



EFFORT



EFFORT GUIDELINES

GUIDELINES FOR SUSTAINABILITY- AND RESPONSIBILITY-RELATED TEACHING

WELCOME

GUIDELINES FOR SUSTAINABILITY- AND RESPONSIBILITY-RELATED TEACHING

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All EFFORT project produced instruments are open access and can be found on the following website: <https://effort.lehre.hwr-berlin.de/>

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FOREWORD

Dear Reader,

On behalf of the consortium of the EFFORT project, thank you for your interest in effective and efficient sustainability and corporate social responsibility education. These Guidelines has been developed for those who are seeking innovative ideas and good practices for designing new courses, or enriching existing ones, in relationship with sustainability and corporate social responsibility. Regardless whether your focus is on a module in higher or further education, or a training session in executive education, the main aim of our consortium is to provide you with the following:

- an easy-to-use, short booklet, providing recommendations with links to more detailed materials;
- a searchable database for existing teaching formats (full courses and innovative teaching & learning solutions), and
- an overview of two user-friendly tools for measuring the effectiveness of your course

We would like to provide support with a variety of pedagogical practices, which are already proven to be effective and efficient. The usefulness of each teaching format listed in the Guidelines is backed by the academic literature and also by research our consortium conducted during the project. (For an overview of the EFFORT project see the Introduction section later). The formats vary in terms of length, level and academic discipline, but all of them deal with concepts related to sustainability. For the purpose of our Guidelines the term 'sustainability' has been interpreted a broadly, as it is a multi-disciplinary topic. It includes courses on sustainable development or related to the ethical foundations of sustainable or responsible behaviour (business ethics, corporate social responsibility).

The Guidelines contain two main recommendations. Firstly on course design: we recommend consideration of using teaching approaches & methods related to so-called pedagogical variables with high impact. We provide an overview of these approaches and methods, their links with these variables, and also their connections to a wide range of existing teaching formats. These formats are detailed in the Handbook developed by our consortium, and the Guidelines contain direct links to its respective chapters.

The effectiveness of these teaching formats were tested by our consortium using various tools, which are also explained briefly in the Guidelines and in detail on the website of the EFFORT project. This recommendation is also supported by a searchable database related to these existing teaching formats. In the database teaching approaches, teaching methods and existing courses can be searched for, based on audience and level of studies, group size (number of participants), course duration (weeks), credits (ECTS), workload (hours), connections with UN Sustainable Development Goals, and the above mentioned impact assessment variables. This searchable database is available here: <https://effort.lehre.hwr-berlin.de/results/guidelines>



The other main recommendation is about consideration of measuring the effectiveness of your course. Our consortium developed a tool for this, which can be used as a questionnaire at the beginning and at the end of a course, assessing changes in the student's attitudes towards sustainability and CSR. The Guidelines provide with an overview of the tool, sample questionnaires for the pre-delivery and the post-delivery stages, and a 'calculator', which assesses and contrasts the answers of our students. The online version for measuring the effectiveness of your course is available here: <https://effort.lehre.hwr-berlin.de/results/controlling-tool>

At the end of the Guideline, in addition to the literature cited in the document, a bibliography with further recommendations is provided to help instructors of sustainability and responsibility courses. We hope that you will find the Guidelines useful. Wishing you the best for designing and delivering your sustainability- and responsibility-related course and seeking your feedback on how these recommended practices worked for you, as well as on any further innovative solutions you found. Looking forward to your comments via email at andrasi.gabor@uni-bge.hu or szegedi.krisztina@uni-bge.hu.

December 2022 | The EFFORT consortium

For further details about the EFFORT project and the consortium, please visit <https://effort.lehre.hwr-berlin.de/>

INTRODUCTION

Sustainable development and the responsibility of political, corporate and other actors for solving current social and environmental problems is one of the top priorities of international organizations such as the UN (UN Agenda 2030), as well as the European Union (EU Sustainable Development Strategy) and national and local governments. Higher education institutions (HEIs) play a crucial role in educating responsible future decision makers. The improvement of the effectiveness and quality of Corporate Social Responsibility (CSR)-/sustainability-related education is considered as an essential element for facing the sustainability challenges of the future¹. It potentially contributes to the strengthening of the sustainability awareness and behaviours of students. They, in their future role as employees, managers, consumers, investors, but also voters/political actors, will act as change agents in our future world. At the business level, students' preferences influence the practice of CSR: the more pressure companies feel the more responsible and sustainable they will act. On the other hand, CSR is shaped by general policies of the top management and individual decisions of every single employee. If education leads to a higher awareness for sustainability and responsibility and a change of attitudes, students as future employees and managers will take better and more responsible decision as corporate actors.

The objective of the EFFORT project is therefore to develop tools and recommendations that support higher education institutions to increase the effectiveness and quality of sustainability-, ethics- and/or CSR-related teaching and learning activities. The main target groups of the EFFORT project are governance, faculty and staff of higher education institutions in their role of supporting awareness and behaviour of students, in relationship with sustainability and CSR. Although the project has a focus on higher education institutions, it is important to note that the developed instruments can also be applied at other types of organisation that deal with sharing CSR- and sustainability related content (e.g. VET organizations, companies).

¹AACSB (2020) Guiding Standards and Principles For Business Accreditation. (<https://www.aacsb.edu/-/media/documents/accreditation/2020-aacsb-business-accreditation-standards-jul-1-2022.pdf?rev=b40ee40b26a14d4185c504d00bade58f&hash=9B649E9B8413DFD660C6C2AFAAD10429>)

These Guidelines are for educators at the above organisations and recommend them sustainability- and responsibility-related courses and evaluation instruments, which are regarded as good practices. The recommendations are based on the results of the effectiveness testing of selected courses, implemented at partner institutions, and collected by the EFFORT consortium. The Guidelines rely on the following other results of the EFFORT project:

- *The Handbook*² gives educators a systematically structured overview on especially innovative sustainability-, ethics- and/or CSR-related courses that currently are existing, including three new teaching concepts developed in the framework of the EFFORT project.
- *The Statistical Analysis Report*³ clearly and concisely presents comprehensive results regarding the changes of students' knowledge, attitudes, values and other aspects through different courses, as well as results concerning the relevant influencing factors for the teaching effectiveness.
- *The Controlling Tool* is a questionnaire-based instrument, used for gathering data about the above aspects related to students participating in sustainability and responsibility-related courses.⁴
- *EffSET* (EFFORT Self-Evaluation Tool) is a qualitative and quantitative instrument enabling higher education institutions to analyse and classify their sustainability and CSR education and activities.⁵

² Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

³ Bustamante, Silke; Peuker, Birgit; Martinovic, Martina; (2022): Statistical Analysis Report. Results of Testing Teaching Effectiveness in the Erasmus+ Project "EFFectiveness Of Responsibility Teaching (EFFORT)". Working Paper. Hochschule für Wirtschaft und Recht.

⁴ <https://effort.lehre.hwr-berlin.de/results/controlling-tool>

⁵ <https://effort.lehre.hwr-berlin.de/results/self-evaluation-tool>

ABOUT THE HANDBOOK

The starting point of the Handbook is that the evaluation of effectiveness requires a clear definition of the outcome to be achieved. The outcomes in education are usually formulated as learning objectives, referring directly to a desired behaviour (behavioural learning objectives) and/or to predictors of a potentially desired behaviour (e.g. attitudes, values, knowledge, intentions or competencies). The UNESCO proposed in 2017 that learning objectives would be related to three domains: the cognitive, the socio-emotional and the behavioural domain. These domains are connected to eight key competencies for sustainable decision-making: systems thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency and integrated problem-solving competency.

Responsible leaders are expected to develop all of these competencies, which can be regarded as a functionally linked pattern of variables, such as attitudes, values, knowledge, and intentions. In order to develop these competencies effectively during formal learning, the EFFORT consortium, based on the relevant academic literature, identified nine pedagogical impact variables. These variables are affected by teaching approaches and methods and foster responsible behaviour. The Handbook contains the details of the links between these variables and various teaching approaches and methods in general, and a thorough description of more than 20 courses related to sustainability and CSR in specific, applying innovative approaches and methods, which were assumed to be effective in developing the eight key competencies for sustainable decision-making.

The total of 23 courses came from 45 respondents to the query from the EFFORT consortium. The respondents represent five continents: Australia/Oceania, North America, South America, Asia and Europe (with the majority of the respondents). The courses are mainly related to business, but other academic disciplines are also represented. Most of them are one semester long, Bachelor-level, standalone courses, delivered fully face-to-face. Concerning the nine pedagogical impact variables, the respondents conducted a self-evaluation to assess how their courses rank on them. The Handbook provides with an overview of these courses, focusing on their major characteristics, the teaching approaches and methods used, and the results of the self-evaluation⁶.

⁶Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

The Guidelines summarises the courses in the Handbook in the **RECOMMENDATION 1: USING INNOVATIVE SUSTAINABILITY AND RESPONSIBILITY-RELATED TEACHING APPROACHES AND METHODS, AND THEIR LINKS WITH PEDAGOGICAL IMPACT VARIABLES** part.

ABOUT THE STATISTICAL ANALYSIS REPORT, THE CONTROLLING TOOL AND THE EFFSET

The statistical analysis was the quantitative research phase of the EFFORT project. It was a deep, explorative survey that had been carried out using the developed Controlling Tool. Students of experimental and partly control courses have filled a questionnaire at the beginning of their course, and another after the delivery of the course they participated in. In the survey nine constructs have been measured: Intention, Emotions, Attitudes, Subjective Norm, Moral Obligation, Values, Ascription of Responsibility, Awareness of Consequences and Knowledge. The pre- and post-delivery results of these constructs have been compared and analysed⁷.

The EffSET tool is made of two parts: the “Institution” sheet guides the self-assessment of the higher education institutions’ maturity of sustainability integration, while the second part is about a “Single teaching course”. The “Institution” part takes into consideration twelve critical criteria, grouped into three dimensions: Culture, Mission and People. Given the multidimensional and transdisciplinary nature of the tool, a group of internal specialists, possibly with the addition of an external expert, should preferably perform assessment. The result of the assessment should then be communicated to all members of the community, in addition to each course level self-evaluation. Ideally, the results would lead to a discussion with all stakeholders, as well as serve as an inspiration for strategic development and internal improvements⁸.

With regard to the statistical analysis and EffSET, the Guidelines contain a summary in the **RECOMMENDATION 2: MEASURING EFFECTIVENESS OF SUSTAINABILITY- AND RESPONSIBILITY-RELATED TEACHING** part of the Guidelines.

⁷Bustamante, S., Peuker, B., Martinovic, M. (2022): Statistical Analysis Report. Results of Testing Teaching Effectiveness in the Erasmus+ Project “EFFectiveness Of Responsibility Teaching (EFFORT)”. Working Paper. Hochschule für Wirtschaft und Recht Berlin.

⁸Venezia, E., & Pizzutilo, F. (2022). EffSET: a Self-Evaluation Tool to Assess the Effectiveness of Education for Sustainable Development. European Journal of Sustainable Development.

RECOMMENDATION 1: USING INNOVATIVE SUSTAINABILITY- AND RESPONSIBILITY-RELATED TEACHING APPROACHES AND METHODS, AND THEIR LINKS WITH PEDAGOGICAL IMPACT VARIABLES

In this section of the Guidelines, we provide with an overview of the interlinkages among pedagogical approaches, teaching methods and pedagogical impact variables. Our recommendation for educators is to consider the interlinkages when designing or re-designing their courses, to ensure that sustainable and responsible behaviour of students will be fostered. As Chapter 1 of the Handbook describes, the teaching approaches imply methods and affect pedagogical impact variables, which thus foster responsible behaviour. Various studies confirm the meaningfulness and usefulness of applying these approaches and methods. The pedagogical approaches are defined at a more general level, while the pedagogical methods are at a more specific level of the educational process. The approaches and methods described in the Handbook and used in the Guidelines are not exhaustive; they rather represent the core pedagogies. The pedagogical impact variables capture important features and characteristics of the different pedagogies that are recommended for teaching sustainability, CSR and similar in literature. The teaching approaches and methods partly overlap, and the courses are normally combinations of several teaching approaches and methods⁹.

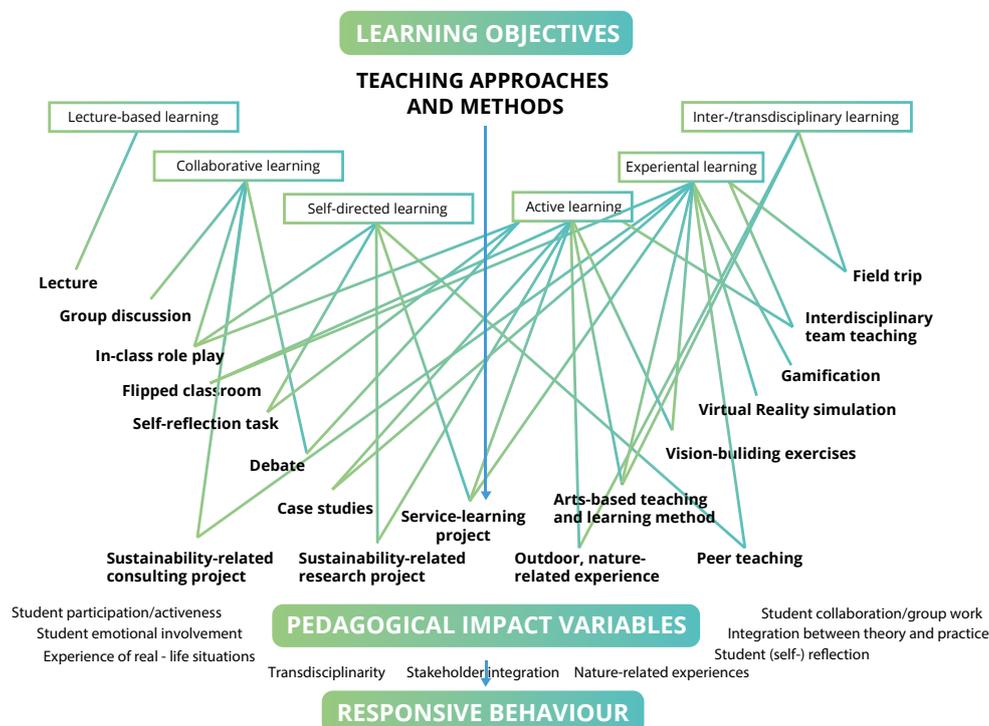


Figure 1: Teaching approaches, methods and pedagogical impact variables¹⁰

⁹Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

¹⁰ The variables are coming from: Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022

PEDAGOGICAL APPROACHES

The pedagogical approaches the EFFORT consortium identified are as follows¹¹:

- **Experiential learning** means that “instructors promote learning by having students directly engage in, and reflect on personal experiences”¹². Examples of experiences are projects, internships, community work, or field trips¹³.
- **Collaborative learning** means that „individuals in a social constellation (e.g., group, team, or community) within a physical and/or virtual environment interact on the same or different aspects of a shared task to accomplish implicit or explicit shared and individual learning goals”¹⁴.
- **Active learning** “require[s] the educator to privilege the learner’s participation over his or her own declarative knowledge of the subject”¹⁵. “The core elements of active learning are student activity and engagement in the learning process”¹⁶
- **Self-directed learning** is “a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes”¹⁷.
- **Inter-/transdisciplinary learning** describes a learning situation “that involves the study of a particular topic by drawing on knowledge from several disciplines at the same time”, being “concerned with the links and the transfer of knowledge, methods, concepts, and models from one discipline to another”¹⁸. **Transdisciplinary learning** additionally “requires students to analyse, synthesize and harmonize their connections into a coherent whole that lies beyond the culture of any single discipline, and is therefore emergent”¹⁹
- **Lecture-based learning** is a teacher-centred approach, characterized by lecturers delivering instructions and contents to students as passive listeners ²⁰.

¹¹The overview and definitions of pedagogical approaches are taken from Bustamante et al. (2022): Shaping a Sustainable Future. Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

¹²Slavich, G. M., & Zimbardo, P. G. (2012). Transformational Teaching: Theoretical Underpinnings, Basic Principles, and Core Methods. *Educational Psychology Review*, 24(4), 569–608.

¹³Strijbos, J. W. (2016): Assessment of Collaborative Learning. In *Handbook of Social and Human Conditions in Assessment*, edited by G. T. L. Brown & L. Harris, pp. 302–318. 2

¹⁴MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, 13(1), 72–87.

¹⁵MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, 13(1), 72–87.

¹⁶Prince, M. (2004). Does Active Learning Work? A Review of the Research. *Journal of Engineering Education*, 93(3), 223–231.

¹⁷Knowles, M. S. (1975). *Self-Directed Learning: A Guide for Learners and Teachers*. Cambridge: Englewood Cliffs.

¹⁸Greig, A., & Priddle, J. (2019). Mapping Students’ Development in Response to Sustainability Education: A Conceptual Model. *Sustainability*, 11(16), 4324.

¹⁹ Greig, A., & Priddle, J. (2019). Mapping Students’ Development in Response to Sustainability Education: A Conceptual Model. *Sustainability*, 11(16), 4324.

²⁰Leary, H. M. (2012). *Self-Directed Learning in Problem-Based Learning Versus Traditional Lecture-Based Learning: A Meta-Analysis* (Doctoral Dissertation, Utah State University). Retrieved from <https://digitalcommons.usu.edu/etd/1173>.

TEACHING METHODS

The EFFORT team identified the following teaching methods for effective sustainability- and responsibility-related teaching²¹:



METHOD 1 – GROUP DISCUSSION

What is it about?

Group discussion “is a free verbal exchange of ideas between group members or teacher and students”²², “a give-and-take dialogue that encourages students to enrich and refine their understanding”²³.

Advantages:

It is easy to integrate the method in any course, learners can be inspired by each other. Group discussion enhances leadership skills, communication skills, social skills, politeness, teamwork, listening ability, general awareness, and problem-solving skills²⁴.

Disadvantages:

In bigger groups it is hard to ensure active participation of all the members: therefore, it is advised to take into consideration the learners’ skills and abilities for the group distribution and dynamics²⁵.



METHOD 2 - DEBATE

What is it about?

A debate is an activity which involves “two groups of students put[ting] forward opposing arguments on an issue”²⁶

Advantages:

In debates students have the opportunity to reflect and make sense of the topics covered in class.

Disadvantages:

Students may not be flexible in building arguments, the method needs long time in selecting a controversial topic in the field with two identifiable, arguable, and opposing sides²⁷.

²¹ Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

²² Sajjad, S. (2010). Effective teaching methods at higher education level. Pakistan Journal of Special Education, 11, 29–43.

²³ Alvermann, D. E., & Hayes, D. A. (1989). Classroom discussion of content area reading assignments: An intervention study. Reading Research Quarterly, 24(3), 305–335., p. 306.

²⁴ Sajjad, S. (2010). Effective teaching methods at higher education level. Pakistan Journal of Special Education, 11, 29–43.

²⁵ Dellaportas, S. (2006). Making a difference with a discrete course on accounting ethics. Journal of Business Ethics, 65(4), 391–404.

²⁶ Cotton, D., & Winter, J. (2010). ‘It’s Not Just Bits of Paper and Light Bulbs’: A review of sustainability pedagogies and their potential for use in higher education. In P. Jones, D. Selby, & S. R. Sterling (Eds.), Sustainability education: Perspectives and practice across higher education (pp. 39–54). Earthscan.

²⁷ Healey, R. L. (2012). The power of debate: Reflections on the potential of debates for engaging students in critical thinking about controversial geographical topics. Journal of Geography in Higher Education, 36(2), 239–257.

METHOD 3 – GAMIFICATION

What is it about?

Gamification is the practice of using game design elements (e.g. points, badges, leaderboards, storylines), game thinking and game mechanics in non-game contexts to motivate participants.²⁸

Advantages:

This method builds learner engagement, helps to change perceptions and attitudes and develops skills through a practical, applied, and thoroughly hands-on approach to learning. In addition, gamification makes learning fun and interactive.

Disadvantages:

Expensive to develop, it takes longer time to develop than traditional instructional design.²⁹



METHOD 4 - IN-CLASS ROLE-PLAY

What is it about?

In-class role plays (e.g. Board Meeting Game) are an active learning teaching technique, considered to be a part of interactive simulation whereby participants act out the role of a character in a particular situation following a set of rules³⁰. Role play exercises give students the opportunity to assume the role of a person or act out a given situation.

Advantages:

Role playing can motivate and engage students, and enhance current teaching strategies, provide real-world scenarios to help students learn skills used in real-world situations (such as negotiation, debate, teamwork, cooperation, persuasion). In addition, it provides opportunities for critical observation of peers³¹.

Disadvantages:

Not everyone is comfortable with role-playing scenarios, and this can affect performance³².



²⁸ Al-Azawi, R., Al-Faliti, F., & Al-Blushi, M. (2016). Educational gamification vs. game based learning: Comparative study. *International Journal of Innovation, Management and Technology*, 131–136.

²⁹ Gatti, L., Ulrich, M., & Seele, P. (2019). Education for sustainable development through business simulation games: An exploratory study of sustainability gamification and its effects on students' learning outcomes. *Journal of Cleaner Production*, 207, 667–678.

³⁰ Rao, D., & Stupans, I. (2012). Exploring the potential of role play in higher education: development of a typology and teacher guidelines. *Innovations in Education and Teaching International*, 49(4), 427–436. Dingli, S., Khalfey, S., & Leston-Bandeira, C. (2013). The effectiveness of incentive-driven roleplay. *European Political Science*, 12, 384–398.

³¹ Based on <https://www.niu.edu/citl/resources/guides/instructional-guide/role-playing.shtml>

³² Chen, J. C., & Martin, A. R. (2015). Role-play simulations as a transformative methodology in environmental education. *Journal of Transformative Education*, 13(1), 85–102.



METHOD 5 - VIRTUAL REALITY SIMULATION

What is it about?

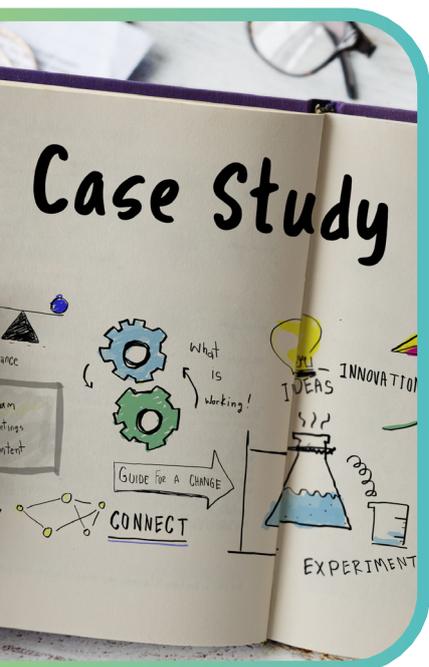
Virtual reality simulation is an “artificial representation of a real-world process by the means of Virtual Reality technology to achieve educational goals via experiential learning”. It “allows the visualization of data in three dimensions and provides interactive functionalities that reinforce the feeling of immersion into a computer-generated virtual world”.³³

Advantages:

Virtual simulation has demonstrated to be an effective pedagogy that supports many student learning outcomes. Research has shown that virtual simulations can improve knowledge retention and student satisfaction with learning³⁴.

Disadvantages:

Expensive, the construction and testing of virtual reality simulation devices can be time-consuming³⁵.



METHOD 6 - CASE STUDY

What is it about?

Case studies are “written summaries or syntheses of real-life cases that require students to find out the key issues involved and to identify appropriate strategies for the resolution of the ‘case’. ... A ‘case’ should be a complex problem written to stimulate classroom discussion and collaborative analysis, and be a student-centered exploration of realistic and specific situations.”³⁶

Advantages:

Students are active learners: the method develops critical thinking skills and requires the application of ethical considerations to situations or practical concern. It is useful for understanding the various personal factors and organizational circumstances that lead to ethical dilemmas.

Disadvantages:

The case study method does not provide an ideal way of communicating concepts and analytic methods. It is deficient in promoting character development, the method may not engage students’ personal values and convictions³⁷.

³³ Davis, A. (2015). Virtual reality simulation: An innovative teaching tool for dietetics experiential education. *The Open Nutrition Journal*, 9(1), 65–75.

³⁴ Hudder, K., Buck-McFadyen, E., Regts, M., Bushuk, K. (2021) A Quasi-Experimental Study Comparing Virtual Simulation to Lab-Based Learning of Newborn Assessment Among Nursing Students, *Clinical Simulation in Nursing*, Volume 55, 59-66

³⁵ Earle, A. G., & Leyva-de la Hiz, D. I. (2021). The wicked problem of teaching about wicked problems: Design thinking and emerging technologies in sustainability education. *Management Learning*, 52(5), 581–603.

³⁶ Alt, D., Alt, N., & Hadar-Frumer, M. (2019). Measuring Halliwick Foundation course students’ perceptions of case-based learning, assessment and transfer of learning. *Learning Environments Research*, 23(1), 59–85.

³⁷ Bagdasarov, Z., Thiel, C. E., Johnson, J. F., Connelly, S., Harkrider, L. N., Devenport, L. D., & Mumford, M. D. (2013). Case-based ethics instruction: The influence of contextual and individual factors in case content on ethical decision-making. *Science and Engineering Ethics*, 19(3), 1305–1322.

METHOD 7 - SERVICE-LEARNING PROJECT

What is it about?

A service-learning project (for the community) is a method where “students engage in activities intended to directly benefit other people, where the activities are integrated with learning activities in an intentional and integrative way that benefits both the community organization and the educational institution”.³⁸

Advantages:

Students learn more about their relationship with the communities they engage with and learn about their capacity for serving others. Through this method they can refine their decision-making abilities and acquire other career-related skills, and better understand the meaning of responsible citizenship³⁹.

Disadvantages:

Some students may approach service activities as a reluctant chore, rather than with enthusiasm and motivation⁴⁰.



METHOD 8 - SUSTAINABILITY-RELATED CONSULTING PROJECT

What is it about?

A sustainability-related consulting project is a “learning by doing” method where students work on solving real business and environmental [or rather sustainability-related] problems by developing practical recommendations for a real organisation⁴¹. In their role as consultants, students assist with diagnosing the client’s situation and finding and implementing solutions.⁴²

Advantages:

Sustainability-related consulting projects introduce real-life cases into the classrooms- finding a solution for a global or local challenge is a motivating, competitive task- helping sustainability-related organisations can be very inspiring for students.

Disadvantages:

The preparation of involving this method is time-consuming and might be impractical to apply to certain classrooms.⁴³



³⁸ Hayes, E.; & King, C. (2006). Community service-learning in Canada: A scan of the field. Canadian Association for Community Service-Learning.

³⁹Based on <https://www.elmhurst.edu/blog/what-is-service-learning/>

⁴⁰Halberstadt, J., Schank, C., Euler, M., & Harms, R. (2019). Learning sustainability entrepreneurship by doing: Providing a lecturer-oriented service-learning framework. *Sustainability*, 11(5), 1217.

⁴¹ Segal, G., & Drew, S. (2012). A service-learning consulting project for undergraduate business sustainability education. *Journal of Sustainability and Green Business*, 1, 1–13., p. 1.

⁴² Butler, D. D. (2018). Developing and delivering a consulting project course abroad. 2018 IPUTL Conversation Starter Essays, 1–4.

⁴³Bielefeldt, A. (2013). Pedagogies to achieve sustainability learning outcomes in civil and environmental engineering students. *Sustainability*, 5(10), 4479–4501.



METHOD 9 - SUSTAINABILITY-RELATED RESEARCH PROJECT

What is it about?

A sustainability-related research project is a student's own scientific endeavour to answer a sustainability-related research question (under the guidance of a faculty mentor) that can take the form of primary empirical research, secondary data analysis, or meta-analysis⁴⁴.

Advantages:

Students are encouraged to integrate a proper empirical part into their studies. This leads students to conduct primary research often via qualitative interviews, within a case study of a specific organization, sometimes combined with the analysis of documents and other secondary data.

Disadvantages:

The preparation of involving this method is time-consuming and might be impractical to apply to certain classrooms⁴⁵.



METHOD 10 - SELF-REFLECTION TASK/ EXERCISE

What is it about?

A self-reflection task/ exercise is an activity that "provide[s] opportunities for students to reflect on [i.a.] personal roles, attitudes, and responsibilities in relation to a range of sustainability issues"⁴⁶. Reflection, in this case, can be defined as "the process of internally examining and exploring an issue of concern, triggered by an experience, which creates and clarifies meaning in terms of self, and which results in a changed conceptual perspective"⁴⁷.

Advantages:

Through self-reflection students can evaluate their work against a set of criteria and track their learning progress. They can also identify areas of strengths and weaknesses in their skill set and knowledge⁴⁸.

Disadvantages:

Some students may feel uncomfortable as a self-reflection task challenges to evaluate their perspectives and even their own learning practice⁴⁹.

⁴⁴ Rutgers University (n.d.) (2022, May 24). Definition of a research project and specifications for fulfilling the requirement. https://njms.rutgers.edu/departments/medicine/internal_medicine/documents/RESEARCH.pdf

⁴⁵ Brundiers, K., & Wiek, A. (2013). Do we teach what we preach? An international comparison of problem-and project-based learning courses in sustainability. *Sustainability*, 5, 1725-1746.

⁴⁶ Cotton, D., & Winter, J. (2010). 'It's Not Just Bits of Paper and Light Bulbs': A review of sustainability pedagogies and their potential for use in higher education. In P. Jones, D. Selby, & S. R. Sterling (Eds.), *Sustainability education: Perspectives and practice across higher education* (pp. 39-54). Earthscan.

⁴⁷ Boyd, E. M., & Fales, A. W. (1983). Reflective learning: Key to learning from experience. *Journal of Humanistic Psychology*, 23(2), 99-117, p. 100

⁴⁸ <https://schoolbox.com.au/blog/what-does-self-assessment-and-self-reflection-bring-to-the-learning-journey/>

⁴⁹ Anderson, J. (2012). Reflective journals as a tool for auto-ethnographic learning: A case study of student experiences with individualized sustainability. *Journal of Geography in Higher Education*, 36(4), 613-623.

METHOD 11 - INTERDISCIPLINARY TEAM TEACHING

What is it about?

Interdisciplinary team teaching is a method that allows “having specialists in different fields [to] help students explore... topics from two or more distinctive disciplinary perspectives”⁵⁰. This type of teaching method is opened up and amplified through collaborative learning with partners from other sectors like civil society, enterprises, policy, schools, communities etc.; partners and students integrate their knowledge and resources to solve the problem together.⁵¹

Advantages:

Integrated learning: the method exposes learners to experience deeper learning and start thinking outside the box by examining different aspects of the same subject across various disciplines.

Disadvantages:

The involvement of experts requires extensive planning and organising ahead⁵².



METHOD 12 - VISION-BUILDING EXERCISES

What is it about?

Vision-building exercises are foresight exercises⁵³ “such as future workshops, scenario analyses, utopian/dystopian story-telling, science-fiction thinking, and forecasting and backcasting”⁵⁴. They are “interdisciplinary studies that aim at envisioning possible, probable, or desirable futures” [and] ... “are meant to address complex societal issues”.⁵⁵

Advantages:

The method can explore real or future problems facing our world and helps making political, philosophical, or moral points. The extensive focus on future-planning and envisioning future solutions can bring up innovative and/or unexpected strategies.

Disadvantages:

Practical application is less addressed by the above-mentioned methods⁵⁶.



⁵⁰ Lozano, R., Merrill, M., Sammalisto, K., Ceulemans, K., & Lozano, F. (2017). Connecting Competences and Pedagogical Approaches for Sustainable Development in Higher Education: A Literature Review and Framework Proposal. *Sustainability*, 9(10), 1889., p. 7.

⁵¹ Lozano, R., Merrill, M., Sammalisto, K., Ceulemans, K., & Lozano, F. (2017). Con-necting Competences and Pedagogical Approaches for Sustainable Develop-ment in Higher Education: A Literature Review and Framework Proposal. *Sus-tainability*, 9(10), 1889.

⁵² Lozano, R., Merrill, M., Sammalisto, K., Ceulemans, K., & Lozano, F. (2017). Connecting competences and pedagogical approaches for sustainable development in higher education: A literature review and framework proposal.

⁵³ Filip, F. G., Dragomirescu, H., Predescu, R., & Ilie, R. (2005). Vision-Building for the Knowledge Society–The Experience with a Romanian Foresight Exercise. In C. Pascu and F. G. Filip (Ed.). *Visions On The Future Of Information Society In An Enlarged Europe* (pp. 202-212). The Publishing House of the Romanian Academy.

⁵⁴ UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing., p. 55

⁵⁵ Filip, F. G., Dragomirescu, H., Predescu, R., & Ilie, R. (2005). Vision-Building for the Knowledge Society–The Experience with a Romanian Foresight Exercise. In C. Pascu and F. G. Filip (Ed.). *Visions On The Future Of Information Society In An Enlarged Europe* (pp. 202-212). The Publishing House of the Romanian Academy.

⁵⁶ Kearney, J., Wood, L., & Zuber-Skerritt, O. (2013). Community–university partnerships: Using participatory action learning and action research (PALAR). *Gateways: International Journal of Community Research and Engagement*, 6, 113–130.



METHOD 13 - FIELD TRIP

What is it about?

A field trip is “an activity that serves educational purposes and occurs outside of the classroom at a location other than on the campus at which the course is regularly taught”.⁵⁷

Advantages:

The teaching strategy is student-centered and student-directed. Teachers simply facilitate the learning task. The method allows the learner to learn through participation and observation in the learning process. Including site visits with a field work component into courses can be a particularly helpful way for those in the sciences to engage experiential learning.

Disadvantages:

It requires extensive planning and preparations ahead, including planning for transportation and extended timeframe⁵⁸.



METHOD 14 - OUTDOOR, NATURE-RELATED EXPERIENCE

What is it about?

Outdoor, nature-related experiences represent “a method of teaching and learning that emphasizes direct, multisensory experiences; takes place in the outdoor environment; and uses an integrated approach to learning by involving the natural, community, and individual environments.”⁵⁹

Advantages:

Spending time in nature is linked to both cognitive benefits and improvements in mood, mental health and emotional well-being⁶⁰.

Disadvantages:

The method needs more than average organisation and preparation⁶¹.

⁵⁷ The University of Rhode Island. (n.d.). Field trip travel policy and procedures. Re-trieved June 01, 2020, from: <https://web.uri.edu/riskmanagement/field-trips/#:~:text=For%20purposes%20of%20this%20document,the%20course%20is%20regularly%20taught.>

⁵⁸ Putz, L.-M., Treiblmaier, H., & Pfoser, S. (2018). Field trips for sustainable transport education. *The International Journal of Logistics Management*, 29(4), 1424–1450.

⁵⁹ Gilbertson, K., Bates, T., Ewert, A., & McLaughlin, T. (2006). Outdoor education: Methods and strategies. *Human Kinetics*.

⁶⁰ Palmberg, I. E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *The Journal of Environmental Education*, 31(4), 32–36.

⁶¹ Palmberg, I. E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *The Journal of Environmental Education*, 31(4), 32–36.

METHOD 15 - ARTS-BASED TEACHING AND LEARNING METHOD

What is it about?

An arts-based teaching and learning method (e.g. theatre, drawing exercise, music-based exercise) is a method, which applies the “purposeful use of artistic skills, processes, and experiences as an educational tool to foster learning in non-artistic disciplines and domains”⁶².

Advantages:

As a multidisciplinary approach, this method introduces fun and excitement into classrooms. The main advantage is that it enables sense-making of complex and uncertain situations⁶³.

Disadvantages:

The method requires extensive preparations and additional tools.⁶⁴



METHOD 16 – FLIPPED CLASSROOM

What is it about?

Flipped classroom “attempts to ‘flip’ the typical structure of a course such that the presentation of concepts (traditionally achieved through in-class lectures) is presented outside class, whereas class time is reserved for working on problems (i.e., in-class ‘homework’)”⁶⁵.

Advantages:

Learners are inspired by each other; students can practice self-reflecting on their own decision-making practices and learn to recognize how their decisions influence others⁶⁶.

Disadvantages:

There is significant work on the front-end: requires preparation and pre-defined evaluation criteria.⁶⁷



⁶² Boston University, The Center for Teaching and Learning. (n.d.). (2022, May 23). Arts-Based Learning. <https://www.bu.edu/ctl/guides/arts-based-learning>

⁶³ Nissley, N. (2010). Arts-based learning at work: economic downturns, innovation upturns, and the eminent practicality of arts in business. *Journal of Business Strategy*, 31 (4), 8-20.

⁶⁴ Comer, D. R., & Schwartz, M. (2017). Highlighting moral courage in the business ethics course. *Journal of Business Ethics*, 146(3), 703-723.

⁶⁵ Peterson, D. J. (2015). The Flipped Classroom Improves Student Achievement and Course Satisfaction in a Statistics Course. *Teaching of Psychology*, 43(1), 10-15.

⁶⁶ Chang, B. (2019). Reflection in learning. *Online Learning*, 23(1), 95-110.

⁶⁷ Peterson, D. J. (2015). The Flipped Classroom Improves Student Achievement and Course Satisfaction in a Statistics Course. *Teaching of Psychology*, 43(1), 10-15.



METHOD 17 – PEER TEACHING

What is it about?

Peer-teaching refers to “an acquisition of knowledge and skill through active helping and supporting among status equals or matched companions”⁶⁸.

Advantages:

Peer teaching can reinforce students’ own learning by instructing others. Students might feel more comfortable and open when interacting with a peer, allowing for greater understanding⁶⁹.

Disadvantages:

Student-teacher relationships may be weakened by peer-teaching, some students might not take seriously the task at hand.⁷⁰



METHOD 18 - LECTURE

What is it about?

Lecture is “a method of teaching by which the instructor gives an oral presentation of facts or principles to learners and the class usually being responsible for note taking, usually implies little or no class participation by such means as questioning or discussion during the class period”⁷¹.

Advantages:

It can reach many people at once, good for explaining definitions or terms and the method is necessary for understanding a discipline. It provides students with a complete and logical structured approach, can be used to supply students with a variation of viewpoints that are not readily available.

Disadvantages:

Considered to be an inferior method for developing problem-solving skills and traditional lectures are not well-suited for learning high-level intellectual skills. Lectures don’t consider individual differences; thus, students remain relatively passive.⁷²

⁶⁸ Topping, K. J. (2005). Trends in peer learning. *Educational Psychology*, 25(6), 631–645.

⁶⁹ <https://www.opencolleges.edu.au/informed/features/peer-teaching/>

⁷⁰ Asikainen, H., Blomster, J., Cornér, T., & Pietikäinen, J. (2021). Supporting student integration by implementing peer teaching into environmental studies. *Journal of Further and Higher Education*, 45(2), 162–182.

⁷¹ Good & Merkel, 1959 as cited in Kaur, G. (2011). Study and analysis of lecture model of teaching. *International Journal of Educational Planning & Administration*, 1(1), 9–13., p. 10.

⁷² Bielefeldt, A. (2013). Pedagogies to achieve sustainability learning outcomes in civil and environmental engineering students. *Sustainability*, 5(10), 4479–4501.

PEDAGOGICAL IMPACT VARIABLES

The pedagogical impact variables identified by our consortium include the following⁷³:

- **Degree of student participation/ activeness** - how much opportunity students have to be active and to engage in the learning process⁷⁴
- **Degree of student collaboration/ group work** - how much opportunity students have for working/ interacting in social constellations (e.g. group, team, community) to solve shared tasks⁷⁵
- **Degree of student emotional involvement** - the degree of evoking an emotional connection of students with the material or contents being learned⁷⁶
- **Degree of inter-/ transdisciplinarity** - how much opportunity students have to transfer and recombine concepts and methods from different disciplines and create holistic solutions beyond single disciplines⁷⁷
- **Degree of student (self-)reflection** - how much opportunity is given to students to critically reflect on their knowledge, experiences, assumptions, beliefs, values, personal roles, attitudes, or responsibilities⁷⁸
- **Degree of experience of real-life situations** - how much opportunity is given to students for collecting first-hand experiences in realworld settings focused on solving actual sustainability problems/ challenges⁷⁹
- **Degree of nature-related experiences** - describes how much opportunity is given to students to have direct, multisensory experiences in the outdoor environment⁸⁰
- **Degree of stakeholder integration** - how much opportunity is given to students to identify stakeholders and their demands, to interact with them, and to consider their expectations in finding solutions within tasks during the course work⁸¹
- **Degree of integration between theory and practice** - how much opportunity is given to students to apply and reflect theoretical knowledge in practical contexts and, vice versa, to reflect and interpret practical experiences before the background of theoretical knowledge⁸²

⁷³ The overview and definitions are based on Bustamante, S., Saltevo, E., Schmitz, M., Martinovic, M. (2022): Shaping a Sustainable Future Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

Definitions for emotional involvement and theory-practice integration differ from the ones presented in Bustamante et al. (2022) as they were updated based on conducted expert interviews.

⁷⁴ Based on Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223–231.

⁷⁵ Based on Strijbos, J. W. (2016): Assessment of Collaborative Learning. In *Handbook of Social and Human Conditions in Assessment*, edited by G. T. L. Brown & L. Harris, pp. 302–318.

⁷⁶ Based on Immordino-Yang, M. H., & Faeth, M. (2010). The Role of Emotion and Skilled Intuition in Learning. In D. A. Sousa (Ed), *Mind Brain and Education* (pp. 69-84). Bloomington: Solution Tree Press.

⁷⁷ Based on Greig, A., & Priddle, J. (2019). Mapping Students' Development in Response to Sustainability Education: A Conceptual Model. *Sustainability*, 11(16), 4324.

⁷⁸ Based on Cotton, D., & Winter, J. (2010). It's not just bits of paper and light bulbs: a review of sustainability pedagogies and their potential for use in higher education. In P. Jones, D. Selby & S. Sterling (Ed.). *Sustainability education: perspectives and practice across higher education* (39–54). Earthscan

Svanström, M., Lozano-García, F. J., & Rowe, D. (2008). Learning outcomes for sustainable development in higher education. *International Journal of Sustainability in Higher Education*, 9(3), 339–351.

⁷⁹ Based on Brundiers, K., Wiek, A., & Redman, C. L. (2010). Real-world learning opportunities in sustainability: From classroom into the real world. *International Journal of Sustainability in Higher Education*, 11(4), 308–324.

⁸⁰ Based on Gilbertson, K., Bates, T., McLaughlin, T., & Ewert, A. (2006). Outdoor education: Methods and strategies. *Human Kinetics*.

⁸¹ Based on Plaza-Úbeda, J. A., de Burgos-Jiménez, J., & Carmona-Moreno, E. (2010). Measuring stakeholder integration: knowledge, interaction and adaptational behavior dimensions. *Journal of Business Ethics*, 93, 419–442.

⁸² Based on Gerstung, V., & Deuer, E. (2021). Theorie-Praxis Verzahnung im dualen Studium: Ein konzeptioneller Forschungsbeitrag. *Zeitschrift für Hochschulentwicklung*, 16(2), 195-213. Pham, H. L. (2011). Differentiated instruction and the need to integrate teaching and practice. *Journal of College Teaching & Learning (TLC)*, 9(1), 13–20. Woo, Y. L., Mokhtar, M., Komoo, I., & Azman, N. (2012). Education for Sustainable Development: A Review of Characteristics of Sustainability Curriculum. *OIDA International Journal of Sustainable Development*, 3(8), 33-44.

THE INFLUENCE OF TEACHING METHODS AND APPROACHES ON PEDAGOGICAL IMPACT VARIABLES



A Delphi survey as well as a structured literature research was conducted to evaluate the influence of teaching approaches and methods on the pedagogical impact variables. Several approaches and methods have a high influence on these impact variables and are therefore particularly recommendable for sustainability-related teaching:

Approaches:

- Experiential learning
- Active learning
- Collaborative learning

Methods:

- Service-learning project
- Sustainability-related consulting project
- Outdoor, nature related experience

INNOVATIVE SUSTAINABILITY AND RESPONSIBILITY-RELATED COURSES AT BACHELOR LEVEL

The below table provides with an overview of the innovative Bachelor-level courses related to sustainability and responsibility-related teaching, detailed in the Handbook⁸³. The related searchable database is available here: <https://effort.lehre.hwr-berlin.de/results/guidelines>.

Course (chapter) name	Ethical and Sustainable Finance	Doing Business Differently	Agility and Excellence in Business – A Trans-disciplinary Capstone Course
Audience and level of studies	Bachelor students	Bachelor students	Bachelor students
Group size	26-50 students	26-50 students	500-1000 students
Course duration	8 weeks	12 weeks	13 weeks
Credits	4 ECTS	15 ECTS	5 ECTS
Contents/ primary topics	Sustainable finance characteristics, Sustainable finance products and markets, Financial return, risks, and social/environmental impact	The emergence of new socio-economic phenomena (sustainable business, collaborative economies, sharing economy, crowdfunding, social and solidarity economy, commons, social entrepreneurship and corporate social responsibility), Sustainable and innovative business practices, Social banking and social finance	Sustainable and global mindset, Teamwork, Employability
Main Teaching Approaches	Lecture-based learning, Active learning, Experiential learning	Inter-/transdisciplinary learning, Lecture-based learning, Active learning	Active learning, Collaborative learning, Inter-/transdisciplinary learning
Main Teaching Methods	Lectures, Case studies	Interdisciplinary team teaching, Lecture, Sustainability-related research project	Sustainability-related consulting project, Inter-disciplinary team teaching, Group discussion
Pedagogical Impact Variables	Degree of student participation/activeness, Degree of integration between theory and practice	Degree of student participation/activeness, Degree of inter-/transdisciplinarity	Degree of student participation/activeness, Degree of student collaboration/group work, Degree of inter-/transdisciplinarity, Degree of integration between theory and practice
Further information	Handbook Chapter Number: 19	Handbook Chapter Number: 6	Handbook Chapter Number: 14

⁸³Tables adapted from Bustamante et al. (2022). Shaping a Sustainable Future. Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

Course (chapter) name	Applied Sustainable Practices	Circular Economy and Strategies of Sustainability	Solving sustainability-related problems using self-directed learning
Audience and level of studies	Bachelor students	Bachelor students	Bachelor students
Group size	51-75 students	26-50 students	26-50 students
Course duration	12 weeks	14 weeks	16 weeks
Credits	10 ECTS	6 ECTS	3 ECTS
Contents/ primary topics	History, Policies, Legislation and culture relating to sustainability, Sustainability frameworks and impact assessment, Processes that make sustainable societies through advances in public awareness, Technology, Policy and economics	Circular economy, Corporate social responsibility, Sustainable innovation management	Sustainable development, Organisational strategies for sustainability
Main Teaching Approaches	Lecture-based learning, Active learning, Experiential learning	//Inter-/transdisciplinary learning, Lecture-based learning, Active learning	//Active learning, Collaborative learning, Inter-/transdisciplinary learning
Main Teaching Methods	Lecture, Group discussion, Sustainability-related research	Flipped classroom, Self-reflection tasks, Field trip	Sustainability-related consulting project, Lecture, Field trip
Pedagogical Impact Variables	Degree of student participation/activeness, Degree of student emotional involvement, Degree of inter-/transdisciplinarity, Degree of student (self-) reflection, Degree of experience of real-life situations, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of inter-/transdisciplinarity, Degree of student (self-) reflection	Degree of student participation/activeness, Degree of student collaboration/group work, Degree of inter-/transdisciplinarity, Degree of experience of real-life situations, Degree of integration between theory and practice
Further information	Handbook chapter number: 21	Handbook Chapter Number: 22	Handbook Chapter Number: 10

Course (chapter) name	Implementation of sustainability and social responsibility competencies in the degree of human nutrition and dietetics	How to educate responsible engineers with both eyes open	The interconnection among social, environmental, and economic aspects of the 17 SDGs	Sustainability in building and operating real estate
Audience and level of studies	Bachelor Students	Bachelor Students	Bachelor Students	Bachelor Students
Group size	26-50 students	26-50 students	26-50 students	26-50 students
Course duration	16 weeks	15 weeks	14 weeks	12 weeks
Credits	9 ECTS	4.5 ECTS	2 ECTS	5 ECTS
Contents/ primary topics	Aspects of sustainability and social responsibility in the nutrition and diet of specific groups (here especially of elderly people)	Technological and infrastructure systems (manufacturing, water, energy, power supply, and transportation) Principles of sustainable development	Globalisation, population, migration, Sustainability, environment, ethics, governance, corruption Equality, inequality, gender, poverty, labour market, social movements	Sustainability in building and operating real estate
Main Teaching Approaches	Collaborative learning, Active learning	Lecture-based learning, Inter-/ transdisciplinary learning, Self-directed learning	Active learning Collaborative learning, Inter-/ transdisciplinary learning	Lecture-based learning, Experimental learning, Collaborative learning
Main Teaching Methods	Case study, In-class role play, Group discussion	Sustainability-related research project, Self-reflection task/ exercise, Arts-based teaching and learning method	Interdisciplinary teaching, Group discussion, Self-reflection tasks/ exercises	Lecture, Sustainability-related research project, Group discussion
Pedagogical Impact Variables	Degree of student participation / activeness, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student (self-) reflection, Degree of integration between theory and practice	-----	Degree of student participation / activeness, Degree of student collaboration / group work
Further information	Handbook chapter number: 20	Handbook chapter number: 8	Handbook chapter number: 7	Handbook chapter number: 12

Course (chapter) name	Sustainable consumption and sustainability marketing	Sustainable Marketing and Sales Management	Education for Sustainability and Regeneration	Engaging for Sustainability – Experiential Learning via Service Design Projects
Audience and level of studies	Bachelor Students	Bachelor Students	Bachelor Students	Bachelor Students
Group size	≤ 25 students	51-75 students	20-30 students	26-50 students
Course duration	18 weeks	15 weeks	14 weeks	12 weeks
Credits	3 ECTS	3 ECTS	6 ECTS	6 ECTS
Contents/ primary topics	Sustainable consumption, Sustainability marketing strategy, Promotion of innovative models of sustainable consumption	Product development, Sustainable production, Sustainable marketing mix	State of the world: from globalization to SDGs, Planetary boundaries and Anthropocene, Sustainability indicators, Global and individual transformations	Service design, Sustainable development, Ethics & responsibility
Main Teaching Approaches	Experiential learning, Collaborative learning	Active learning, Experiential learning, Collaborative learning	Lecture-based learning, Collaborative learning	Experiential learning, Collaborative learning, Active learning
Main Teaching Methods	Sustainability-related research project, Lectures, Debate	Group discussion, Case studies, Sustainability-related research project	Case studies, Flipped classroom, sustainability-regenerative related research project	Sustainability-related consulting project (service design methodology), Reflection tasks, Lectures
Pedagogical Impact Variables	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student emotional involvement, Degree of experience of real-life situations, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student emotional involvement, Degree of inter-/transdisciplinarity, Degree of student (self-) reflection, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student (self-) reflection, Degree of experience of real-life situations, Degree of integration between theory and practice
Further information	Handbook chapter number: 18	Handbook chapter number: 24	Handbook chapter number: 15	Handbook chapter number: 16

INNOVATIVE SUSTAINABILITY AND RESPONSIBILITY-RELATED COURSES AT MASTERS LEVEL

The following innovative Masters-level courses related to sustainability and responsibility-related teaching are detailed in the Handbook⁸⁴. The related searchable database is available here: <https://effort.lehre.hwr-berlin.de/results/guidelines>.

Course (chapter) name	Role of Business for a Sustainable Future: Critical Perspectives	Not just numbers— understanding company financial and non-financial data for sustainability	Innovative Entrepreneurship and Startup Management
Audience and level of studies	Master students	Master students	Master students
Group size	26-50 students	26-50 students	≤ 25 students
Course duration	10 weeks	14 weeks	8 weeks
Credits	7.5 ECTS	4 ECTS	7 ECTS
Contents/ primary topics	Megatrends and squeezing operating space, Analysis and management of social and ecological vulnerabilities, Responsible business stewardship	Introduction to Financial and Environmental, Social and Governance (ESG) reporting, Financial statements interpretation, integrated reporting, integration of financial and non-financial information, Advanced analysis of financial and non-financial statements	Design thinking, Sustainable Business Model creation, Innovative Products Promotion to the Market
Main Teaching Approaches	Collaborative learning, Active learning, Inter-/ transdisciplinary learning	Active learning, Collaborative learning, Experiential learning	Collaborative learning, Active learning
Main Teaching Methods	Group discussions, Lectures, Self-reflection tasks/ exercises	Group discussion, Case study, Sustainability-related research project	Group discussion, Case study, In-class role-play
Pedagogical Impact Variables	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student (self-) reflection, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student emotional involvement, Degree of inter-/transdisciplinarity, Degree of experience of real-life situations, Degree of stakeholder integration, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of inter-/ transdisciplinarity, Degree of integration between theory and practice
Further information	Handbook chapter number: 26	Handbook chapter number: 25	Handbook chapter number: 13

⁸⁴ Bustamante et al. (2022). Shaping a Sustainable Future. Innovative Teaching Practices for Educating Responsible Leaders. Nomos, 2022.

Course (chapter) name	Sustainable Futures of Business- Future Studies Meets Sustainable Management Education	Innovation and Technology for Sustainable Future	Teaching Diversity Management Online: A Learning Journey For Achieving Inclusion
Audience and level of studies	Master students	Master students	Bachelor and Master students
Group size	≤ 25 students	≤ 25 students	≤ 25 /26–50 /51–75 /76–100
Course duration	7 weeks	7 weeks	12 or 27 weeks
Credits	6 ECTS	3 ECTS	5 ECTS
Contents/ primary topics	Sustainable development, wicked problems and system thinking, Futures and utopia/ visions	Disruptive technologies, SDGs, Design, Impact assessment, Implementation and envisioned development trajectories of innovations in the context of sustainability	My Biases, Prejudice & Stereotypes, Managing Diversity in Organisations, Managing Diversity as a Team Leader/Member
Main Teaching Approaches	Active learning, Experiential learning, Collaborative learning	Active learning Collaborative learning Inter-/transdisciplinary learning	Experiential learning, Collaborative learning
Main Teaching Methods	Group discussion, Vision-building exercises, Self-reflection tasks/ exercises	Arts-based teaching and learning, Vision-building exercise, In-class role play	Self-reflection task/ exercises, Vision-building exercises, Role-play
Pedagogical Impact Variables	Degree of student participation/activeness, Degree of student collaboration/group work, Degree of student (self-) reflection, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of inter-/ transdisciplinarity	Degree of student participation / activeness, Degree of student emotional involvement, Degree of inter-/ transdisciplinarity, Degree of student (self-) reflection, Degree of integration between theory and practice
Further information	Handbook chapter number: 5	Handbook chapter number: 23	Handbook chapter number: 9

Course (chapter) name	Business Ethics – Reflecting on Sustainability Issues in Business	Advancing a Responsible Business Mindset	Sustainable marketing: creating positive impact through experiential learning
Audience and level of studies	Postgraduate Specialist Training Programme students	Master students	Master students
Group size	26-50 students	51-75 students	≤ 25 students
Course duration	14 weeks	13 weeks	10 weeks
Credits	4 ECTS	3 ECTS	5 ECTS
Contents/ primary topics	Sustainable and responsible business operations, Business ethics	Responsible Business Mindset explored in: Business Regulation and Marketing; Work and Organisational Studies, Financial Accountability Climate Change and Sustainability Impact	Link between marketing and sustainability Sustainable marketing strategies Changing behaviour for good
Main Teaching Approaches	Lecture-based learning, Collaborative learning, Active learning	Multidisciplinary and interdisciplinary learning, Active learning, Collaborative learning	Experiential learning, Collaborative learning, Active learning
Main Teaching Methods	Lecture and group discussions/debates, Flipped classroom, Self-reflective exercises	Debate, In-class role play, Case studies	Lectures, Sustainability-related consulting project, Self-reflection task
Pedagogical Impact Variables	Degree of student emotional involvement, Degree of student (self-) reflection, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of inter-/transdisciplinarity, Degree of student (self-) reflection, Degree of stakeholder integration, Degree of integration between theory and practice	Degree of student participation / activeness, Degree of student collaboration / group work, Degree of student emotional involvement, Degree of inter-/transdisciplinarity, Degree of student (self-) reflection, Degree of experience of real-life situations, Degree of stakeholder integration, Degree of integration between theory and practice
Further information	Handbook chapter number: 17	Handbook chapter number: 11	Handbook chapter number: 4

RECOMMENDATION 2: MEASURING EFFECTIVENESS OF SUSTAINABILITY AND RESPONSIBILITY-RELATED TEACHING

This section of the Guidelines introduces to the tools developed and piloted by the EFFORT consortium in order to measure effectiveness of sustainability and responsibility-related teaching. Further the descriptions of the statistical analysis, the Controlling Tool and the EffSET tool, the below mentioned websites contain more information about analysing and evaluating data educators may gather from their students to measure the effectiveness of their courses. Our recommendation for educators is to consider the evaluation of their courses, using the Controlling Tool for evaluating the impact on the students, and also the EffSET for a thorough self-evaluation of the course.

THE CONTROLLING TOOL

The Controlling Tool is an instrument that can be used for testing the effectiveness of CSR-, (business) ethics-, sustainability- and responsibility-related courses/teaching formats. The effectiveness evaluation of courses is done by the application of a “pre-test” questionnaire and a “post-test” one: course participants have to complete the pre-course questionnaire at the beginning of the course, and the post-course questionnaire at its end. Both questionnaires cover the same questions on core constructs comprising course participants’ values, their awareness of consequences and knowledge, their ascription of responsibility, their attitudes, subjective norms, feelings of moral obligation, their anticipated affective reactions as well as their intentions to act responsible as future leaders. All of those constructs are coming from a theoretical model and a positive development/an increase in them is understood as an indicator for the effectiveness of the course. In addition to questions on core constructs, several questions on socio-demographic and further aspects (e.g. overall evaluation of the course and methods used) are included in either the pre- or the post-course questionnaire. The pre-course questionnaire takes around 15 minutes, the post-course questionnaire around 10 minutes to be completed. By matching the pre- and post-questionnaires, lecturers can gain insights on course participants’ development on the core constructs and in this way on the course/teaching format impact.⁸⁵

The questionnaires are available as paper-and-pencil as well as online versions, currently in six languages: English, German, Italian, Hungarian, Finnish and Spanish. They can be downloaded here: <https://effort.lehre.hwr-berlin.de/results/controlling-tool>

⁸⁵ Bustamante, Silke; Peuker, Birgit; Martinovic, Martina; (2022): Statistical Analysis Report. Results of Testing Teaching Effectiveness in the Erasmus+ Project “EFFectiveness Of Responsibility Teaching (EFFORT)”. Working Paper. Hochschule für Wirtschaft und Recht.

THE EFFORT STATISTICAL ANALYSIS

In the quantitative research phase of the EFFORT project, the statistical analysis, in total, 1648 students participating in several sustainability- and responsibility-related courses have been surveyed using the Controlling Tool and gathered data analysed with different statistical methods.

The courses were taught at five higher education institutions: Budapest Business School University of Applied Sciences, Budapest, Hungary; CBS - Cologne Business School, Cologne, Germany; HWR - Hochschule für Wirtschaft und Recht, Berlin, Germany; LUT - Lappeenranta-Lahti University of Technology, Lappeenranta, Finland; and Murdoch University, Murdoch, Australia. The largest proportion of the total sample were women (63,4%), aged between 20-24 years (55,8%).

In order to evaluate the effectiveness of single courses, the mean values of course participants' responses given in the pre- and post-delivery surveys on the nine constructs (see description of Controlling Tool, i.e. values, awareness of consequences, knowledge, ascription of responsibility, attitudes, subjective norms, feelings of moral obligation, anticipated affective reactions, intentions) were compared. To test the statistical significance of the differences a Wilcoxon Signed Rank Test was conducted. This statistical test was based on observation pairs, i.e., only using responses from those students who filled both surveys. Additionally, General Linear Models were used to analyse the effectiveness of teaching in general, differences between treatment and control group as well as the impact of socio-demographic variables.



Most important results can be summarized as following:

- In general, sustainability- and responsibility-related teaching is effective in terms of fostering students' intention to behave responsibly as well as positively influencing variables predicting this intention.
- Most courses with innovative teaching methods positively influence the intention of participants to behave responsibly as well as selected predicting variables.
- In the treatment group the positive impact on participants' intention, positive affective reactions (when acting), subjective norm and ascription of responsibility was higher than in the control group, while the control group outperformed the treatment group for concept knowledge.
- Teaching seems to be more effective for females in terms of influence on most of the construct variables.
- Teaching seems to be more effective for younger students in terms of developing universal values and concept knowledge.

For more information you can find the summary table of the statistical analyses on the following website: <https://effort.lehre.hwr-berlin.de/results/statistical-record>.



EffSET

EFFORT





EffSET

Further to the evaluation of courses by the Controlling Tool, the consortium has also developed a self-evaluation instrument for sustainability- and responsibility-related courses. EffSET is a qualitative and quantitative self-evaluation instrument for analysing CSR- and sustainability-related courses, and for benchmarking courses and higher education institutions. It has a holistic and inclusive approach, considering a variety of factors affecting institutional operations, and also effectiveness of courses regarding the students' long-term ethical, sustainable, and responsible behaviour. EffSET has two parts, the Institution and the Course assessment. The first one focuses on the institution's maturity of integrating CSR- and sustainability-related topics. It takes into consideration twelve criteria (Governance; Strategy; Inclusive context; Measurement; Curricula; Research; Outreach; Funding; Identification; Consultation; Involvement; and Co-creation), grouped into three dimensions: Culture, Mission and People. The course level evaluation is intended to be conducted by the teaching team, in order to provide the basis for improvement. The indicators are also grouped into three dimensions Culture, Mission, and People, in line with the Institutional criteria classification. The course level evaluation has a total of 45 indicators to be rated by the evaluator(s) on a scale of 1 to 100. Based on the results, the level of maturity of integrating CSR- and sustainability-related topics could be one of the following: Laggard (1 to 10); Aware (>10 to 35); Implementer (>35 to 65); Exploiter (>65 to 90); or Pioneer (>90).⁸⁷

The English, as well as the Finnish, German, Hungarian, Italian and Spanish versions of the EffSET self-evaluation tool can be downloaded from here:

<https://effort.lehre.hwr-berlin.de/results/self-evaluation-tool>

The Controlling Tool and the EffSET are complementing each other, but also work well separately. Instructors may want to use both, or just one of the instruments, whichever suits them and the culture of their organisations.

⁸⁷Venezia, E., & Pizzutilo, F. (2022). EffSET: a Self-Evaluation Tool to Assess the Effectiveness of Education for Sustainable Development. *European Journal of Sustainable Development*.

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