations and processes

Infrastructures and services available at the NOVA Campuses and the three halls of residence provide amenities aiming to create the conditions for a smooth and happy daily life which accounts for the very diverse needs of students, professors, researchers, staff and visitors, promoting inclusivity in terms of religion, sexual orientation, ethnicity among others. The nine schools of NOVA University total more than 821 thousand m2 to support its community of more than 28 000 people. Three halls of residence offer 460 beds for students [4]. NOVA infrastructures develop over almost 99 thousand m2 of ground floor area and 495 thousand m2 of green areas (60% of total area) [4]. Around 1300 staff assure the daily services and are key actors to change and adopt sustainable practices.

In 2022, the environmental indicators related with energy consumption showed a downward trend since 2019 (base year) [4]: (i) 10% decrease of electricity consumption (including 2% of domestic production); (ii) 19% decrease of gas consumption. On a contrary trend, water consumption (including 10% from own resources) increased by 11%, compared to 2019. The estimation of CO2 emissions related with energy consumption (Scope 1 and 2, according to GHG Protocol) in 2022 (5 188 tCO2) decreases 24% in comparison with 2019, which is explained partially by the reduction in energy consumption and by the decrease of the carbon intensity of electricity purchased from the grid (-17% on average in 2022 compared to 2019). CO2 emissions regarding scope 2 were estimated following the market-based method [9], based on an average of the emission factors included in electricity suppliers' bills.

Changes in the support practices of everyday life requires the engagement of the whole community and has the potential to inspire individuals and to impact massively. This is the responsibility NOVA staff members have been assumed regarding sustainable practices in several aspects, through several working groups and task forces with staff from all NOVA schools and services:

i. Ban of bottled water in all campuses, by providing drinking fountains in open spaces, and material to faculty and staff offices [in place]
ii. Developing an action plan on waste management aligned with the zero-waste concept [under development, partially in place]
iii. Clean and efficient energy transition [under development, partially in place]
iv. Sustainable and circular criteria included in public procurement practices [pilot]
v. Mobility assessment and alternative sustainable solutions proposals with mobility partners [under development]
vi. Green budgeting, through classification of investment and current expenses according to its relationship with SDG [pilot]
vii. Green spaces transformation to adapt to drought summers [pilot]

Some of the changes under development and planned will engage directly the staff in the services (e.g. public procurement, green budgeting), while others engage the whole community (e.g. drinking water, waste management, mobility options). Currently, around 70 people are engaged in the assessment, data management and preparation of proposals towards changes to be implemented across NOVA University practices and procedures. The impact of these changes is expected to reach virtually the whole community.

5. Students: the big wave

Students represent about 87% of NOVA community, with almost 25 000, being 53% undergraduate, 37% master and 9% PhD students. Students carry new approaches, values and expectations and University must have mechanisms to listen them. Regarding sustainability, students are the big wave to take changes in the campus, either by taking those under preparation and those they bring with themselves. The students' unions of all schools have initiatives and clubs on sustainability matters. At the University level, NOVA Ágora was created in 2022 as a students' forum with representatives from all NOVA schools, with the aim of discussing and developing activities in the area of sustainability for the University within the student context. NOVA Ágora is an opportunity to engage different generations to jointly address mutual concerns, and reflecting any different perspectives which may arise. These perspectives and opinions are addressed in NOVA 4 The Globe's platform, both at academic and operational councils, where one student from NOVA Ágora is integrated.

Annually, NOVA Sustainability days take place as a bold event to engage NOVA community, by interlinking their activities with SDG. The first edition, in sept 2022, promoted multiple actions around NOVA's missions and organizational activity, bringing together more than 200 professors, researchers and staff from all schools. Priorities from this edition include promotion actively interdisciplinarity across the scientific domains of the nine schools; advance on pedagogical innovation as a strategy to expand the education around SDG; promote opportunities to share good practices among teachers and staff from the different schools. The 2023 edition will take place in October and will include NOVA partners and stakeholders, recognized as valuable actors to accelerate the implementation of sustainability strategy in NOVA university.

6. Concluding remarks

NOVA is a comprehensive European university with nine schools: science and engineering, social sciences and humanities, medicine, public health, tropical medicine, life science technologies, economics and business, law and data and information science. NOVA has taken on the 17 Sustainable Development Goals of the United Nations and the European Ecological Pact as its main agenda for society. This is the commitment that lies beneath our strategic vision of being a global and civic university. Despite spanning diverse scientific areas and cultures, the common goal of changing towards a sustainable University has mobilized the community in several engagement schemes with faculty, staff and students, under the vision and leadership of the top level governance bodies. NOVA is dipping in several programmes, crossing its triple missions and its infrastructures and services, adopting a whole-approach institution approach as pointed out by several authors [10]. Key characteristics of this approach are clustered within five core principles (coherence, continuous learning, participation, responsibility, long-term commitment), seven highly integrated areas of action (governance, curriculum, campus, community, research, communication, capacity building), the underlying organizational culture, and critical conditions for successful implementation [11]. NOVA University is paving its pathway based on these principles and areas, taking the engagement of hundreds of people from its community as key enablers of its strategy, to assure tangible impacts.

References

[1] WEF (2023) The Global Risks Report 2023, 18th Edition. World Economic Forum. ISBN-13: 978-2-940631-36-0

[2] Rieckmann, M. (2018), “Chapter2: Learning to transform the world: key competencies in education for sustainable development”, in Leicht, A., Heiss, J. and Jung Byun, W.(Eds), Issues and Trends in Education for Sustainable Development, UNESCO, Paris. Available at: https://unesdoc.unesco.org/ark:/48223/pf0000261445?posInSet=6&queryId=0fa2cd23-2299-427c-8f61-217ef22792e0 (accessed 1 May 2023)

[3] Thomas, L. (2017) Understanding a whole institution approach to widening participation: Final report. Liz Thomas Associates. Office for Fair Access. 18th September 2017. Available at https://www.officeforstudents.org.uk/media/a57bfc5e-bc68-49ee-8e79-0eed3f5be844/understanding-a-whole-institution-approach-to-wp-final-report.pdf (accessed 1 May 2023)

[4] NOVA University Lisbon (2023). Sustainability at NOVA 2022, Facts and Figures. Lisbon. 35 pp. Available at: https://sustainability.unl.pt/wp-content/uploads/2023/06/AF_NOVA-sustainability_050623.pdf

[5] STARS Technical Manual, Version 2.2, June 2019. Association for the Advancement of Sustainability in Higher Education. Available at: /https://stars.aashe.org/wp-content/uploads/2019/07/STARS-2.2-Technical-Manual.pdf

[6] Bedard-Vallee, Alexandre; James, Chris; Roberge, Guillaume (2023), “Elsevier 2023 Sustainable Development Goals (SDGs) Mapping”, Elsevier Data Repository, V1, doi: 10.17632/y2zyy9vwzy.1

[7] NOVA Research Portal, NOVA University Lisbon. 2023 Available at: https://novaresearch.unl.pt/en/publications/ .

[8] LEAF - Laboratory Efficiency Assessment Framework, University College London. Available at: https://www.ucl.ac.uk/sustainable/leaf-laboratory-efficiency-assessment-framework

[9] [9] Mary Sotos (2015). GHG Protocol Scope 2 Guidance. An amendment to the GHG Protocol Corporate Standard. World Resources Institute and World Business Council for Sustainable Development. ISBN: 978-1-56973-850-4. Available at: https://ghgprotocol.org/sites/default/files/2023-03/Scope%202%20Guidance.pdf

[10] Kohl, K., Hopkins, C., Barth, M., Michelsen, G., Dlouhá, J., Razak, D.A., Abidin Bin Sanusi, Z. and Toman, I. (2022), "A whole-institution approach towards sustainability: a crucial aspect of higher education’s individual and collective engagement with the SDGs and beyond", International Journal of Sustainability in Higher Education, Vol. 23 No. 2, pp. 218-236. https://doi.org/10.1108/IJSHE-10-2020-0398

[11] Holst, J. Towards coherence on sustainability in education: a systematic review of Whole Institution Approaches. Sustain Sci 18, 1015–1030 (2023). https://doi.org/10.1007/s11625-022-01226-8