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Monitoring the integration of Sustainable Development into higher education teaching: a collaborative learning approach

Abstract

Driven by intrinsic and extrinsic commitment to sustainable development (SD) since 2009, the University of Bern has pursued the integration of SD into research, operations, and teaching. In the latter, it has set itself the objective of integration throughout all study programmes. We present how monitoring this integration has been re-conceived to enable greater adoption of SD by lecturers and faculties, while respecting the principle of academic freedom. This has been possible through efficient use of the macro, meso, and micro levels of action and responsibility, and by offering safe spaces for collaborative learning.

Keywords

integrating SD into teaching, monitoring sustainability, reflective monitoring, safe space for learning, levels of action

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1 Introduction

Integrating sustainable development (SD) into teaching has been placed high on the agenda by higher education institutions (HEIs) around the world (ÁVILA et al., 2017; STOUGH et al., 2018). In Switzerland, the University of Bern was one of the first HEIs to include SD in its mission statement, vision, and strategy. With a strong history of inter- and transdisciplinary research for SD since the early 1980s, the University of Bern made sustainability one of five thematic priorities in 2013 (UNIVERSITY OF BERN, 2013). Its current strategy (UNIVERSITY OF BERN, 2022) specifically aims at the integration of SD into all of its study programmes. Even if the level of integration required is only minimal, it is a remarkable objective, considering that all faculties are guaranteed freedom in research and teaching.

This article seeks to answer the following questions: What can we learn from this experience of integrating SD into teaching throughout the university? What progress has been achieved so far, who was involved in this process, and what levers were used at what levels? Before addressing these questions, we provide a brief history of the integration of SD into teaching at the University of Bern and reflect on the importance of monitoring this endeavour.

1.1 History

The integration of SD at the University of Bern was politically anchored as early as 1996 (BSG 436.11, 1996). In 2009, the Canton of Bern explicitly mentioned SD as a goal in its new performance mandate granted to the University (REGIERUNGSRAT KANTON BERN, 2009), making monitoring a requirement. In 2011, responsibility for monitoring sustainability and actively fostering integration of SD was assigned to the new Vice-Rectorate Quality. This was a pioneering decision, because it combined the integration of sustainability with quality management, making it more than just a "topic" to be included. Instead, sustainability became a "value" that needed to be discussed, defined, concretized, and monitored by all university actors. New funds were made available to advance the integration of SD specifically into teaching.

In 2016, the task of ensuring integration of SD into teaching across the whole university was delegated by the then Vice-Rector Quality as an "Education for Sustain-

able Development (ESD) mandate" to the Centre for Development and Environment (CDE). The aim of the ESD mandate was – and still is – to strengthen the thematic focus of SD in teaching at all faculties of the university and to ensure that every graduate has some knowledge of SD. An interdisciplinary ESD team was established at CDE to carry out the mandate. Fulfilling the mandate required offering support for lecturers in integrating SD into teaching and advising them on related issues (TRECHSEL et al., 2018).

Already in 2013, the Vice-Rector set the goal of introducing a "double lesson on SD" (i.e. at least two hours dedicated to SD per study programme) at Bachelor level (HERWEG et al., 2017). Furthermore, students had various options for deeper immersion into SD: three Bachelor Minor programmes (comprising 15, 30, and 60 ECTS credits) were launched in 2013 and one Master Minor in 2015. A Doctoral programme existed since 2009. The double lesson on SD was defined as "an absolute minimum" and corresponds to a "bolt-on" approach to integration of SD into teaching (see STERLING & THOMAS, 2006). But it holds significant potential, as it enables the university to ensure that the topic of SD is anchored in all disciplines offered, as opposed to being, for example, the sole focus of a single study programme only. Incorporating SD into regular courses has also proven to be the most effective approach for educating students and empowering them with tools and knowledge to promote sustainability in their future careers (SAMMALISTO & LINDHQVIST, 2008).

However, implementing this double lesson comprehensively is a challenge. All eight faculties of the University of Bern are free to define what SD means in the context of their disciplines. CDE's ESD team works with faculty members of a wide range of disciplines to jointly build an understanding of SD and foster the integration of SD in teaching. The ESD team also advises on deeper forms of integration, involving teaching that goes beyond knowledge transfer and corresponds to "build-in" and "curriculum redesign" approaches (STERLING & THOMAS, 2006) or even to the perspective of a Whole Institution Approach (UNESCO, 2014).

1.2 Monitoring sustainability

The University of Bern is required by law to report on its sustainability efforts to the Canton of Bern. To this end, annual monitoring of the integration of sustainability into teaching has been conducted since 2017/2018 (SCHMID et al., 2018). Reporting on sustainability allows an organization (private or public) to communicate both its values and performance to relevant stakeholders. In the HE context, these can involve internal (e.g. students, faculty) or external (e.g. government entities) stakeholders (CEULEMANS et al., 2015; LOZANO et al., 2015).

Sustainability reporting and assessment practices at HEI level have received increasing attention and various tools have been developed, diverse in their purpose, emphasis, and approach (CAEIRO et al., 2020; FISCHER et al., 2015). However, no consensus has yet been reached on exactly how to assess the integration of sustainability into curricula, as evidenced by the various assessment tools available to HEIs. The existence of different conceptualizations of "sustainability" complicates curriculum assessment because assessment presumes the ability to clearly qualify what is being assessed. Indeed, sustainability is a contested concept in constant transition, so assessing its integration is challenging (STOUGH et al., 2018). While embedding of sustainability in curricula at the programme level has been discussed (FIGUEIRÓ & RAUFFLET, 2015; LOZANO et al., 2015), little research exists on the long-term monitoring of university-wide integration of SD into teaching (EDWARDS et al., 2020). Moreover, (self-)reporting by institutions is often uncritical, or focuses on successes and achievements while omitting failures and problems (HOLST et al., 2020).

In this article, we address these issues by sharing the experience of the University of Bern as "reflective practitioners" (SCHÖN, 1983). In section 2, we identify key actors at various levels, to understand what levers of change can be activated to integrate SD into teaching. In section 3, we explain our monitoring procedure and how we are continuously learning from and adapting it. In section 4, we address the importance of creating a space for collaborative learning with the key actors identified, and in section 5 we formulate six levers to foster integration of SD into teaching.

2 Key actors in integrating SD into teaching at the University of Bern

Experience at the University of Bern has shown that different organizations, groups of people, and individuals – all operating at different decision-making levels – are important for integrating SD into teaching. Identifying them and working with them is beneficial for an integration process (WEISS et al., 2021) and for understanding what levers of change can be activated. It is crucial to understand what opportunities and power dynamics operate at which level, although of course the levels may be permeable. As per ULRICH and HECKMANN (2017), we distinguish between three levels: macro (the university as a whole), meso (sub-areas such as departments), and micro (individuals and individual processes).

While we see the university as an actor at the macro level, it is embedded in a further macro level: the political environment, represented in our case by the Government Council of the Canton of Bern and specifically by the Department of Education and Culture. Another macro-level actor is the University's leadership (the Senate, Rectorate, and Vice-Rectorates), whose commitment to SD is outlined in the university's strategy (UNIVERSITY OF BERN, 2022). The Vice-Rectorate Quality is responsible for supporting this mission through monitoring and other actions.

At the meso level we find the Commission for Sustainable Development: it advises the University's Executive Board on all matters related to SD, not only in teaching but also in research, continuing education, services, and operations. All faculties, the University's Executive Board, intermediate staff, students, management, and CDE are represented on the Commission, which meets under the chairpersonship of the Vice-Rector Quality. The Commission is an important actor at the meso level because it supports another meso-level actor – CDE's interdisciplinary ESD team – by providing the link to all faculties and institutes at the university. The ESD team is responsible for the ESD mandate. It also builds spaces for mutual learning, connects actors who engage with SD, and empowers lecturers by providing them with support, teaching materials, and funds, actions that distinctly position the ESD team at the meso level. This space for mutual learning was initially not the aim of the ESD mandate, but the ESD team's interpretation of the mandate and its practices led to this special position. A group of lecturers engaging with and pushing the topic of SD can also be considered a key actor group at the meso level.

At the micro level are the lecturers regularly incorporating SD into their teaching, even in disciplines where the link to SD is less obvious (e.g. mathematics) than in others (e.g. geography). The ESD team calls them "early adopters" (Trechsel et al., 2018). A key micro-level actor is the current Vice-Rector Quality, who, like her predecessors, mandates the ESD team and provides financial resources to integrate SD into teaching in all disciplines. The recipient group of these efforts to integrate and mainstream SD at the university level are the students. They are reached indirectly by the ESD mandate but are key actors in the societal process of transformation towards SD (TRECHSEL et al., 2023).

Identifying actors at the three levels is important because the levels define the actors' roles and possible actions. As the levels are permeable, actors or actor groups can shift from one level to the other. It was therefore crucial for the ESD team to distinguish between collaboration with lecturers at the micro level, collaboration with the Commission at the meso level, and definition of a strategy to carry out the ESD mandate at the macro level. While collaboration with lecturers can have an immediate effect, the impact of such action is limited in scope. Collaboration with the Commission for Sustainable Development, by contrast, has a more comprehensive effect, as it links both the macro and micro levels.

3 Monitoring and its challenges

Monitoring the integration of SD into all Bachelor programmes ("double lesson") has been conducted by CDE's ESD team on behalf of the Vice-Rectorate Quality since the 2017/2018 academic year. Mapping the integration of SD in the University's eight faculties is needed for the annual SD progress report to the Government Council of the Canton of Bern and the Department of Education and Culture. The monitoring is based on a systematic search through the University of Bern's online course catalogue. To improve its quality, the methodology of the search procedure has been adapted over the years. Until 2020, we carried out only *Monitoring A*, in which we search for terms (e.g. "sustainab*", "SDG") in the course catalogue, classifying courses into two categories (i: "No Reference to SD" or ii: "Explicit Reference to SD"), after reading the title, description, and learning outcomes of each course (which involves a co-coding procedure).

In 2020, we introduced a new filter function to facilitate the search for courses related to SD. When lecturers enter their courses into the catalogue, they can activate a checkbox entitled "Sustainability". This (voluntary) self-declaration makes it possible to clearly identify courses that refer to SD. Both the mandatory "double lesson on SD" (see Introduction) and other courses with an SD focus can be marked – and therefore monitored (*Monitoring B*) – for the whole university.

For *Monitoring B*, all courses with self-declaration are filtered for one academic year. They are subsequently screened and assigned to one of the following four categories: (i) "No Reference to SD", (ii) "Explicit Reference to SD", (iii) "Implicit Reference to SD", or (iv) "Potential for Reference to SD" (Lewis et al., 2022). *Monitoring B* also involves a co-coding process by two persons.

Though results of this double monitoring are robust enough for the purposes of reporting to the authorities, they also have certain limitations. For example, *Monitoring A* refers only to entries in the course catalogue where lecturers have made visible the reference to SD. No statements can be made about the quality of these references in the courses (and whether or not the references have actually been implemented). It is also not possible to assess whether references to SD are made in courses but have not been recorded in the course catalogue (LEWIS et al., 2022). Furthermore, the categories ("Explicit Reference to SD", "Implicit Reference to SD", etc.) are defined specifically for monitoring of integration of SD into courses at the University of Bern, but they are not based on a standardized tool, thus decreasing options to compare results with other HEIs.

However, the monitoring process has also had unexpectedly positive results with regard to advancing the overall aim of integrating SD into teaching. This is arguably due to the ESD team having involved a number of different actors (individual and meso-level) at different stages of the process, as described below.

4 From counting to learning – a collaborative approach to accountability

To illustrate the importance of the monitoring process and the opportunities it has opened to increase embedding of sustainability in teaching in (ideally) all disciplines, we present an example related to the self-declaration of "Sustainability" in courses in the course catalogue.

After the "Sustainability" self-declaration checkbox was introduced in the course catalogue, it was necessary to assess whether the checkmarked entries really contained recognizable and adequate references to SD. An initial screening of the checkmarked entries showed that, from the perspective of the ESD team, a relatively large number of courses still contained "No Reference to SD". This led us to conclude that either lecturers did not understand the purpose of using the new self-declaration, or that they interpreted the term "Sustainability" differently.

In August 2021, we carried out an interim monitoring for all courses of the autumn semester 2021 (looking only for checkmarked entries). We found an unexpectedly high number of courses with an active "Sustainability" checkmark which did not seem adequate to the ESD team. We then emailed the respective lecturers, asking them to please specify the references to SD within their course, or to deactivate the checkbox if it had been activated by mistake. Focusing on lecturers makes sense because they are crucial change agents for innovations such as integrating (E)SD in teaching, as they are responsible for the design and implementation of their courses (BRAHM & KÜHNER, 2019). The ESD team took care to communicate with a benevolent and open attitude, offering their comments as dialogue partners at the same level as the lecturers, rather than as experts who held the truth. Although this one-to-one contact was very time intensive, it enabled an unusually open interdisciplinary dialogue. It gave the ESD team the opportunity to exchange ideas with professionals from different disciplines and this, in turn, expanded their own understanding of SD.

The exchange with the lecturers revealed that the "Sustainability" checkbox was leading to misunderstandings. Some understood "sustainability" as "having a strong impact over a long period of time" or "lasting". Together with the department responsible for the online course catalogue, the following solution was found: If the

"Sustainability" checkbox is activated when entering a course in the catalogue, a window appears, asking "Do you want to activate the feature 'Sustainability'?" and including the ESD team's understanding of sustainability.[2] The window can only be closed by selecting and confirming either YES or NO. Subsequent monitoring activities have revealed that these efforts have helped increase the quality of entries: checkmarked entries are now more likely to explicitly reference SD. Moreover, the one-to-one interaction with lecturers who had a limited, purely temporal understanding of "Sustainability" led to open discussions about the university's commitment to sustainability and what this implied for its educational mission. Thus, while faculty members' academic freedom in their own discipline could be considered an obstacle to the integration of SD into teaching, in our experience this was overcome through dialogues that developed connections between a discipline and SD and that drew attention to the tendency to interpret SD too narrowly – coinciding with findings by HOLMBERG et al. (2008). Lecturers were thus made aware of the importance of their efforts to integrate sustainability into their teaching and of making this visible for monitoring purposes. The interaction was in line with the idea of lifelong learning (see SDG 4) among lecturers, which not only enhances their teaching and learning skills, but also provides a valuable incentive for personal reflection (BARTH & RIECKMANN, 2012).

The monitoring also involved identifying the "double lesson SD" in the course catalogue. This proved a challenge, as it is often unclear where (i.e. in which course of a study programme) this SD minimum is integrated. To improve the monitoring process, therefore, the Commission for Sustainable Development has been more closely involved since the 2022/2023 academic year. Commission members, with their respective connections in the faculties, can help identify faculty-specific designations and procedures and thus contribute to the monitoring process.

2 The Education for Sustainable Development (ESD) team of the CDE and the Office for Sustainable Development at the University of Bern refer to the following understanding of Sustainable Development (developed by HERWEG et al., 2017):
Sustainable Development is a global, social, democratic process of searching, learning, and shaping. In continuous negotiations – within and across generational boundaries – it strives for sociocultural and economic equity while at the same time respecting the environmental limits of natural resource use.

Through active engagement and exchange, it was also possible to increase the accountability of lecturers and Commission members for integrating SD into teaching; accountability being an indispensable prerequisite for the success of such an endeavour (WEISS et al., 2021). Faculty members may also experience increased self-efficacy when they are aware of the available institutional support (BRAHM & KÜHNER, 2019). Moreover, their commitment was met with respect and acknowledgement, an attitude that created a safe space (SINGER-BRODOWSKI, 2022) for exchange and for learning with, from, and through different actors at all three levels (macro, meso, micro). In the realm of organizational change, the importance of collaborative – in addition to individual – learning processes is widely recognized (BARTH & RIECKMANN, 2012). Instead of being a means of pressure to impose something that not all departments and lecturers could identify with, the reflective monitoring procedure became an opportunity to show how sustainability should be negotiated and concretized in each case.

5 Conclusions and outlook

Our exploration of the processes that have taken place at the University of Bern and the lessons learned have led us to identify six levers for the successful integration of SD into HE teaching. Each of these levers can be applied by other HEIs, but not without taking into account the respective history and context of each university.

1) It is essential to have *a sound understanding of the history of an HEI and of how processes, structures, and levels work there*. Indeed, each HEI is unique – shaped by its context, its history, and its political environment, making it necessary to adapt the approach to specificities of a) the macro, meso, and micro levels and b) key actors and related processes.

2) It is important that the *university administration allocates appropriate resources and services* to the integration of SD into teaching (see also BRAHM & KÜHNER, 2019) – and to monitoring it. University leadership should be committed to the endeavour and to providing the requisite resources and support measures at various levels. With its ESD mandate, the University of Bern has enabled steady change at a growing scale. In addition to monitoring the integration of SD into teaching, the mandate also includes other services (e.g. advising lecturers on how to integrate

(E)SD into teaching and providing teaching grants, teaching materials, networking opportunities), all of which contribute to the comprehensive integration of SD into teaching.

3) It is key to *establish a safe and respectful space for collaborative learning* in which various actors can discuss the integration of SD into teaching. A reflective monitoring process can enable spaces for joint learning and progress towards true integration of SD rather than being seen just as an instrument of control. Such a space allows those involved to negotiate meaning(s) and to make SD meaningful in the context of their work. Continuously adapting the monitoring process has helped us to better understand how SD is being integrated into teaching, and to share responsibility for this integration with those involved in teaching. While numbers are important for reporting purposes, the whole process leading to the numbers is a more effective driver towards achieving the university's sustainability goals.

4) *Benevolent communication is essential* for integrating SD into teaching. This means communicating with all stakeholders in an open-minded and respectful way, as equals. It also means facilitating learning processes at all levels – macro, meso, and micro – taking into account the unique needs of each group and facilitating exchange between and among disciplines. Finally, it means building relationships with individual faculty members and acknowledging their commitment, as this contributes to individuals feeling accountable for the concrete implementation of SD in teaching.

5) *Multilayered collaboration* is essential for achieving change. By fostering a culture of mutual trust and collaborating with partners across levels, we can advance sustainability efforts. Involving the right actors at the right level was beneficial in our case. It is also advantageous if the HEI's executive (in our case the Vice-Rectorate Quality) is involved in and supports the monitoring process. And it is helpful to identify key actors who are convinced of the benefit of making courses with SD-relevance more recognizable in the course catalogue and committed to this in their institutes, departments, and disciplines. Finally, ensuring the involvement of existing committees relevant to the cause is key (in our case, the Commission for Sustainable Development).

6) *Identifying limitations is essential to adapting the monitoring approach to have a broader impact.* The current minimum requirement of a "double lesson on SD"

at the University of Bern is low. The number of courses that explicitly reference SD has increased every year since monitoring began in 2017/18, but it appears to have reached a saturation point. However, in our view, the number of courses with a reference to SD is not the most important factor. Instead, it is more important that the courses that do reference SD do so in a meaningful way and are clearly identifiable in the course catalogue. The integration of SD into teaching generates added value at various levels, a benefit which is not sufficiently captured by our current monitoring approach. The ESD team is therefore working to develop a more qualitative approach. This is particularly important as SD is a target that is only partly quantifiable: it is a process that requires contextually adapted solutions negotiated by those involved. The engagement of actors in defining concrete goals and the efforts required is thus essential.

Ultimately, monitoring activities should contribute to moving towards a *Whole Institution Approach* (linking research, educational, operational, and outreach activities towards SD and engaging students in each), as strongly recommended by recent UNESCO documents (e.g. UNESCO, 2014). Doing so is likely to work best with a combined top-down and bottom-up approach.

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