Chapter 18
Interdisciplinary, Practice- and Project-Oriented Sustainable Business Education in a Swiss University of Applied Sciences and Arts

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Abstract Business students are highly motivated to apply entrepreneurial principles to deal with real-world problems. However, tertiary business education continues to emphasize theory over practice and abstract models over real-life problem-solving. Two related courses in the internationally-oriented IBM bachelor degree programme of the School of Business of the University of Applied Sciences and Arts Northwestern Switzerland (FHNW) seek to provide a student-driven, project-oriented, international and interdisciplinary learning experience that extends beyond the conventional lecture format.

The first course focuses on evaluating real-world examples of sustainability in economics. It thereby provides a framework for understanding sustainability challenges in the broader economic sphere and for identifying sustainability opportunities in the business world. The second course focuses on presentation skills in English through the preparation of an entry for the Swiss Sustainability Challenge. The aim of the course is to teach communication skills through a motivating entrepreneurial project in which students can apply the knowledge gained in the course on sustainable economics.

Together the courses aim to promote independent project creation amongst students in an international context. The objective is to inspire entrepreneurial thinking, foster innovation and provide both intellectual and skills-based tools for leading and implementing the transformation across national borders towards a sustainable economy.

Keywords Sustainable economics · Interdisciplinary teaching · Project-based learning · Experiential and constructivist learning · Swiss sustainability challenge · Intercultural collaboration

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Introduction

As we navigate the challenges of the twenty-first century, the need for sustainability teaching in higher education has never been more apparent. The problems posed by global environmental change, social inequities and economic instability call for a transformative approach to education, one that not only imparts theoretical knowledge but also actively engages students in real-world sustainability practices that are embedded in international contexts. The United Nations Sustainable Development Goals (SDGs), particularly Goal 4, highlight the crucial role of universities in advancing sustainability on a global scale. Tertiary educational institutions are expected to incorporate sustainability principles into their curricula, equipping students, researchers and the wider academic community with a holistic understanding of environmental management, social responsibility and ethical practices (United Nations, 2025; Martínez-Bravo et al., 2024).

Universities of Applied Sciences are especially well positioned to serve as incubators for sustainable business practices, as they are able to integrate practical sustainability activities into their curricula. This integration requires didactic approaches that complement traditional lecture-based teaching with experiential learning, problem-solving tasks, communication training and critical thinking that challenges, where appropriate, prevailing norms and conventions (Kalamas Hedden et al., 2017). The very nature of sustainability as a contested, multi-layered and multifaceted subject offers substantial opportunities for critical thinking and transformative learning (UNESCO, 2014; Scarff Seatter & Ceulemans, 2017). Furthermore, the multifaceted and complex nature of sustainable development at various levels demands a multidisciplinary and international approach (UNESCO, 2014). The overarching objective of sustainability teaching in higher education is thus to empower students to recognize and comprehend the intricacies of sustainability issues, to critically evaluate assumptions, biases, beliefs and attitudes, and to proactively engage in the resolution of sustainability challenges. This chapter describes various didactic strategies for sustainability education within two modules that will be taught in Semester 6 of the new curriculum of the International Business Management bachelor degree programme at the School of Business of the University of Applied Sciences and Arts Northwestern Switzerland (FHNW). Its aim is to highlight the benefits of these approaches and to discuss the challenges and considerations that arise in implementing practical sustainability activities in higher education courses.

The Need for Active and Constructivist Approaches to Sustainability in Higher Education

There is a growing consensus on key competencies in sustainability learning in higher education institutions (Wiek et al., 2014; Annan-Diab & Molinari, 2017; Mulà et al., 2017; Willamo et al., 2018; Horn et al., 2023). These include systems-thinking, futures-thinking, values-thinking, strategic-thinking and interpersonal

competencies (Brundiers et al., 2021; Redman et al., 2021). Educators and researchers advocate effective and efficient pedagogical approaches based on active learning methodologies to develop these competencies (Martínez-Casanovas et al., 2022). Furthermore, the ability to adapt to different situations and solve problems in diverse contexts is considered a key predictor of future success in sustainability-related fields (King, 1993). As future decision-makers, problem-solvers and agents of change, students greatly benefit from sustainability education that is rooted in active learning and a constructivist approach.

King (1993) defines active learning as actively engaging with presented information—analysing, synthesizing and evaluating it; rather than passively receiving and memorizing it. Following Kalamas Hedden et al. (2017) we argue that active learning is particularly well suited for teaching sustainability in higher education, as it is inherently practice-oriented and experiential. Similarly, the application of constructivism in sustainability education requires a hands-on, experiential learning approach, enabling students to actively engage with real-world sustainability challenges. By interacting with complex sustainability issues, students develop a deeper and more comprehensive understanding of the subject while enhancing their problem-solving and critical-thinking skills (Kalamas Hedden et al. 2017; Willamo et al., 2018).

Unlike traditional learning theories, constructivism emphasizes active student involvement in the learning process, where knowledge is continuously constructed and reconstructed based on prior experiences. In this model, educators act as facilitators, guiding students to explore concepts, engage in discussions and solve authentic problems (Ozkal et al., 2009). Constructivist teaching fosters critical thinking by encouraging students to question existing knowledge, integrate new information and develop fresh perspectives (Taylor et al., 1997). Given the complexities of sustainability, passive learning through lectures or textbooks alone is insufficient — active participation is essential for meaningful learning (Scarff Seatter, 2003).

Specific Didactic Frameworks

The process of embedding sustainability into higher education thus requires pedagogical frameworks that promote active learning and student engagement. Several specific didactic approaches lend themselves to these objectives, and these are described below.

Project-Based Learning

Project-based learning is one of the most effective didactic methods for integrating practical sustainability activities. In PBL, students work on short- or long-term projects that address real-life sustainability challenges. This method encourages learners to conduct research, collaborate in teams and apply theoretical knowledge to design

solutions (Ferry, 2022). For example, a course on environmental management might include a semester-long project where students analyse local water quality issues. By working in groups to collect data, engage with community stakeholders and propose improvements, students gain first-hand experience in environmental monitoring and policymaking. This not only reinforces theoretical concepts but also trains skills such as problem-solving, project management and communication.

Experiential Learning

Experiential learning emphasizes learning through direct experience. This approach often involves field trips, internships or simulations that allow students to immerse themselves in sustainability practices. Experiential learning enables students to reflect on their experiences, drawing connections between classroom theory and real-world applications (Kolb, 1984; Adib, 2024). For example, a course on urban sustainability might incorporate a field study component where students visit green infrastructure projects such as urban gardens, renewable energy installations or green rooftops. These visits can be complemented by reflection sessions and discussions that help students to situate their experiences within broader sustainability frameworks. The iterative cycle of doing, reflecting and conceptualizing is central to experiential learning and helps develop lifelong learning skills.

Service Learning

Service learning combines community service with academic study, creating opportunities for students to address community-identified sustainability needs while gaining practical experience. This approach benefits both the students and communities they serve by fostering a sense of civic responsibility and mutual learning. In a service-learning model, students might partner with local government agencies or non-profit organizations to implement sustainability projects such as developing community recycling programmes or energy conservation campaigns. The integration of service learning into curricula provides a dual benefit: students learn about sustainability from an academic perspective while directly contributing to community well-being (Calvert, 2011; Rodríguez-Zurita et al., 2024).

Interdisciplinary Teaching and Collaborative Learning

Sustainability challenges are inherently complex, often requiring insights from multiple disciplines. An interdisciplinary didactic approach encourages students to engage with concepts across various fields. Courses designed with an

interdisciplinary focus often involve co-teaching by faculty from different departments, ensuring that students gain a comprehensive understanding of sustainability (Cortese, 2003). Collaborative learning, wherein students work in diverse teams, encourages the exchange of ideas and perspectives that are crucial for addressing sustainability issues. Such approaches help students appreciate the interconnectedness of ecological, economic and social dimensions of sustainability (Barth & Rieckmann, 2012). For example, a project that examines sustainable urban development might involve students from architecture, environmental science, business and design who work together to propose a development plan that balances economic growth with ecological preservation.

Problem-Based Learning

Problem-based learning revolves around the investigation of complex, real-world problems. In this model, students are presented with a sustainability-related issue that lacks a straightforward solution. Through guided inquiry, students identify the problem's underlying factors, research possible interventions and propose solutions. This approach not only develops analytical and research skills but also promotes creative thinking. By grappling with open-ended problems, students learn to navigate uncertainty—a critical skill in sustainability management. Problem-based learning sessions often culminate in presentations or written reports, providing opportunities for students to articulate their findings and receive feedback from peers and instructors (de la Fuente, 2022). Furthermore, such participatory processes help students critically self-evaluate their learning experiences regarding sustainability, which promotes reflective practice (Curtis et al., 2021).

Challenges and Strategies for Effective Implementation

The integration of practical sustainability activities into higher education thus provides significant benefits, but it also presents challenges. One common issue is the potential lack of alignment between traditional assessment methods and practical learning outcomes. Standardized exams may not effectively measure competencies such as critical thinking, collaboration or real-world problem-solving. Institutions need to adopt alternative assessment strategies such as reflective journals, project reports and peer evaluations to better reflect the breadth of student learning (Redman et al., 2021). In addition, these innovative teaching approaches must be continuously aligned with evolving industry standards and accreditation criteria through dialogue between academia and industry stakeholders.

Another challenge is the requirement for faculty development. Many instructors may be accustomed to traditional lecture-based teaching and might need additional training to design and facilitate experiential and interdisciplinary learning

experiences. Some lecturers might also perceive sustainability as an add-on rather than an integral part of education. Professional development programmes that focus on sustainable education practices can help instructors acquire the necessary mindsets, skills and pedagogical strategies. Faculty collaboration, supported by institutional policies that reward innovative teaching, is central to overcoming this barrier (Barth & Rieckmann, 2012).

Resource constraints can also hinder the implementation of practical sustainability activities. Field trips, laboratory experiments and community projects often require financial investment and logistical coordination. Institutions may consider partnering with local organizations, securing grants or utilizing community resources to offset these costs. The development of virtual simulations and online platforms is another strategy that can extend the reach of experiential learning without incurring prohibitive expenses.

With regard to the challenges presented and faced by students themselves, it should first of all be noted that students, like instructors, may perceive sustainability as a minor element of their study programme, rather than an integral part of their educational experience. It is thus essential to communicate the relevance of sustainability across disciplines and to demonstrate how practical sustainability activities enhance academic learning and future career prospects. Embedding sustainability themes into course objectives, learning outcomes and assessment criteria can help ensure that sustainability is viewed as a core component of the educational experience (Cortese, 2003). In the context of PBL, Bell (2010) discusses how students' prior knowledge and motivation as well as group dynamics can influence learning outcomes. He proposes that additional support may be necessary to ensure equitable progress among all students, and his recommendations are even apposite in the context of courses with international participants. Furthermore, Helle et al. (2006) posit that the efficacy of project-based initiatives depends on factors such as effective teacher facilitation and structured guidance. If these elements are not in place, some students may not develop the intended competencies at the same rate as their peers. To address these variations, the implementation of effective assessment and support strategies is imperative.

Assessment and Evaluation of Sustainability Education

While active learning methods engage students, they frequently fall short in providing a comprehensive framework for evaluating long-term learning outcomes compared with traditional assessment methods. Conventional assessment methodologies are inadequate in capturing the profound and enduring learning that occurs in active learning environments (Hattie, 2008). Hattie additionally notes that while conventional examinations can effectively assess short-term knowledge, they frequently fall short in terms of evaluating long-term skill development.

Assessing the impact of practical sustainability activities requires a shift from traditional testing methods to more dynamic and formative assessment techniques.

Reflective practices, such as learning journals and portfolios, allow students to critically evaluate their experiences and the development of their sustainability competencies. These tools provide insight into how students integrate theory and practice and can serve as valuable artefacts for both self-assessment and instructor evaluation. Moreover, formative assessments during a project can offer immediate feedback, allowing students to adjust their approaches during the course. Peer reviews, self-assessments and iterative project presentations are additional methods that support continuous learning and improvement. By fostering a culture of reflection and feedback, teachers can ensure that the experiential aspects of sustainability education translate into meaningful, long-term learning outcomes (Redman et al., 2021).

The Two Sustainability Education Modules at the FHNW

The viability of implementing these innovative methodologies in larger groups or in under-resourced settings remains to be determined. This leads to concerns about their long-term sustainability and potential for broader implementation. It is therefore necessary that pilot programmes in sustainability education be initiated with subsequent modifications made as necessary. The following paragraphs describe the didactic approach of the two modules in Semester 6 of the IBM curriculum with this aim. It should also be noted at the outset that both courses are taught in English. The use of English as a language of instruction reinforces the international dimension of the courses, firstly in the widened scope of the case studies and academic literature, and secondly because it allows the participation in the courses of not only the trinational student body in the IBM programme (French, German and Swiss) but also exchange students from the FHNW's partner universities.

Module Sustainable Economics

The module 'Sustainable Economics' is designed to equip students with both the theoretical foundations and practical tools necessary for assessing environmental policies and developing sustainable business strategies. This interdisciplinary approach blends theory with real-world applications, allowing students to engage actively with the content and apply what they have learned through case studies and practical exercises. By using active learning strategies such as problem-based learning and project-based learning, the module not only shares knowledge but also helps to develop key skills in critical thinking and team work.

The course will cover a variety of sustainability-related topics, including economic concepts such as externalities and market failure, while emphasizing the importance of environmental policy-evaluation tools. Throughout the lectures, students will also explore international case studies, with a particular focus on the DACH region (Germany, Austria and Switzerland) and France. Students meet in

total seven times during the semester on a weekly basis. A lecture lasts approximately three hours.

The first lecture begins with an overview of sustainability theory based on the three-pillars model of the Brundtland Report (Brundtland, 1987). Following this students are introduced to sustainable economics, highlighting its importance and relevance in the contemporary world. It also provides an overview of essential economic concepts such as externalities and market failure, explaining why they necessitate regulatory intervention (Harris & Roach, 2018). Students are then introduced to a policy assessment toolkit, which includes evaluation methods such as cost–benefit analysis, lifecycle assessments and ecological footprints. To anchor these concepts in practice, students will perform a simple cost–benefit analysis of a hypothetical environmental policy, such as the implementation of a carbon tax. A combination of interactive lectures and case studies is utilized to demonstrate the application of teaching methods in addressing real-world sustainability challenges. This approach ensures that students acquire a comprehensive understanding of the theoretical principles and also observe their practical implementation. However, a drawback of conventional lectures is their potential to lose the attention of students, which highlights the need for other, more active learning activities.

In the second lecture, students will dive deeper into environmental regulation and policy evaluation. They will learn about various environmental protection instruments, such as emissions trading systems, carbon taxes and environmental certificates, and how these tools can address market failures and externalities. Students will apply these concepts to real-world examples, assessing the effectiveness of carbon pricing models within the European Union and evaluating the implementation of a carbon tax. This practical application allows students to better understand the challenges and opportunities of different regulatory tools. The analysis of real-world examples together with comparative analyses helps students to understand the strengths and weaknesses of both traditional and contemporary assessment methods. However, as with all experiential learning approaches, it is necessary to provide close supervision in order to ensure that knowledge and skills are acquired in a consistent and uniform way.

The third lecture focuses on the principles of doughnut economics (Raworth, 2017) and in particular the circular economy, a model that contrasts with the traditional linear economy. Students will explore the key principles of circular economy, such as design for longevity, reuse, recycling and the Cradle-to-Cradle concept. The lecture will discuss the potential benefits and challenges of implementing a circular economy, emphasizing the role it plays in sustainable business practices. To further engage with these concepts, students will analyse a product and explore how it could be integrated into a circular economy, identifying the steps necessary to reduce waste and enhance resource reuse. They will also work in groups to brainstorm ideas on how a fictional company could transition to a circular business model. These interactive group exercises and product analysis tasks are integrated to stimulate creative problem-solving while addressing sustainability. The advantage is that such methods encourage innovative thinking; the downside is that group

dynamics can sometimes hinder balanced participation, which once again calls for sensitive supervision of the exercises by the lecturer.

In the fourth lecture, students will apply their knowledge to case studies from the DACH region and France, examining how these countries are tackling sustainability challenges. This comparative analysis will cover policies and strategies in Germany, Austria, Switzerland and France, focusing on issues such as CO_2 reduction, sustainable agriculture and circular economy practices. For example, students will evaluate Germany's 'Energiewende' (energy transition) and its role in promoting renewable energy, as well as analyse France's 'Anti-Waste' law and its impact on the circular economy. In group work, students will choose a country from the DACH region or France and propose improvements to the sustainability strategies in place. This session highlights the advantages of comparative case studies, while noting that regional differences may complicate direct comparisons.

The fifth lecture shifts focus to the political economy of sustainability, exploring how environmental policy decisions are made in political and economic contexts. Students will implement and analyse the UN Climate Change Conference simulation game developed by Climate Interactive (Climate Interactive, 2025). In an interactive role-playing exercise, students will take on various roles such as policymakers, business leaders, NGOs and citizens to develop a sustainable energy policy, reflecting on the challenges of balancing diverse interests. The aim of the simulation game is to raise students' awareness of the importance of business ethics and sustainability. By actively participating in this realistic simulation of the UN climate negotiations, students learn about the complex interrelationships and challenges of global climate policy from different perspectives. Students will study the role of stakeholders in these decisions and examine the intersection of political power, economic interests and environmental goals. They will also learn to differentiate between positive and normative analysis in policy debates. The use of simulations demonstrates how experiential learning methods can foster a deep understanding of complex global issues. The advantage of such role-playing exercises is that they boost engagement and empathy. However, they can oversimplify real-world complexities, and it is therefore important that the lecturer points out this limitation in advance.

The sixth lecture takes a practical approach by providing students with an opportunity to develop their own policy proposals for sustainable environmental practices. Building on the tools and concepts learned so far, students will create a sustainable environmental policy for a company or city and assess its potential impact using the evaluation methods covered in the course. They will then present their proposals to the class, receiving feedback and refining their strategies in the process. This practical session thus combines theoretical knowledge with hands-on application.

The final lecture of the series focuses on the future of sustainable economics and the strategies necessary for transitioning towards a more sustainable economy. Students will reflect on the trends, challenges and opportunities that lie ahead, exploring how countries and companies can shift from a linear to a circular economy. They will consider the role of innovation in driving this transition and discuss the political and economic measures that must be implemented on a global scale to

foster sustainability. In their final project, students will design a transition strategy for a company or city to adopt circular economy practices and other sustainable solutions.

Teaching methods such as case studies, group projects, simulations and reflective exercises, when combined, provide a varied approach to sustainability education. These methods make learning more interesting and useful, but also present challenges in terms of comparing how well students learn in different ways and ensuring that all students reach the desired learning outcome.

Throughout the lecture series, active learning is emphasized, with students engaging in hands-on activities that allow them to apply theoretical concepts to real-world scenarios. Case studies from international contexts, particularly the DACH region and France, provide a rich basis for comparative analysis, while group work and discussions foster collaboration and critical thinking. The course encourages independent work, with students taking responsibility for tasks such as developing policy recommendations or analysing products. This approach ensures that students not only acquire theoretical knowledge in sustainable economics but also gain the practical skills necessary to assess and implement sustainable strategies in their future careers.

Module English as a Foreign Language

In the IBM programme, the English course that will be taught in the sixth and final semester of the programme has been relocated from the second semester, where it successfully ran for several years. It functions as a curricular context for practical sustainability education. The location of sustainability education in the foreign languages section of the curriculum might seem an unusual choice, especially as German and French, rather than English, are the main languages of the trinational region in which the degree programme is located, but it has several benefits. Firstly, the English course is not restricted to any specific subject area in terms of its content. The course focuses on the extension of grammatico-lexical competence and the acquisition of specific communication skills, but these goals can be connected with any number of content areas, including sustainability. Secondly, didactic approaches in foreign language learning have for many years been influenced by practical frameworks such as Project- and Problem-Based Learning, interdisciplinary teaching (e.g. in languages across the curriculum models) and experiential leaning (e.g. immersive language learning). Foreign language teachers thus tend already to possess the didactic skills required for practical sustainability education, and they often have access to networks of colleagues with specific expertise in the various subject areas connected with sustainability education. Finally, the incorporation of a sustainability project in the English course valorizes the course itself, by bringing it closely into line with the sustainability values upon which the IBM programme is built.

The specifics of the course are as follows. Students are divided into groups and are given the task to prepare an entry for the Swiss Sustainability Challenge (SSC). The SSC, formerly the Swiss Student Sustainability Challenge, is a competition that was founded by the FHNW and is conducted every year in partnership with the PAX Life Insurance company. The competition is designed for start-ups in the areas of environmental and social sustainability, and it offers prizes with a total value of CHF 20,000. The SSC runs every year from the end of May, which is the application deadline, until the end of October, when the winners of the competition are announced in an awards ceremony (Swiss Sustainability Challenge, 2025). Its timeline is therefore best suited to a course in the Spring Semester, which in the IBM programme typically runs until the end of May. At the end of the course, the students are assessed by means of a group presentation in which they communicate their concept to the rest of the class and a learning journal in which they record the intellectual, social and emotional journey that the project takes them on.

Students are therefore required to develop a sustainable business concept that could be entered into the SSC. However, it is not possible to make the submission of the project to the competition a compulsory element of the English course, firstly because external criteria cannot be used to assess the course and secondly because IBM students are required to conduct an internship after the sixth semester that includes a project about which they will write their Bachelor Thesis. This internship thus clashes with the later stages of the SSC. In other words, there is unfortunately, at the present time, a structural disincentive to actually participate in the competition, and this is a weakness that hopefully will be addressed in the future, for example, by making the criteria for the Bachelor Thesis project flexible enough to include a start-up project of the type that is eligible for the SSC.

In spite of these constraints, the SSC provides an excellent framework for practical sustainability education. The competition requires students to identify a real-life problem or challenge in the area of sustainability that is susceptible to an entrepreneurial solution and to develop a solution to the problem that apply the various intellectual, communicative and practical didactic approaches described above. The specific applications of these approaches in the English course are as follows.

Firstly, during the course, students are given coaching sessions by the course lecturer. They are also encouraged to contact experts in the field of their project, both inside and outside the university, in order to gain additional input. This interdisciplinary and collaborative learning environment promotes critical reflection and practical initiative-taking.

Secondly, students are required to conduct research on their topic, in order to gain a deep understanding of its various elements. In this context, students are encouraged to apply the knowledge of macroeconomic sustainability concepts acquired in the partner course in the same semester in order to reflect on the way in which business and macroeconomics intersect, and especially to situate their project inside larger models of sustainable economic activity. This is especially important in order to avoid the all too common blinkered, bolt-on view of sustainable business, in which a sustainability initiative might make a positive difference in the narrow context of a company's processes or operations, or of a specific product, but

which is not aligned with broader imperatives with regard to the transformation of business models and social mindsets.

With regard to the search for existing solutions to the problem, students take advantage of the multinational and multilingual character of their groups. As noted above, student groups in IBM include at least Swiss, French and German students, with the additional possibility of incoming exchange students from the international partner schools of the FHNW. The search for already existing solutions to the problem therefore brings a high degree of internationalization to the project. Furthermore, if students discover that a solution to their specific problem already exists, they are not forced to choose another problem but are rather encouraged to adapt the solution that they have found to the specific local cultural and institutional circumstances, whether French, Swiss or German, in which their project is embedded.

The third and fourth didactic approach that is realized in the course are those of Project- and Problem-Based Learning. Through their engagement with a problem-based project, students practise research and critical thinking skills, as noted above with regard to interdisciplinary teaching and collaborative learning, and are also forced to think creatively, to communicate effectively within their groups and to ensure timely completion of tasks.

Finally, and perhaps most importantly, the project provides students with a holistic experiential learning environment in which the challenges and rewards of sustainable business become not only intellectually but also socially and emotionally tangible. It should be recalled, however, that this experiential process is very difficult to extend within the current structure of the degree programme to the professional and entrepreneurial reality of an actual entry in the Swiss Sustainability Competition. This weakness should be addressed as a matter of priority in the continuing development of the English course.

Conclusion

The SSC project in the IBM English module thus provides an ideal complement to the more theoretical and more general insights into the interface between economics and sustainability that are offered by the partner module Sustainable Economics. Taken together, they offer a learning journey at the end of the IBM degree programme that will hopefully act as an impetus for students' development into the business leaders that we urgently need to navigate the profound economic and social transformation that lies before us.

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