Hochschule für Wirtschaft und Recht Berlin – Forschung
Berlin School of Economics and Law – Research Series 72

Bustamante | Saltevo | Schmitz | Martinovic [Eds.]

Shaping a Sustainable Future

Innovative Teaching Practices for Educating Responsible Leaders

Nomos

edition sigma

Hochschule für Wirtschaft und Recht Berlin – Forschung
Berlin School of Economics and Law – Research Series

Edited by

Prof. Dr. Christoph Dörrenbächer
Prof. Dr. Marianne Egger de Campo
Prof. Dr. Olaf Resch
Prof. Dr. Peter Ries
Prof. Dr. Birgitta Sticher

Volume 72

The series *HWR Berlin Forschung* follows on from the series *fhw forschung* of the former *Fachhochschule für Wirtschaft Berlin*, from which the *Hochschule für Wirtschaft und Recht Berlin* emerged in 2009.

Silke Bustamante | Ellen Saltevo
Marina Schmitz | Martina Martinovic [Eds.]

Shaping a Sustainable Future

Innovative Teaching Practices for Educating Responsible Leaders

Nomos

edition sigma

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available on the Internet at http://dnb.d-nb.de

ISBN 978-3-8487-8515-5 (Print)
978-3-7489-3309-0 (ePDF)

British Library Cataloguing-in-Publication Data
A catalogue record for this book is available from the British Library.

ISBN 978-3-8487-8515-5 (Print)
978-3-7489-3309-0 (ePDF)

Library of Congress Cataloging-in-Publication Data
Bustamante, Silke | Saltevo, Ellen | Schmitz, Marina | Martinovic, Martina
Shaping a Sustainable Future
Innovative Teaching Practices for Educating Responsible Leaders
Silke Bustamante | Ellen Saltevo | Marina Schmitz | Martina Martinovic (Eds.)
455 pp.
Includes bibliographic references.

ISBN 978-3-8487-8515-5 (Print)
978-3-7489-3309-0 (ePDF)

edition sigma in the Nomos Verlagsgesellschaft

1st Edition 2022

Published by
Nomos Verlagsgesellschaft mbH & Co. KG
Waldseestraße 3–5 | 76530 Baden-Baden
www.nomos.de

Production of the printed version:
Nomos Verlagsgesellschaft mbH & Co. KG
Waldseestraße 3–5 | 76530 Baden-Baden

ISBN 978-3-8487-8515-5 (Print)
ISBN 978-3-7489-3309-0 (ePDF)
DOI https://doi.org/10.5771/9783748933090

Onlineversion
Nomos eLibrary

ACKNOWLEDGEMENTS

This book was realized in the collaboration of 46 educators and researchers who contributed to this book. For all the contributors, we would like to express our respect and gratitude for the intellectual insights and practical examples on implementing sustainability and responsibility teaching in Higher Education Institutions globally.

This book was carried out within the EFFectiveness Of Responsibility Teaching (EFFORT) project co-funded under the Erasmus+ KA2 framework that includes six European partners: Hochschule für Wirtschaft und Recht Berlin (Germany), University of the Basque Country UPV/EHU (Spain), University of Bari Aldo Moro (Italy), CBS International Business School (Germany), Budapest Business School (Hungary) and LUT University (Finland). For the entire project team, thank you for your guidance and support.

Co-funded by the
Erasmus+ Programme
of the European Union

ABOUT THE EFFORT PROJECT

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) and the European Union (EU Sustainable Development Strategy) as well as national and local governments. Higher Education Institutions (HEIs) are of the utmost importance in educating responsible future decision makers. The UNESCO took up this idea by promoting concepts of "Education for Sustainable Development". In line with this, there is an increasing number of educational formats that are designed with the aim of fostering awareness for Corporate Social Responsibility (CSR), changing attitudes and influencing the behaviour of individuals.

Against this background, the objective of the EFFORT project is to develop different instruments that support HEIs in increasing the effectiveness and quality of their sustainability-, CSR-, and/or ethics-related teaching. Beside the present book, those include the following:

- a tool for controlling the effectiveness of teaching formats,
- a self-evaluation tool allowing HEIs to assess the level of maturity of integrating social responsibility and sustainability and to benchmark themselves against other institutions,
- three new and innovative teaching formats (which are also described within the book),
- a statistical analysis report on the effectiveness of different innovative CSR-, ethics- and sustainability-related teaching formats as well as influencing factors, and
- a guideline with recommendations for the design of curricula and teaching formats.

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

Co-funded by the
Erasmus+ Programme
of the European Union

FOREWORD

The title and subtitle of the book "Shaping a Sustainable Future: Innovative Teaching Practices for Educating Responsible Leaders" could be easily reversed without losing their meaning.

Being a leader means having the possibility to lead or mislead, and to be in the position to destroy or to build, or in terms of this book, "to shape a sustainable future". Higher Education Institutions (HEIs) have been researching and exploring ethics and diversity for decades, countless seminars and conferences on these topics have been organized, and the number of specialists in these fields grows every day. So, we must ask ourselves, where is the problem?

The reality is that for some reason we do not progress to make these issues part of the leadership DNA in our educational activities. Educators are generally not prepared to integrate sustainability, ethics, and responsibility into their curricula. There is a lack of appealing examples and materials; appealing to educators and (future) leaders.

This book contributes to solving the above-mentioned shortages. It opens insights into teaching formats in the area of sustainability and responsibility, and it informs about the applied sustainable practices. It shows, how to teach sustainable marketing, sales, finance, engineering, and more. The reader gets answers on how to teach ethics, diversity and inclusion, how to do business differently, and learn about many other related topics. The book is not meant as a book of "recipes". It helps educators to find ways to create "Innovative Teaching Practices for Educating Responsible Leaders", all with the aim of "Shaping a Sustainable Future".

Danica Purg

Professor of leadership and effective management at IEDC-Bled School of Management and president of the Central and East European Management Development Association (CEEMAN)

June 6, 2022

Table of Contents

LIST OF CONTRIBUTORS

ACOSTA, PILAR

Pilar Acosta is an associate professor at the School of Business and Economic Sciences at Universidad Icesi, in Cali, Colombia. She earned her PhD from ESCP and Université Paris 1-Panthéon Sorbonne. Her research focuses on the evolution of corporate social responsibility and sustainability-related practices in developing countries. She teaches sustainability and corporate social responsibility as well as introduction to management. In collaboration with colleagues from other departments at Universidad Icesi, she co-developed an interdisciplinary master's degree in sustainability.

ARORA, BIMAL †

Dr. Bimal Arora was a leading sustainable development scholar and is fondly remembered by his colleagues, co-authors and students for his passion and undying commitment to sustainable development. He worked across international practice, policy and academic domains and led the design, delivery and evaluation of several undergraduate, postgraduate and executive education programs on sustainable development. He was widely acclaimed and held several visiting fellowships and adjunct faculty/examiner roles across leading Higher Education Institutions including, Aston University, Copenhagen Business School, Indian Institute of Management (multiple campuses), Indian Institute of Technology- Kanpur, Universities of Cambridge, Manchester, Nottingham, and Tel Aviv. He very sadly passed away in March 2022 in a rather untimely manner leaving behind a void in academia and in the lives of many which is hard to fill. He will be missed by one and all.

BALCIOGLU, HASRET

Prof. Dr. Hasret Balcioglu is an expert in economics and business at Cyprus International University. She has published many publications in leading international index journals and books. Prof. Dr. Hasret Balcioglu has received the Young Researcher Award (USA), Business Plan Award (USA), and Best Paper Award (USA, Nigeria). She has worked in NASA, World Bank, international and local projects.

BANK WEINBERG, DIANA

Diana Bank Weinberg works at Adjunct Faculty at Texas Christian University (TCU) in Fort Worth, TX, USA, teaching ethics in international business. She currently serves as communications manager for the Academy of International Business, Latin America and the Caribbean Chapter (AIB-LAC). Additionally, she is a member of the Board of the Digital International Media Literacy and Education project (DIMLE), a group of educators promoting international media literacy. Diana has a PhD in international business and marketing from Bar Ilan University in Israel.

BUSTAMANTE, SILKE

Silke Bustamante is Professor for Management and Vicepresident for Sustainability, Student Advisory Services and Communication at the Berlin School of Economics and Law. She was visiting professor at Kobe University in Japan and the UADE in Buenos Aires, Argentina. Before, she worked several years as a consultant for the Boston Consulting Group and did a PhD program on applied microeconomics at Humboldt University in Berlin. Her research focuses on corporate social responsibility (CSR), particularly on CSR Management and the role of CSR for employer attractiveness and global employer branding strategies as well as on the effectiveness of CSR related teaching.

CASTILLO-APRAIZ, JULEN

Julen Castillo-Apraiz is a lecturer of Management at the University of the Basque Country UPV/EHU (Spain), Faculty of Economics and Business Studies. He graduated with a PhD from the University of the Basque Country UPV/EHU with an international doctorate mention. His current research interests are strategic management, quality management, corporate social responsibility (CSR), and new trends in learning, among others. He is also interested in Partial least squares structural equation modelling (PLS-SEM).

CHIAPPINI, HELEN

Helen Chiappini, PhD, is a tenure-track assistant rofessor of Banking and Finance – with a national qualification of Associate Professor – at the Department of Management and Business Administration, G. d'Annunzio University of Chieti-Pescara (Italy), where she teaches ethical and sustainable finance as well as corporate finance. She is editor of the Palgrave Macmillan sub-series of Green Finance and a topical editor of the journal Sustainability.

GARNELO-GOMEZ, IRENE

Dr. Irene Garnelo-Gomez is a Lecturer in Reputation and Sustainability, Programme Director for the BSc in Business and Management (Marketing) and member of the John Madejski Centre for Reputation at Henley Business School, University of Reading (UK). She delivers modules in the areas of sustainability and responsibility at undergraduate and MBA levels, and developed the course presented in this book targeting master students. She is also involved in several research projects, mostly related to pro-social and pro-sustainable behaviours focusing, for example, on how the interplay between identity and motivations drive individuals to engage in sustainable behaviours.

GYŐRI, ZSUZSANNA

Zsuzsanna Győri, PhD, is Head of the Centre of Excellence for Sustainability Impacts in Business and Society (CESIBUS) and associate professor at the Faculty of Finance and Accountancy of Budapest Business School. She teaches courses on business ethics, responsible and sustainable company and entrepreneurship. Her research fields include corporate social responsibility, sustainability, values-based banking, entrepreneurs with disabilities, as well as values-driven business.

HENSHAW, TONY

Tony Henshaw, a UK Chartered Electrical Engineer and MBA (Distinction) from University of Manchester, spent his early working life building and commissioning subway trains in South Korea, Portugal and for the London Underground. Following that, Tony led the efforts of several multinational multi-billion dollar revenue companies including most recently the Aditya Birla Group, a global conglomerate in the League of Fortune 500, to build sustainable businesses. Tony also served on the board of Sustainable Apparel Coalition and the World Business Council for Sustainable Development, India, Advisory Panel.

HOYLE, MARK

Mark Hoyle is lecturer in Enterprise at York St John University, and an associate of the National Centre for Enterprise Education (NCEE). Mark has been teaching business and enterprise in higher education for ten years. His PhD thesis is “Predicting User Numbers to an area of Pennine Moorland”.

ILIEVA, MARIA VASILEVA

Maria V. Ilieva is a Lecturer in International Business at The University of Leeds, United Kingdom. She is a Communications Officer at AIB Sustainability SIG, an executive board ordinary member of the AIB Oceania Chapter, social media editor at CPoIB journal, and guest editor of a SI at AD-Minister Journal. She has been a reviewer at international conferences and journals and won a Best Reviewer Award at AIB 2020 conference. Maria holds a PhD in Business Administration from Osaka City University (OCU), Japan and received the 8th Okamura Award 2021 for female researcher from the same university. Her research and teaching interests are in sustainability and CSR in the interconnection between international business and corporate governance.

JYOTI, DIVYA

Dr. Divya Jyoti is a business ethics scholar interested in examining experiences which both constitute as well as ensue from conversations of corporate morality and sustainable development. She draws on both her past experience as a sustainability practitioner in India as well as her multi-disciplinary educational training – first as a fashion engineer, business graduate and then an ethnographer – to design, develop and deliver inter-disciplinary courses on CSR, sustainability and ethics for students in undergraduate, postgraduate and executive education programs.

KARAYIANNIS, ACHILLEAS

Dr. Achilleas Karayiannis' research interests relate to both Organisation Studies and over the last four years, to sustainability and sustainable development. He draws on his experience related primarily to his doctoral research thesis on theater and management and subsequent work thereafter as well as his teaching experience on sustainability, once he commenced employment at Aston University in 2018. Achilleas has recently started engaging with work on a multi-method approach of teaching as well as assessing student learning in sustainability education.

KARUNARATNE, PRASHAN S. M.

Dr. Prashan S. M. Karunaratne is an award-winning teacher of economics and business analytics, and the course director of the Bachelor of Commerce at Macquarie Business School (Australia). He nurtures students to develop a desire to engage – inspiring students to want to learn – by emphasising the 'why', and empowering students to navigate their own learning journey – by

focusing on the 'how'. This creates valuable experiences in his classrooms and beyond – highlighting the #EveryoneSayWow moments that students will remember in years to come.

KENEL, PHILIPP

Philipp Kenel works as a researcher and lecturer at the Berlin School of Economics and Law and at the Alice Salomon University of Applied Sciences in the areas of social science, social economy and social entrepreneurship, while pursuing a PhD at Goldsmiths, University of London. His research and teaching revolves around organizations and societies trying to become more sustainable. Philipp holds a M.A. in Social Entrepreneurship from the University of London as well as a Master of Education from Freie Universität Berlin.

KITCH, WILLIAM A.

Dr. William A. Kitch currently works as professor/department chair of the David L. Hirschfeld Department of Engineering at Angelo State University (Texas, USA). Dr. Kitch does research in Geotechnical Engineering and Engineering Education. He is an expert on both educational and professional issues of strategic importance to the Civil Engineering profession and implementation of ABET accreditation.

KRAVCHENKO, TETIANA

Tetiana Kravchenko, PhD (Economics), is an associate professor and business instructor of KROK Business School (Ukraine). She is an expert in the field of innovative products promotion to the market. 18+ years in the Innovation and Education Sectors: Business Sharks Accelerator, CRDF GLOBAL Fund in Ukraine, Ukrlift Group, Donetsk Regional State Administration, Vasyl' Stus Donetsk National University. She collaborates with top managers and business owners as a mentor, coach and consultant, helps to improve brand awareness and competitiveness, and has experience in creating a positive image of enterprises, increasing sales, and attracting and retaining customers.

MARTINOVIC, MARTINA

Martina Martinovic is a research associate at the Hochschule für Wirtschaft und Recht Berlin, at the Department of Cooperative Studies. She studied Business Administration at the University of Potsdam and completed her M. Sc. in Business Administration there with distinction. Currently, she is doing her doctorate in business administration. Her research interests comprise especially

responsible leadership, corporate social responsibility (CSR), sustainability in education as well as sustainable consumption. She has experience in quantitative empirical research as well as in teaching.

NEMILENTSEVA, MARIA

Maria Nemilentseva, M.Sc. (Economics), is a junior researcher and PhD student at LUT University, School of Engineering Science, Finland. She focuses on collaborative innovation and (sustainable) service development. Her other research interests are innovation management, strategic entrepreneurship, social entrepreneurship and innovative teaching.

PARWEEN, RANA

Rana Parween is the Associate Academic Leader at University Centre Askham Bryan, York, UK. With a strong passion for sustainable use of earth's resources, Rana has been teaching sustainability on the undergraduate and post graduate courses for several years. Using her multilingual skills, Rana has effectively taught in Saudi Arabia for several years. With a PhD in Biodiversity, Rana is UK Quality Assurance Agency, subject specialist for land-based courses, and has been an external examiner for several universities within UK.

PELZETER, ANDREA

Andrea Pelzeter studied architecture and practised as an architect for ten years. After completing a doctorate on the life cycle costs of real estate, she became a professor at the Berlin School of Economics and Law in 2007. There, she heads the company-linked study programme Technical Facility Management. She conducts research on the carbon footprint of facility services. For the German Facility Management Association GEFMA, she heads the SIG sustainability in Facility Management.

PODMETINA, DARIA

Daria Podmetina Dr.Sc. (Technology) is associate professor at Lappeenranta University of Technology, LUT School of Engineering Science, Finland. Her research interests and teaching are mainly focused on innovation management and project management. Daria is an enthusiast of digital, creative, and innovative teaching methods. She coordinates the ArtIST project which aims at integrating Arts in STEM education.

QUIRÓS, MANUEL

Manuel Quirós, BSc, MSc, PhD, is an adjunct professor at Instituto de Empresa University (IEU), Escuela Superior Ingenieros Colegiados (ESIC Business University), Universidad de Navarra (UNAV) and Universidad del País Vasco (UPV). He is a passionate nature living conservationist. As an independent teacher in several areas from design and architecture to marketing and business or disruptive innovation, he guides inspiring classes through sustainability/regeneration and biomimicry education as a transformational behaviour strategy. He runs NIU, a biomimicry consultancy; he is a co-Founder of the RI3Network, and a collaborating editor of the awarded Zygote Quarterly Journal.

SALTEVO, ELLEN

Ellen Saltevo M.Sc. (Economics and Business Administration) is a junior researcher at Lappeenranta University of Technology, LUT School of Engineering Science, Finland. She is currently pursuing her doctorate degree in technology. Her research interests lie in the complex interconnections of society, business, and technology, with a special focus on the effective implementation of sustainable system innovations and transitions.

SCHMITZ, MARINA

Marina A. Schmitz serves as lecturer/researcher at the Coca-Cola Chair of Sustainable Development at IEDC-Bled School of Management in Bled, Slovenia. She draws on several years of work experience as a lecturer, research associate, and project manager at the Center for Advanced Sustainable Management (CASM) at the CBS International Business School in Cologne, Germany.

SENATOROVA, ELENA

Elena Senatorova is an associate professor at the New Economic School. Her primary research interests include sustainability and financial accounting and business education issues. In 2015 and 2016, Elena worked as a visiting professor at Western University (Canada). Elena had been granted the case writing certificate by the University of Michigan; Online Facilitator certificate (EFMD, 2021). Additionally, she has extensive practical experience in accounting, finance and sustainability.

SHAMAN, KAI

Kai Shaman holds a Master's degree in sociology from Saint Petersburg State University (Russia) with a focus on gender, international processes and the social and political implications of the use of information technologies. He is currently enrolled in a Master's program "Mind and Brain" (Humboldt University Berlin) with special attention to neurolinguistics and social and computational neuroscience. He is also working as a student assistant at the Hochschule für Wirtschaft und Recht Berlin.

ŠILENSKYTĖ, AUŠRINĖ

Aušrinė Šilenskytė is a university teacher, researcher, and programme manager at the School of Management, University of Vaasa, Finland. She also serves as a chair at the Academy of International Business Teaching & Education Shared Interest Group. She has served as a digital mentor supporting teacher colleagues in adopting technological innovations in their courses. Aušrinė holds a PhD in the area of international management. Her research centers on strategy implementation, technology adoption in MNCs, and teaching international business. Aušrinė is an alumnus of the prestigious Nord-IB programme. Aušrinė has received several international awards for her research and as an educator.

SOLOVJOVA, JULIA N.

Dr. Julia N. Solovjova is Professor of Marketing at St. Petersburg State University of Economics (Russia). She has also served as a guest lecturer in Braunschweig University of Technology (Germany) and Haaga-Helia University of Applied Sciences (Finland). She teaches Sustainability Marketing, Principles of Marketing, Marketing of Services, and Marketing Analytics. Her main research interests are sustainability marketing and marketing competencies development.

TAMAYO ORBEGOZO, UNAI

Unai Tamayo Orbegozo is full professor at the Faculty of Economics and Business Management of the University of Basque Country (UPV/EHU). He teaches subjects about Environmental Economics, Green Business Management and Responsible and Sustainable Entrepreneurship. His research areas include green marketing, circular economy, corporate social responsibility, business ethics and sustainability. He has co-edited two books, co-authored several book chapters, and co-authored over 80 scientific publications (in journals such as

Journal of Cleaner Production). He is currently the Vice Dean of the Faculty of Business Economics (UPV/EHU).

TORKKELI, MARKO

Marko Torkkeli, Dr.Sc.M (Technology) is a Professor of Technology and Business Innovations at the LUT University, Finland. His research interests focus on technology and innovation management, strategic entrepreneurship, and growth venturing. He serves as the Director of Publications of the International Society for Professional Innovation Management (ISPIM) and is one of the founding editors of the open access, multidisciplinary Journal of Innovation Management.

VARGAS-SILVA, GUSTAVO

Dr. Gustavo Vargas-Silva currently works as senior researcher at the Quality of Life in Architecture Group of the University of the Basque Country (Spain). He was the associate Chair and Mechanical Engineering Lead of the David L. Hirschfeld Department of Engineering of Angelo State University (Texas, USA). Dr. Vargas-Silva does research in circular economy, sustainable materials, construction and building materials, and plant biomechanics.

YOUNG-FERRIS, ANNA

As an award-winning teacher and researcher, Anna Young-Ferris leads the new Master of Commerce core unit Responsible Business Mindset (BUSS5220). The unit utilises an innovative pedagogy to challenge shareholder primacy as the dominant business mindset by instead understanding business as deeply interconnected to humanity and nature. Anna's research is focused on the fields of responsible investment, corporate sustainability strategy and reporting, and responsible management education. She is the School's Academic Lead for UNPRME and leads the strategic integration of the SDGs into teaching, research, and practices.

YU, CHUAN

Chuan Yu has extensive teaching experience and has won many teaching awards in several financial accounting units both at the University of Sydney and at the UNSW Sydney. Chuan's research interests cover a range of disclosure and reporting issues on both financial and non-financial information such as corporate social responsibility (CSR) reporting. Chuan's research has been

published in leading academic journals and presented at a range of international and domestic conferences.

ZEHARGAITUZ TEAM: MARTINEZ GONZALEZ, OLAIA | MIRANDA GOMEZ, JONATAN | NAVARRO SANTAMARIA, VIRGINIA | ETAIO ALONSO, IÑAKI | HERNÁNDEZ OCHOA, IGOR | LARRETXI LAMELAS, IDOIA | BUSTAMANTE GALLEGO, MARIAN | LASA ELGEZUA, ARRATE | SIMÓN MAGRO, EDURNE | RADA FERNANDEZ DE JAUREGI, DIEGO | TXURRUKA ORTEGA, ITZIAR

ZEHARGAITUZ is a team of eleven university lecturers from the Faculty of Pharmacy of the University of the Basque Country (Spain) specialized in educational innovation since 2009. Since 2015 the team is working on the development and acquisition of the transversal skill "sustainability and social responsibility" with students from the Human Nutrition and Dietetics Degree.

Silke Bustamante, Martina Martinovic, Marina Schmitz & Ellen Saltevo

Innovation in Higher Education and its Role for Sustainable Development – an Introduction to the Book

The world is facing major ecological, social, political and economic challenges. Sustainability and responsibility are key concepts that more and more guide the political discourse as well as strategic decisions in companies. The Sustainable Development Goals (SDGs), adopted in 2015 as part of the Agenda 2030 by the United Nations General Assembly, define specific areas where action is necessary to support sustainable development. They underline the importance of joint efforts of countries, communities, companies and other non- and for-profit organisations as well as individuals to reach these goals (United Nations General Assembly, 2015).

Higher Education Institutions (HEIs) play a crucial role in the transformation to sustainable economies. First, they may act as role models by operating their own institutions in a sustainable, responsible and ethical way. Second, they contribute with their research to knowledge development in the area of sustainability and responsibility. Third, and perhaps most importantly, HEIs may enhance values, skills and competencies that allow students to take responsible decisions in their future roles as professionals as well as individuals (Littledyke et al., 2013).

There is a long history of sustainability education, beginning with environmental and ethical education since the 70s of the last century and developing to the idea of sustainability education with the increasing awareness that social, environmental and economic issues need to be systematically integrated (Kirchherr & Piscicelli, 2019; Pauw et al., 2015). The United Nations coined the term ”Education for Sustainable Development” (ESD), which refers to teaching and learning that includes key sustainable development issues (e.g. climate change, biodiversity, poverty reduction, and sustainable consumption) (UNESCO, 2013). In order to embrace teaching concepts with sustainability, but also with ethics or responsibility contents, this book will use the term ”teaching for sustainability” and refers with that to all teaching and learning that fosters knowledge, skills, values, attitudes and according competencies to behave re-

sponsibly and take decisions that contribute to the SDGs set by the United Nations.

Due to the increasing popularity of the topic, the amount of literature on sustainability-related learning objectives and competencies and appropriate teaching approaches and methods has been on the rise (Bianchi et al., 2022; Brundiers et al., 2021; Lozano & Barreiro-Gen, 2021; Rieckmann, 2018). However, a holistic view on the factors influencing the effective delivery of these objectives and the successful nurturing of respective competencies is still missing (Medeiros et al., 2017). Consensus seems to apply to the notion that traditional pedagogies (e.g. lecturing) alone are not very effective in making the mission of more sustainable futures a reality (Lozano & Barreiro-Gen, 2021; Lozano et al., 2019), neither the mere digital enhancement (Serdyukov, 2017). Consequently, the UNESCO (2017) stated that it is essential to move towards more "innovative" pedagogical approaches and aligned pedagogical methods. According to Major et al. (2020, p. 12) "innovative pedagogies are teaching approaches and practices that are new or different in a particular context, and which are designed to purposefully and responsively benefit student experiences and outcomes in that context". Innovativeness may refer to novel teaching methods, innovative adopted technologies used for teaching and/or to contemporary topics in the field of sustainability (Dieleman et al., 2022). Innovations can be radically different or just incrementally change an approach that was used before, where the degree of innovativeness depends on the specific context (Major et al., 2020).

Investigating the effectiveness of innovative and novel pedagogies requires not only a clear definition and classification of teaching approaches and methods, but also the formulation of the goals and objectives of teaching and learning as well as hypotheses about variables that influence the effective delivery of teaching objectives. This book is therefore divided into two parts: a conceptual and methodological first part explaining the rationale behind the description of different teaching formats presented in a more practically oriented second part.

In the first part, chapter one sets the frame and conceptualizes the path between learning objectives and sustainable behaviour, explaining influencing factors such as pedagogical impact variables, behavioural predictors and competencies. Besides, teaching approaches and methods referred to in other chapters of the book are defined. Chapter two presents the general framework that is used to describe innovative teaching formats throughout the second part of the book. In chapter three, a survey about innovative teaching formats related to sustainability, ethics and responsibility, covering countries from six continents, is introduced. It gives insights into approaches and methods commonly used for innovative teaching and learning.

In the second part, a more detailed description of selected courses from the survey is presented (chapters 4 to 26). The chapters cover a short description of the course in question, an outline of the learning objectives and the course structure, an overview of the most important teaching approaches, methods and exercises used in the course, the form of assessment, prerequisites, recommended resources as well as tips for educators. The courses that are presented in this book cover the entire continuum between incremental and radical innovations. They emphasize the domains of novel teaching approaches and methods yet complemented by aspects of digital tools and contemporary topics, bringing forth innovative teaching formats.

REFERENCES

Bianchi, G., Pisiotis, U., & Cabrera Giraldez, M. (2022). GreenComp The European sustainability competence framework, In Y. Punie, & M. Bacigalupo (Eds.), *EUR 30955 EN*. Publications Office of the European Union, Luxembourg, doi: 10.2760/13286

Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S., Dripps, W., Habron, G., Harré, N., Jarchow, M., Losch, K., Michel, J., Mochizuki, Y., Rieckmann, M., Parnell, R., Walker, P., & Zint, M. (2021). Key competencies in sustainability in higher education—toward an agreed-upon reference framework. *Sustainability Science*, *16*(1), 13–29. https://doi.org/10.1007/s11625-020-00838-2

Dieleman, M., Šilenskyte, A., Lynden, K., Fletcher, M., & Panina, D. (2022). *Impactful international business education: A novel typology of teaching innovations.* [Unpublished manuscript]. AIB 2022 Conference Presentation.

Kirchherr, J., & Piscicelli, L. (2019). Towards an education for the circular economy (ECE): Five teaching principles and a case study. *Resources, Conservation and Recycling*, *150*(104406). https://doi.org/10.1016/j.resconrec.2019.104406

Littledyke, M., Manolas, E., & Littledyke, R. A. (2013). A systems approach to education for sustainability in higher education. *International Journal of Sustainability in Higher Education, 14*(4), 367–383. https://doi.org/10.1108/IJSHE-01-2012-0011

Lozano, R., & Barreiro-Gen, M. (Eds.). (2021). *Developing sustainability competences through pedagogical approaches. Experiences from international case studies* (1st ed. 2021). Springer Cham. https://doi.org/10.1007/978-3-030-64965-4

Lozano, R., Barreiro-Gen, M., Lozano, F., & Sammalisto, K. (2019). Teaching sustainability in European higher education institutions: Assessing the connections between competences and pedagogical approaches. *Sustainability*, *11*(6), 1602. https://doi.org/10.3390/su11061602

Major, J., Tait-McCutcheon, S. L., Averill, R., Gilbert, A., Knewstubb, B., Mortlock, A., & Jones, L. (2020). Pedagogical innovation in higher education. *International Journal of Innovative Teaching and Learning in Higher Education*, *1*(3), 1–18. https://doi.org/10.4018/IJITLHE.2020070101

Medeiros, K. E., Watts, L. L., Mulhearn, T. J., Steele, L. M., Mumford, M. D., & Connelly, S. (2017). What is working, what is not, and what we need to know: a meta-analytic review of business ethics instruction. *Journal of Academic Ethics*, *15*(3), 245–275. https://doi.org/10.1007/s10805-017-9281-2

Pauw, J., Gericke, N., Olsson, D., & Berglund, T. (2015). The effectiveness of Education for Sustainable Development. *Sustainability*, *7*(11), 15693–15717. https://doi.org/10.3390/su71115693

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Serdyukov, P. (2017). Innovation in education: what works, what doesn't, and what to do about it?, *Journal of Research in Innovative Teaching & Learning*, *10*(1), 4–33. https://doi.org/10.1108/JRIT-10-2016-0007

UNESCO. (2013). *ESD—Building a better, fairer world for the 21st century*. https://unesdoc.unesco.org/ark:/48223/pf0000216673

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

United Nations General Assembly. (2015). *Transforming our world: the 2030 Agenda for Sustainable Development* (A/RES/70/1). https://www.refworld.org/docid/57b6e3e44.html

Part I: Conceptual and Methodological Background

Silke Bustamante, Martina Martinovic & Kai Shaman

Chapter 1. Fundamental Insights about Teaching Formats in the Area of Sustainability and Responsibility

1.1. FROM LEARNING OBJECTIVES TO RESPONSIBLE BEHAVIOUR – AN OVERVIEW

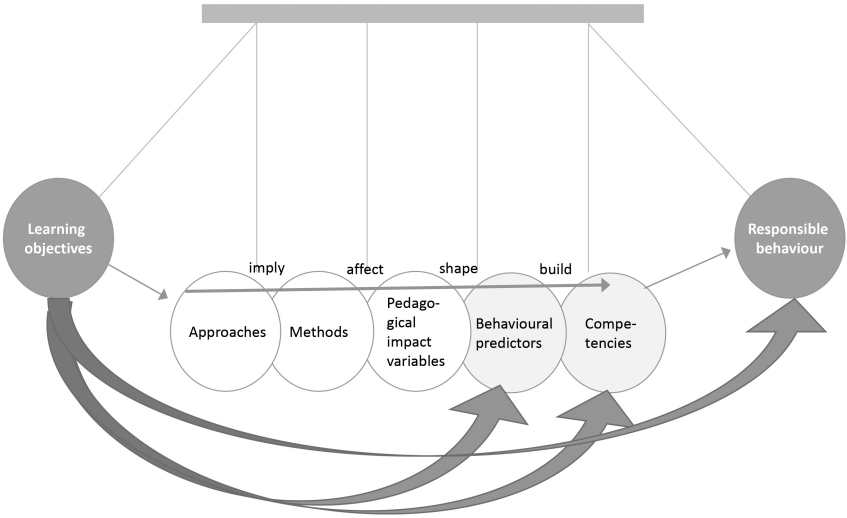
The teaching formats described in this book are related to courses that directly thematise sustainability, sustainable development or concepts related to sustainability (such as circular economies), to the ethical foundations of sustainable or responsible behaviour (business ethics, corporate social responsibility) or to topics that include sustainability or ethical issues (such as sustainable finance). In the following the term ”teaching for sustainability” will be used and with this it will be referred to all teaching formats that deal with (business) ethics, (corporate) responsibility and/or sustainability. The focus in this book is on higher education teaching in business and economics, but examples of courses in other disciplines (e.g. Facility Management, Nutrition) that integrate sustainability and responsibility issues in order to enable students to behave responsible as citizens or in the role of decision takers in the discipline in question will also be provided.

The evaluation of effectiveness requires a clear definition of the outcome that should be obtained. Outcomes in the area of teaching and learning are usually formulated as learning objectives. Learning objectives may refer 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) (UNESCO, 2017, see also Figure 1–1). Variables such as attitudes, values, knowledge, and intentions can be derived from behavioural models. Competencies can be understood as a – functionally linked – pattern of these variables; they include cognitive, affective, volitional and motivational elements (Rieckmann, 2012; Wiek et al., 2011). Key competencies are especially important for the intended (responsible) behaviour (Wiek et al., 2011).

There is a far-reaching discussion about the effectiveness of teaching and the role of different pedagogical approaches and methods for the attainment of goals. In this book approaches and methods are distinguished, with methods being more specific than approaches: while pedagogical approaches ”represent the general character or guiding principles of designing learning processes”

(UNESCO, 2017, p. 54), methods are ”needed to facilitate the learning process” (UNESCO, 2017, p. 54). Hence, teaching (learning) approaches[1] usually imply the use of certain methods; vice versa, the same method may be suitable for different teaching approaches. Behind these methods and approaches, important features were identified by the authors of this chapter that seem to drive the effectiveness of teaching and learning, as, for example, “student participation” as a feature of the pedagogical approach of “active learning” and the method “in-class role-play”. These features are termed as “pedagogical impact variables” (see subchapter 1.3 “The Role of Pedagogical Approaches and Methods for Teaching Effectiveness”). Figure 1–1 summarizes the path between learning objectives and (responsible) behaviour.

Figure 1-1: From learning objectives to responsible behaviour



Source: Own illustration

1 Many researchers in the field pinpoint on the role of student-centered learning and suggest talking rather about learning instead of teaching approaches.

1.2. GOALS AND OBJECTIVES OF TEACHING FOR SUSTAINABILITY AND RESPONSIBILITY

A wide array of outcome variables have been proposed as potential objectives or goals of teaching in the area of sustainability and responsibility. In line with Medeiros et al. (2017) it can be distinguished between goals relating to behaviours and its organizational results and goals relating to variables that drive behaviours and decision making, such as affective responses, increase of knowledge or attitudes. Studies testing the effectiveness of ethics teaching suggest, for example, moral awareness, moral reasoning (Wynd & Mager, 1989), cognitive competence (Ritter, 2006), attitudes (Jewe, 2008) and values (Allen et al., 2005) as potential outcome variables of teaching. Similarly, studies dealing with effects of sustainability related teaching use outcome variables such as sustainability consciousness (Boeve-de Pauw et al., 2015), attitudes, values and/or intentions (Haski-Leventhal et al., 2022). Several researchers highlight the importance of competencies for sustainable behaviours and distinguish a number of key competencies that potentially enable learners to take decisions that contribute to sustainable development (Lozano et al., 2017; Rieckmann, 2012; Wiek et al., 2011).

Within this book, the authors suggest defining learning objectives taking into account behavioural goals, but also goals relating to behavioural predictor variables and competencies. They agree with the UNESCO (2017) that the ultimate goal of (higher) education for sustainability is to empower students to act, also in complex situations, in a sustainable manner for achieving "environmental integrity, economic viability and a just society, for present and future generations" (UNESCO, 2017, p. 7). Individuals should become "sustainability change-makers" and contribute to the attainment of the sustainability goals formulated by the United Nations (UNESCO, 2017).

Effective teaching requires, however, a clear understanding of the drivers and enablers of responsible behaviour and a definition of corresponding objectives. The UNESCO (2017) proposes specifying learning objectives relating to three domains: the cognitive, socio-emotional and behavioural domain. These are connected to eight key competencies for sustainable decision taking: systems thinking competency, anticipatory competency, normative competency, strategic competency, collaboration competency, critical thinking competency, self-awareness competency and integrated problem-solving competency (Rieckmann, 2018; for definitions see chapter 2 "Describing Teaching Formats – the Framework"). As argued above, the authors suggest taking into account not only competencies, but also behavioural drivers in the definition of learning objectives. Building on the theory of planned behaviour (Ajzen, 1991) and other behavioural models for ethical and sustainable behaviour (e.g. the value-

belief-norm theory (Stern, 2000; Stern et al., 1999)), the authors have identified a number of variables that potentially drive responsible behaviour and that could be influenced by teaching and learning. The authors have tested their influence with a sample of more than 1000 students and results highlighted the importance of knowledge, awareness, attitudes, values, affects and norms on behavioural intentions, which represent a predictor for the behaviour itself (Ajzen, 1991). While knowledge and awareness are variables that refer to cognitive aspects, the other variables except behavioural intention have a socio-emotional character. Assigning the model variables to the dimensions of learning objectives suggested by UNESCO (2017) hence allows closing the loop and hereby supports the suggested dimensional framework.

1.3. THE ROLE OF PEDAGOGICAL APPROACHES AND METHODS FOR TEACHING EFFECTIVENESS

In the context of teaching for sustainability, as introduced in the beginning of this chapter, the use of innovative pedagogical approaches and aligned methods is considered to be of high importance. Often encountered statements ,such as the following, point to the relevance that is attributed to their implementation:

> *"One of the main difficulties is that education for sustainability is different from education in traditional disciplines because of its broad-based and multi-disciplinary content. And this means that teaching and learning of these contents require new approaches and different formats"* (Eizaguirre et al., 2019, p. 4 based on Aktas et al., 2015; Cortese, 2003; Sibbel, 2009).
>
> *"If the world demanded that decisions be made in fundamentally different ways, then it followed that we should educate students in quite different ways as well"* (Kurland et al., 2010, p. 459).
>
> *"Integrating aspects of sustainability cannot be realized without thinking very critically about the re-structuring of didactical arrangements. This re-orientation requires ample opportunity for staff members and students to embark on new ways of teaching and learning."* (Wals & Jickling, 2002, p. 228).

In literature, pedagogical approaches such as active and collaborative learning (Evans, 2019) as well as experiential learning (Lozano et al., 2017) and methods in line with those approaches such as collaborative real-world projects (Heiskanen et al., 2016; UNESCO, 2017) have been highlighted as being suitable for teaching for sustainability. Furthermore, various studies are investigating the effectiveness of implementing these pedagogies in teaching practice, often in the form of case studies (e.g. Ayers et al., 2020; Baden & Parkes, 2013; Boru, 2017; Heiskanen et al., 2016; Konrad et al., 2020, 2021; Mintz & Tal, 2013, 2018; Molderez & Fonseca, 2018), but also in the form of more

general studies (e.g. Lozano et al., 2019) or meta-studies (e.g. Medeiros et al., 2017; Waples et al., 2009) (see also Tables 1–1 and 1–2 for an overview). Overall, those studies confirm the meaningfulness and usefulness of applying these approaches and methods in higher educational practice and therewith substantiate the necessity to integrate them more widely and more often in higher education teaching for sustainability.

Such a broadened integration requires, first of all, an increased awareness of higher education lecturers that teach in relevant areas as well as of persons in charge of program development and course design for the existence and effectiveness of the different pedagogical approaches and methods; in addition, such a development can be strongly supported by sharing practice-oriented descriptions of how these approaches and methods can be implemented in Higher Education Institutions in reality.

Based on this, the present book shall contribute to fostering a broadened integration of innovative pedagogies in higher education teaching for sustainability by

- raising awareness for the existence and usefulness of several teaching approaches and methods and thereby awareness for the importance of implementing them in general and by
- giving a practice-oriented overview on different teaching formats/courses[2], which are applying those approaches and methods and which were conducted in different regions of the world, in a way that enables readers to implement the formats within their own institutions or contexts.

Although focused especially on the area of higher education, this book can also be of relevance for trainers working in the corporate context, for teachers of high schools as well as for other educators being active in the context of education for sustainable development.

The book has focused especially on the teaching approaches presented in Table 1–1 and the teaching methods introduced in Table 1–2. In those tables definitions for the teaching approaches or respective methods as well as exemplary studies indicating their effectiveness can be found. It shall be noted here that the tables do not present exhaustive lists, meaning that they do not introduce all teaching approaches as well as all teaching methods used throughout the whole book, but rather represent the core pedagogies. Therefore, in some chapters of the book further approaches and/or methods will be introduced.

2 Within this book, the terms “teaching format“ and “course“ are used interchangeably.

Table 1–1: Overview of teaching approaches

Teaching approach	Definition	Studies indicating effectiveness
Experiential learning	Experiential learning means that "instructors promote learning by having students directly engage in, and reflect on personal experiences" (Slavich & Zimbardo, 2012, p. 573). Examples of experiences are projects, internships, community work, or field trips (Djonko-Moore & Joseph, 2016, p. 1; Gazley et al., 2013, p. 559).	Backman et al., 2019; Baden & Parkes, 2013; Hockerts, 2018; Mittelstaedt et al., 1999
Collaborative learning	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" (Strijbos, 2016, p. 302).	Felgendreher & Löfgren, 2018; Mulder et al., 2015; Pappas et al., 2018; Walker & Seymour, 2008; Zhou et al., 2019
Active learning	Active learning "require[s] the educator to privilege the learner's participation over his or her own declarative knowledge of the subject" (MacVaugh & Norton, 2012, p. 74). "The core elements of active learning are student activity and engagement in the learning process" (Prince, 2004, p. 223).	Delaney & Coe, 2008; Izzo et al., 2006; Mintz & Tal, 2013, 2018; Segalàs et al., 2010
Self-directed learning	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" (Knowles, 1975, p. 18 as cited in O'Shea, 2003, p. 63).	Hermes & Rimanoczy, 2018; Leary, 2012
Inter-/Trans-disciplinary learning	Interdisciplinary 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" (Greig & Priddle, 2019, p. 3). Transdisciplinary learning additionally "requires students to analyze, synthesize and harmonize their connections into a coherent whole that lies beyond the culture of any single discipline, and is therefore emergent" (Greig & Priddle, 2019, p. 3).	Annan-Diab & Molinari, 2017; Heiskanen et al., 2016; Walker & Seymour, 2008; Woo et al., 2012
Lecture-based learning*	Lecture-based learning is a teacher-centered approach, characterized by lecturers delivering instructions and contents to students as passive listeners (Leary, 2012).	Bielefeldt, 2013

* Although lecture-based learning does not represent an innovative teaching approach, it is included in the list here, as it is often seen as an important addition to innovative approaches used in teaching practice (Baeten et al., 2013; Bielefeldt, 2013; Carpenter, 2006).

Table 1–2: Overview of teaching methods

Teaching method	Definition	Studies indicating effectiveness
Group discussion	Group discussion "is a free verbal exchange of ideas between group members or teacher and students" (Sajjad, 2010, p. 10), "a give-and-take dialogue that encourages students to enrich and refine their understanding" (Alvermann & Hayes, 1989, p. 306). It can involve the whole class (whole-group discussion) or separate groups within the class (small-group discussion) and take place in written as well as oral form (Jahng et al., 2010).	Dellaportas, 2006; Mayhew & Murphy, 2009; Piasentin & Roberts, 2018
Debate	A debate is an activity which involves "two groups of students put[ting] forward opposing arguments on an issue" (Cotton & Winter, 2010, p. 47).	Healey, 2012; McWhirter & Shealy, 2020; Piasentin & Roberts, 2018
Gamification	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 (Al-Azawi et al., 2016, p. 133).	Gatti et al., 2019; Meya & Eisenack, 2018; Santos-Villalba et al., 2020
In-class role play	In-class role plays (e.g. Board Meeting Game) are an active learning and 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 rules (Dingli et al., 2013; Rao & Stupans, 2012).	Chen & Martin, 2015; Maier et al., 2007; Schrier, 2015
Virtual reality simulation	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" (Davis, 2015, p. 65).	Earle & Leyva-de la Hiz, 2021; Jagger et al., 2016; Sholihin et al., 2020
Case study	Case studies are "written summaries or syntheses of real-life cases that require students to tease 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." (Alt et al., 2020, p. 62).	Bagdasarov et al., 2013; Bielefeldt, 2013; Cagle & Baucus, 2006; Tejedor et al., 2019
Service-learning project	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" (Hayes & King, 2006, as cited in Lozano et al., 2017, p. 8).	Halberstadt et al., 2019; Martínez-Campillo et al., 2019; Molderez & Fonseca, 2018; Weber & Glyptis, 2000

Teaching method	**Definition**	**Studies indicating effectiveness**
Sustainability-related consulting project	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 organisation (Segal & Drew, 2012, p. 1). In their role as consultants, students assist with diagnosing the client's situation and finding and implementing solutions (Butler, 2018, p. 1-4).	Bielefeldt, 2013; Konrad et al., 2020
Sustainability-related research project	A sustainability-related research project is a student's own scientific endeavor 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-analysis (Rutgers University, n.d.).	Brundiers & Wiek, 2013; Ceulemans & Severijns, 2019; Luederitz et al., 2016
Self-reflection task/ exercise	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" (Cotton & Winter, 2010, p. 47). 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" (Boyd & Fales, 1983, p. 100).	Anderson, 2012; Ayers et al., 2020
Interdisciplinary team teaching	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" (Lozano et al., 2017, p. 7).	Keeley & Benton-Short, 2020; Little & Hoel, 2011; Walsh & Davis, 2017
Vision-building exercise	Vision-building exercises are foresight exercises (Filip et al., 2005) "such as future workshops, scenario analyses, utopian/dystopian story-telling, sciencefiction thinking, and forecasting and backcasting" (UNESCO, 2017, p. 55). They are "interdisciplinary studies that aim at envisioning possible, probable, or desirable futures" [and] ... "are meant to address complex societal issues" (Filip et al., 2005, p. 203).	Kearney et al., 2013; Wade & Piccinini, 2020
Field trip	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" (The University of Rhode Island, n.d.).	Putz et al., 2018; Stern et al., 2008
Outdoor, nature-related experience	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" (Gilbertson et al., 2006, p. 6).	Palmberg & Kuru, 2000; Zelenika et al., 2018

Teaching method	Definition	Studies indicating effectiveness
Arts-based teaching and learning method	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” (Boston University, The Center for Teaching and Learning, n.d.).	Comer & Schwartz, 2017; Molderez & Ceulemans, 2018
Flipped classroom	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 or assignments (i.e., in-class 'homework')." (Peterson, 2016, p. 10).	Buil-Fabregá et al., 2019; Foster & Stagl, 2018; Kwon & Woo, 2018
Peer-teaching	Peer-teaching refers to "an acquisition of knowledge and skill through active helping and supporting among status equals or matched companions" (Topping, 2005, p. 631).	Asikainen et al., 2021; Kwak & Price, 2012
Lecture*	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” (Good & Merkel, 1959, as cited in Kaur, 2011, p. 10).	Bielefeldt, 2013

* Although lectures do not represent an innovative teaching method, they are included in the list here, as they are often seen as an important addition to innovative methods used in teaching practice (Baeten et al., 2013; Bielefeldt, 2013; Carpenter, 2006).

In addition to these teaching approaches and methods, a set of so-called pedagogical impact variables was developed and utilized within the book as introduced above (see Table 1–3 for a list of the variables and their definitions). These pedagogical impact variables capture important features and characteristics of the different pedagogies recommended for teaching for sustainability in literature, as explained previously and additionally highlighted in Table 1–1 and Table 1–2. They are included in this book because they help to identify and explain the pedagogical drivers of the effectiveness of single teaching formats, as teaching approaches and methods partly overlap and single teaching formats, in general, are combinations of several teaching approaches and methods.

Table 1–3: Overview of pedagogical impact variables

Pedagogical impact variable	Definition
Degree of student participation/ activeness	The degree of student participation/ activeness describes how much opportunity students have to be active and to engage in the learning process (based on Prince, 2004).
Degree of student collaboration/ group work	The degree of student collaboration/ group work describes how much opportunity students have for working/ interacting in social constellations (e.g. group, team, community) to solve shared tasks (based on Strijbos, 2016), hereby enabling mutual learning and co-production of knowledge.
Degree of student emotional involvement	The degree of student emotional involvement describes the degree of focusing on non-cognitive/ affective dimensions of learning, relating to values, attitudes, and behaviours (based on Shephard, 2008).
Degree of inter-/ transdisciplinarity	The degree of inter-/ transdisciplinarity describes how much opportunity students have to transfer and recombine concepts and methods from different disciplines and create holistic solutions beyond single disciplines when exploring sustainability topics (based on Greig & Priddle, 2019).
Degree of student (self-)reflection	The degree of student (self-)reflection describes how much opportunity is given to students to critically reflect on their knowledge, experiences, assumptions, beliefs, values, personal roles, attitudes, or responsibilities in relation to sustainability issues (based on Cotton & Winter, 2010; Svanström et al., 2008).
Degree of experience of real-life situations	The degree of experience of real-life situations describes how much opportunity is given to students for collecting firsthand experiences in real-world settings focused on solving actual sustainability problems/ challenges (based on Brundiers et al., 2010).
Degree of nature-related experiences	The degree of nature-related experiences describes how much opportunity is given to students to have direct, multisensory experiences in the outdoor environment (based on Gilbertson et al., 2006).
Degree of stakeholder integration	The degree of stakeholder integration describes 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 work (based on Plaza-Úbeda et al., 2010).
Degree of integration between theory and practice	The degree of integration between theory and practice describes how intensively theory and practical elements cohere/ interact (based on Woo et al., 2012).

REFERENCES

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, *50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Aktas, C. B., Whelan, R., Stoffer, H., Todd, E., & Kern, C. L. (2015). Developing a university-wide course on sustainability: A critical evaluation of planning and implementation. *Journal of Cleaner Production*, *106*, 216–221. https://doi.org/10.1016/j.jclepro.2014.11.037

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, 7*(4), 132–136. https://doi.org/10.18178/ijimt.2016.7.4.659

Allen, W. R., Bacdayan, P., Berube Kowalski, K., & Roy, M. H. (2005). Examining the impact of ethics training on business student values. *Education + Training*, *47*(3), 170–182. https://doi.org/10.1108/00400910510592220

Alt, D., Alt, N., & Hadar-Frumer, M. (2020). Measuring Halliwick Foundation course students' perceptions of case-based learning, assessment and transfer of learning. *Learning Environments Research*, *23*(1), 59–85. https://doi.org/10.1007/s10984-019-09286-x

Alvermann, D. E., & Hayes, D. A. (1989). Classroom discussion of content area reading assignments: An intervention study. *Reading Research Quarterly*, *24*(3), 305–335. https://doi.org/10.2307/747772

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. https://doi.org/10.1080/03098265.2012.692157

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *The International Journal of Management Education*, *15*(2), 73–83. https://doi.org/10.1016/j.ijme.2017.03.006

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. https://doi.org/10.1080/0309877X.2020.1744541

Ayers, J., Bryant, J., & Missimer, M. (2020). The use of reflective pedagogies in sustainability leadership education – A case study. *Sustainability*, *12*(17), 6726. https://doi.org/10.3390/su12176726

Backman, M., Pitt, H., Marsden, T., Mehmood, A., & Mathijs, E. (2019). Experiential approaches to sustainability education: Towards learning landscapes. *International Journal of Sustainability in Higher Education*, *20*(1), 139–156. https://doi.org/10.1108/IJSHE-06-2018-0109

Baden, D., & Parkes, C. (2013). Experiential learning: Inspiring the business leaders of tomorrow. *Journal of Management Development*, *32*(3), 295–308. https://doi.org/10.1108/02621711311318283

Baeten, M., Dochy, F., & Struyven, K. (2013). Enhancing students' approaches to learning: The added value of gradually implementing case-based learning. *European Journal of Psychology of Education*, *28*, 315–336. https://doi.org/10.1007/s10212-012-0116-7

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*, 1305–1322. https://doi.org/10.1007/s11948-012-9414-3

Bielefeldt, A. R. (2013). Pedagogies to achieve sustainability learning outcomes in civil and environmental engineering students. *Sustainability*, *5*(10), 4479–4501. https://doi.org/10.3390/su5104479

Boeve-de Pauw, J., Gericke, N., Olsson, D., & Berglund, T. (2015). The effectiveness of education for sustainable development. *Sustainability*, *7*(11), 15693–15717. https://doi.org/10.3390/su71115693

Boru, N. (2017). The effects of service learning and volunteerism activities on university students in Turkey. *Journal of Education and Training Studies*, *5*(6), 146–166. https://doi.org/10.11114/jets.v5i6.2405

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/

Boyd, E. M., & Fales, A. W. (1983). Reflective learning: Key to learning from experience. *Journal of Humanistic Psychology*, *23*(2), 99–117. https://doi.org/10.1177/0022167883232011

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*(4), 1725–1746. https://doi.org/10.3390/su5041725

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. https://doi.org/10.1108/14676371011077540

Buil-Fabregá, M., Martínez Casanovas, M., Ruiz-Munzón, N., & Leal Filho, W. (2019). Flipped classroom as an active learning methodology in sustainable development curricula. *Sustainability*, *11*(17), 4577. https://doi.org/10.3390/su11174577

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

Cagle, J. A. B., & Baucus, M. S. (2006). Case studies of ethics scandals: Effects on ethical perceptions of finance students. *Journal of Business Ethics*, *64*, 213–229. https://doi.org/10.1007/s10551-005-8503-5

Carpenter, J. M. (2006). Effective teaching methods for large classes. *Journal of Family & Consumer Sciences Education*, *24*(2), 13–23. http://w.natefacs.org/pages/v24no2/v24no2carpenter.pdf

Ceulemans, G., & Severijns, N. (2019). Challenges and benefits of student sustainability research projects in view of education for sustainability. *International Journal of Sustainability in Higher Education*, *20*(3), 482–499. https://doi.org/10.1108/IJSHE-02-2019-0051

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. https://doi.org/10.1177/1541344614560196

Comer, D. R., & Schwartz, M. (2017). Highlighting moral courage in the business ethics course. *Journal of Business Ethics*, *146*, 703–723. https://doi.org/10.1007/s10551-015-2919-3

Cortese, A. D. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education*, *31*(3), 15–22. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.607.6556&rep=rep1&type=pdf

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 (Eds.), *Sustainability education: Perspectives and practice across higher education* (pp. 39–54). Earthscan.

Davis, A. (2015). Virtual reality simulation: An innovative teaching tool for dietetics experiential education. *The Open Nutrition Journal*, *9*(1), 65–75. https://doi.org/10.2174/1876396001509010065

Delaney, J., & Coe, M. J. (2008). Does ethics instruction make a difference? In B. N. Schwartz, & A. H. Catanach (Eds.), *Advances in accounting education* (Vol. 9, pp. 233–250). Emerald Group Publishing Limited. https://doi.org/10.1016/S1085-4622(08)09011-1

Dellaportas, S. (2006). Making a difference with a discrete course on accounting ethics. *Journal of Business Ethics*, *65*, 391–404. https://doi.org/10.1007/s10551-006-0020-7

Dingli, S., Khalfey, S., & Leston-Bandeira, C. (2013). The effectiveness of incentive-driven role-play. *European Political Science*, *12*, 384–398. https://doi.org/10.1057/eps.2013.19

Djonko-Moore, C. M., & Joseph, N. M. (2016). Out of the classroom and into the city: The use of field trips as an experiential learning tool in teacher education. *SAGE Open*, *6*(2), 1–13. https://doi.org/10.1177/2158244016649648

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. https://doi.org/10.1177/1350507620974857

Eizaguirre, A., García-Feijoo, M., & Laka, J. P. (2019). Defining sustainability core competencies in business and management studies based on multinational stakeholders' perceptions. *Sustainability*, *11*(8), 2303. https://doi.org/10.3390/su11082303

Evans, T. L. (2019). Competencies and pedagogies for sustainability education: A roadmap for sustainability studies program development in colleges and universities. *Sustainability*, *11*(19), 5526. https://doi.org/10.3390/su11195526

Felgendreher, S., & Löfgren, Å. (2018). Higher education for sustainability: Can education affect moral perceptions? *Environmental Education Research*, *24*(4), 479–491. https://doi.org/10.1080/13504622.2017.1307945

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, & F. G. Filip (Eds.), *Visions on the future of information society in an enlarged Europe* (pp. 202–212). The Publishing House of the Romanian Academy.

Foster, G., & Stagl, S. (2018). Design, implementation, and evaluation of an inverted (flipped) classroom model economics for sustainable education course. *Journal of Cleaner Production*, *183*, 1323–1336. https://doi.org/10.1016/j.jclepro.2018.02.177

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. https://doi.org/10.1016/j.jclepro.2018.09.130

Gazley, B., Bennett, T. A., & Littlepage, L. (2013). Achieving the partnership principle in experiential learning: The nonprofit perspective. *Journal of Public Affairs Education*, *19*(3), 559–579. https://doi.org/10.1080/15236803.2013.12001751

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

Greig, A., & Priddle, J. (2019). Mapping students' development in response to sustainability education: A conceptual model. *Sustainability*, *11*(16), 4324. https://doi.org/10.3390/su11164324

Halberstadt, J., Schank, C., Euler, M., & Harms, R. (2019). Learning sustainability entrepreneurship by doing: Providing a lecturer-oriented service learning framework. *Sustainability*, *11*(5), 1217. https://doi.org/10.3390/su11051217

Haski-Leventhal, D., Pournader, M., & Leigh, J. S. A. (2022). Responsible management education as socialization: Business students' values, attitudes and intentions. *Journal of Business Ethics, 176*, 17–35. https://doi.org/10.1007/s10551-020-04593-3

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

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. https://doi.org/10.1080/03098265.2011.619522

Heiskanen, E., Thidell, Å., & Rodhe, H. (2016). Educating sustainability change agents: the importance of practical skills and experience. *Journal of Cleaner Production*, *123*, 218–226. https://doi.org/10.1016/j.jclepro.2015.11.063

Hermes, J., & Rimanoczy, I. (2018). Deep learning for a sustainability mindset. *The International Journal of Management Education*, *16*(3), 460–467. https://doi.org/10.1016/j.ijme.2018.08.001

Hockerts, K. (2018). The effect of experiential social entrepreneurship education on intention formation in students. *Journal of Social Entrepreneurship*, *9*(3), 234–256. https://doi.org/10.1080/19420676.2018.1498377

Izzo, G. M., Langford, B. E., & Vitell, S. (2006). Investigating the efficacy of interactive ethics education: A difference in pedagogical emphasis. *Journal of Marketing Theory and Practice*, *14*(3), 239–248. https://doi.org/10.2753/MTP1069-6679140305

Jagger, S., Siala, H., & Sloan, D. (2016). It's all in the game: A 3D learning model for business ethics. *Journal of Business Ethics*, *137*, 383–403. https://doi.org/10.1007/s10551-015-2557-9

Jahng, N., Nielsen, W. S., & Chan, E. K. H. (2010). Collaborative learning in an online course: A comparison of communication patterns in small and whole group activities. *Journal of Distance Education*, *24*(2), 39–58. https://files.eric.ed.gov/fulltext/EJ892386.pdf

Jewe, R. D. (2008). Do business ethics courses work? The effectiveness of business ethics education: An empirical study. *Journal of Global Business Issues* (Conference Edition), 1–6.

Kaur, G. (2011). Study and analysis of lecture model of teaching. *International Journal of Educational Planning & Administration*, *1*(1), 9–13.

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. https://doi.org/10.5130/ijcre.v6i1.3105

Keeley, M., & Benton-Short, L. (2020). Holding complexity: Lessons from team-teaching an interdisciplinary collegiate course on urban sustainability. *Social Sciences*, *9*(5), 76. https://doi.org/10.3390/socsci9050076

Knowles, M. S. (1975). *Self-directed learning: A guide for learners and teachers*. New York: Association Press. https://doi.org/10.1177/105960117700200220

Konrad, T., Wiek, A., & Barth, M. (2020). Embracing conflicts for interpersonal competence development in project-based sustainability courses. *International Journal of Sustainability in Higher Education*, *21*(1), 76–96. https://doi.org/10.1108/IJSHE-06-2019-0190

Konrad, T., Wiek, A., & Barth, M. (2021). Learning processes for interpersonal competence development in project-based sustainability courses – insights from a comparative international study. *International Journal of Sustainability in Higher Education*, *22*(3), 535–560. https://doi.org/10.1108/IJSHE-07-2020-0231

Kurland, N. B., Michaud, K. E. H., Best, M., Wohldmann, E., Cox, H., & Pontikis, K., & Vasishth, A. (2010). Overcoming silos: The role of an interdisciplinary course in shaping a sustainability network. *Academy of Management Learning & Education*, *9*(3), 457–476. http://www.jstor.org/stable/25782030

Kwak, L. E., & Price, M. (2012). Project-based peer teaching on socially responsible business. *Journal of the Academy of Business Education, 13*, 55–70.

Kwon, J. E,, & Woo, H. R. (2018). The impact of flipped learning on cooperative and competitive mindsets. *Sustainability*, *10*(1), 79. https://doi.org/10.3390/su10010079

Leary, H. M. (2012). *Self-directed learning in problem-based learning versus traditional lecture-based learning: A meta-analysis* [Doctoral Dissertation, Utah State University]. All Graduate Theses and Dissertations, 1173. https://doi.org/10.26076/c570-0a4e

Little, A., & Hoel, A. (2011). Interdisciplinary team teaching: An effective method to transform student attitudes. *The Journal of Effective Teaching*, *11*(1), 36–44. https://files.eric.ed.gov/fulltext/EJ1092163.pdf

Lozano, R., Barreiro-Gen, M., Lozano, F. J., & Sammalisto, K. (2019). Teaching sustainability in European higher education institutions: Assessing the connections between competences and pedagogical approaches. *Sustainability*, *11*(6), 1602. https://doi.org/10.3390/su11061602

Lozano, R., Merrill, M. Y., Sammalisto, K., Ceulemans, K., & Lozano, F. J. (2017). Connecting competences and pedagogical approaches for sustainable development in higher education: A literature review and framework proposal. *Sustainability*, *9*(10), 1889. https://doi.org/10.3390/su9101889

Luederitz, C., Meyer, M., Abson, D. J., Gralla, F., Lang, D. J., Rau, A.-L., & von Wehrden, H. (2016). Systematic student-driven literature reviews in sustainability science – an effective way to merge research and teaching. *Journal of Cleaner Production*, *119*, 229–235. https://doi.org/10.1016/j.jclepro.2016.02.005

MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, *13*(1), 72–87. https://doi.org/10.1108/14676371211190326

Maier, H. R., Baron, J., & McLaughlan, R. G. (2007). Using online roleplay simulations for teaching sustainability principles to engineering students. *International Journal of Engineering Education*, *23*(6), 1162–1171.

Martínez-Campillo, A., del Pilar Sierra-Fernández, M., & Fernández-Santos, Y. (2019). Service-learning for sustainability entrepreneurship in rural areas: What is its global impact on business university students? *Sustainability*, *11*(19), 5296. https://doi.org/10.3390/su11195296

Mayhew, B. W., & Murphy, P. R. (2009). The impact of ethics education on reporting behavior. *Journal of Business Ethics*, *86*, 397–416. https://doi.org/10.1007/s10551-008-9854-5

McWhirter, N., & Shealy, T. (2020). Case-based flipped classroom approach to teach sustainable infrastructure and decision-making. *International Journal of Construction Education and Research*, *16*(1), 3–23. https://doi.org/10.1080/15578771.2018.1487892

Medeiros, K. E., Watts, L. L., Mulhearn, T. J., Steele, L. M., Mumford, M. D., & Connelly, S. (2017). What is working, what is not, and what we need to know: A meta-analytic review of business ethics instruction. *Journal of Academic Ethics*, *15*, 245–275. https://doi.org/10.1007/s10805-017-9281-2

Meya, J. N., & Eisenack, K. (2018). Effectiveness of gaming for communicating and teaching climate change. *Climatic Change*, *149*, 319–333. https://doi.org/10.1007/s10584-018-2254-7

Mintz, K., & Tal, T. (2013). Education for sustainability in higher education: A multiple-case study of three courses. *Journal of Biological Education*, *47*(3), 140–149. https://doi.org/10.1080/00219266.2013.821353

Mintz, K., & Tal, T. (2018). The place of content and pedagogy in shaping sustainability learning outcomes in higher education. *Environmental Education Research*, *24*(2), 207–229. https://doi.org/10.1080/13504622.2016.1204986

Mittelstaedt, R., Sanker, L., & VanderVeer, B. (1999). Impact of a week-long experiential education program on environmental attitude and awareness. *The Journal of Experiential Education*, *22*(3), 138–148.

Molderez, I., & Ceulemans, K. (2018). The power of art to foster systems thinking, one of the key competencies of education for sustainable development. *Journal of Cleaner Production*, *186*, 758–770. https://doi.org/10.1016/j.jclepro.2018.03.120

Molderez, I., & Fonseca, E. (2018). The efficacy of real-world experiences and service learning for fostering competences for sustainable development in higher education. *Journal of Cleaner Production*, *172*, 4397–4410. https://doi.org/10.1016/j.jclepro.2017.04.062

Mulder, K. F., Ferrer, D., Segalas Coral, J., Kordas, O., Nikiforovich, E., & Pereverza, K. (2015). Motivating students and lecturers for education in sustainable development. *International Journal of Sustainability in Higher Education*, *16*(3), 385–401. https://doi.org/10.1108/IJSHE-03-2014-0033

O'Shea, E. (2003). Self-directed learning in nurse education: A review of the literature. *Journal of Advanced Nursing*, *43*(1), 62–70. https://doi.org/10.1046/j.1365-2648.2003.02673.x

Palmberg, I. E., & Kuru, J. (2000). Outdoor activities as a basis for environmental responsibility. *The Journal of Environmental Education*, *31*(4), 32–36. https://doi.org/10.1080/00958960009598649

Pappas, I. O., Mora, S., Jaccheri, L., & Mikalef, P. (2018). Empowering social innovators through collaborative and experiential learning. In *2018 IEEE Global Engineering Education Conference (EDUCON)* (pp. 1080–1088). IEEE. https://doi.org/10.1109/EDUCON.2018.8363350

Peterson, D. J. (2016). The flipped classroom improves student achievement and course satisfaction in a statistics course. *Teaching of Psychology*, *43*(1), 10–15. https://doi.org/10.1177/0098628315620063

Piasentin, F. B., & Roberts, L. (2018). What elements in a sustainability course contribute to paradigm change and action competence? A study at Lincoln University, New Zealand. *Environmental Education Research*, *24*(5), 694–715. https://doi.org/10.1080/13504622.2017.1321735

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. https://doi.org/10.1007/s10551-009-0231-9

Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, *93*(3), 223–231. https://doi.org/10.1002/j.2168-9830.2004.tb00809.x

Putz, L.-M., Treiblmaier, H., & Pfoser, S. (2018). Field trips for sustainable transport education: Impact on knowledge, attitude and behavioral intention. *The International Journal of Logistics Management*, *29*(4), 1424–1450. https://doi.org/10.1108/IJLM-05-2017-0138

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. https://doi.org/10.1080/14703297.2012.728879

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures*, *44*(2), 127–135. https://doi.org/10.1016/j.futures.2011.09.005

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Ritter, B. A. (2006). Can business ethics be trained? A study of the ethical decision-making process in business students. *Journal of Business Ethics*, *68*, 153–164. https://doi.org/10.1007/s10551-006-9062-0

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

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

Santos-Villalba, M. J., Leiva Olivencia, J. J., Navas-Parejo, M. R., & Benítez-Márquez, M. D. (2020). Higher education students' assessments towards gamification and sustainability: A case study. *Sustainability*, *12*(20), 8513. https://doi.org/10.3390/su12208513

Schrier, K. (2015). Ethical thinking and sustainability in role-play participants. *Simulation & Gaming*, *46*(6), 673–696. https://doi.org/10.1177/1046878114556145

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

Segalàs, J., Ferrer-Balas, D., & Mulder, K. F. (2010). What do engineering students learn in sustainability courses? The effect of the pedagogical approach. *Journal of Cleaner Production*, *18*(3), 275–284. https://doi.org/10.1016/j.jclepro.2009.09.012

Shephard, K. (2008). Higher education for sustainability: Seeking affective learning outcomes. *International Journal of Sustainability in Higher Education*, *9*(1), 87–98. https://doi.org/10.1108/14676370810842201

Sholihin, M., Sari, R. C., Yuniarti, N., & Ilyana, S. (2020). A new way of teaching business ethics: The evaluation of virtual reality-based learning media. *The International Journal of Management Education*, *18*(3), 100428. https://doi.org/10.1016/j.ijme.2020.100428

Sibbel, A. (2009). Pathways towards sustainability through higher education. *International Journal of Sustainability in Higher Education*, *10*(1), 68–82. https://doi.org/10.1108/14676370910925262

Slavich, G. M., & Zimbardo, P. G. (2012). Transformational teaching: Theoretical underpinnings, basic principles, and core methods. *Educational Psychology Review*, *24*, 569–608. https://doi.org/10.1007/s10648-012-9199-6

Stern, M. J., Powell, R. B., & Ardoin, N. M. (2008). What difference does it make? Assessing outcomes from participation in a residential environmental education program. *The Journal of Environmental Education*, *39*(4), 31–43. https://doi.org/10.3200/JOEE.39.4.31-43

Stern, P. C. (2000). New environmental theories: Toward a coherent theory of environmentally significant behavior. *Journal of Social Issues*, *56*(3), 407–424. https://doi.org/10.1111/0022-4537.00175

Stern P. C., Dietz, T., Abel, T., Guagnano, G. A., & Kalof, L. (1999). A value-belief-norm theory of support for social movements: The case of environmentalism. *Human Ecology Review*, *6*(2), 81–97. https://www.jstor.org/stable/24707060

Strijbos, J.-W. (2016). Assessment of collaborative learning. In G. T. L. Brown, & L. R. Harris (Eds.), *Handbook of human and social conditions in assessment* (pp. 302–318). Routledge.

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. https://doi.org/10.1108/14676370810885925

Tejedor, G., Segalàs, J., Barrón, Á., Fernández-Morilla, M., Fuertes, M. T., Ruiz-Morales, J., Gutiérrez, I., García-González, E., Aramburuzabala, P., & Hernández, À. (2019). Didactic strategies to promote competencies in sustainability. *Sustainability*, *11*(7), 2086. https://doi.org/10.3390/su11072086

The University of Rhode Island. (n.d.). (2022, May 24). *Field trip travel policy and procedures*. https://web.uri.edu/riskmanagement/field-trips/

Topping, K. J. (2005). Trends in peer learning. *Educational Psychology*, *25*(6), 631–645. https://doi.org/10.1080/01443410500345172

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wade, B., & Piccinini, T. (2020). Teaching scenario planning in sustainability courses: The creative play method. *Journal of Management Education, 44*(6), 699–725. https://doi.org/10.1177/1052562920958136

Walker, J. B., & Seymour, M. W. (2008). Utilizing the design charrette for teaching sustainability. *International Journal of Sustainability in Higher Education*, *9*(2), 157–169. https://doi.org/10.1108/14676370810856305

Wals, A. E. J., & Jickling, B. (2002). "Sustainability" in higher education. From doublethink and newspeak to critical thinking and meaningful learning. *International Journal of Sustainability in Higher Education*, *3*(3), 221–232. https://doi.org/10.1108/14676370210434688

Walsh, E. O., & Davis, E. C. (2017). The geology and sociology of consumption: Team-teaching sustainability in an interdisciplinary first-year seminar. *Journal of Geoscience Education*, *65*(2), 126–135. https://doi.org/10.5408/16-172.1

Waples, E. P., Antes, A. L., Murphy, S. T., Connelly, S., & Mumford, M. D. (2009). A meta-analytic investigation of business ethics instruction. *Journal of Business Ethics*, *87*, 133–151. https://doi.org/10.1007/s10551-008-9875-0

Weber, J., & Glyptis, S. M. (2000). Measuring the impact of a business ethics course and community service experience on students' values and opinions. *Teaching Business Ethics*, *4*, 341–358. https://doi.org/10.1023/A:1009862806641

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science*, *6*, 203–218. https://doi.org/10.1007/s11625-011-0132-6

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.

Wynd, W. R., & Mager, J. (1989). The business and society course: Does it change student attitudes? *Journal of Business Ethics*, *8*, 487–491. https://doi.org/10.1007/BF00381815

Zelenika, I., Moreau, T., Lane, O., & Zhao, J. (2018). Sustainability education in a botanical garden promotes environmental knowledge, attitudes and willingness to act. *Environmental Education Research*, *24*(11), 1581–1596. https://doi.org/10.1080/13504622.2018.1492705

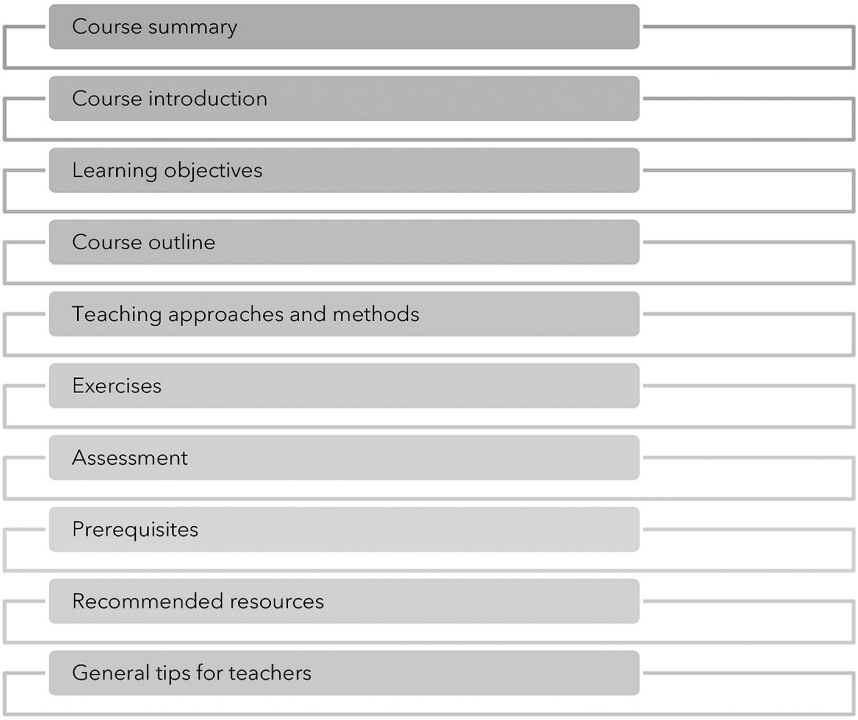
Zhou, X., Chen, L.-H., & Chen, C.-L. (2019). Collaborative learning by teaching: A pedagogy between learner-centered and learner-driven. *Sustainability*, *11*(4), 1174. https://doi.org/10.3390/su11041174

Silke Bustamante & Martina Martinovic

Chapter 2. Describing Teaching Formats – the Framework

In order to enable readers of this book to implement the teaching formats/courses included and described in Part II (chapters 4 to 26) in their own Higher Education Institutions or other contexts, all of those chapters are structured in the same way and contain the ten subchapters that are depicted in Figure 2–1 and described in more detail below.

Figure 2–1: Structure of chapters on teaching formats



(1) Course summary

All chapters describing a teaching format start with the presentation of a course summary in the form of two tables.

In the first table fundamental information on

- *basic course characteristics* (including the audience and level of studies for which the course was created, e.g. for bachelor students, master students, doctoral students and/or professionals; the course size or respective the number of participants; the course duration in weeks; the credits awarded to students for the course participation in ECTS; the workload contained in hours and the primary course topics),
- main *course objectives*,
- the most important *pedagogies applied* (comprising the main teaching approaches and methods used) and the *learning environment* in which those are embedded (e.g., face-to-face classroom, virtual classroom, hybrid classroom and/or settings beyond classroom), as well as
- the *connection of the course to one or more specific Sustainable Development Goals* (SDGs) are provided.

The second table deals with the *pedagogical impact variables* presented above in chapter 1 (subchapter 1.3 ”The Role of Pedagogical Approaches and Methods for Teaching Effectiveness”) in detail. All of those variables are assessed in terms of their present degree by using a scale ranging from ”none” to ”high” and, in addition, short explanations for the chosen degree are given.

(2) Course introduction

The second subchapter gives the reader a short introduction into the course background, its topic, its main goal and further aspects considered of high relevance for this part by the authors.

(3) Learning objectives

The third subchapter focuses on the key learning objectives of each course. In a table format, the learning objectives are described and additionally classified according to the UNESCO (2017) framework in three domains: the cognitive, socio-emotional and behavioural domain. ”The cognitive domain comprises knowledge and thinking skills...”, ”the socio-emotional domain includes social skills that enable learners to collaborate, negotiate and communicate ... as well as self-reflection skills, values, attitudes and motivations that enable learners to

develop themselves" and "the behavioural domain describes action competencies." (UNESCO, 2017, p. 11).

Besides those descriptions, information on which competencies are targeted by the course are included in the table by indicating which learning objective is related to which competency. While the contributions are referring thereby to competency frameworks chosen by each contribution´s author(s) and stated in the single chapters, most of the contributions referred to the framework of the UNESCO (2017), which was recommended by the editorial team. This framework contains eight so-called sustainability key competencies (see Table 2–1), which are seen as "…essential for individuals to transform their own lifestyles and to contribute to societal transformation towards sustainability" (Rieckmann, 2018, p. 42). As defined previously, competencies can be described as functionally linked patterns of different variables such as knowledge, values and attitudes, including cognitive, affective, volitional and motivational elements (Rieckmann, 2012; Wiek et al., 2011). The framework introduced in the publication of the UNESCO (2017) was set as a recommendation because it is based on different highly relevant key competency sets or respective frameworks (namely de Haan, 2010; Rieckmann, 2012; Wiek et al., 2011) and the collection of the contained key competencies was recently mostly confirmed by a Delphi study (Brundiers et al., 2021).

Table 2–1: Key competency framework

Key competency	**Definition**
Systems thinking competency	"the ability to recognize and understand relationships, to analyse complex systems, to perceive the ways in which systems are embedded within different domains and different scales, and to deal with uncertainty" (Rieckmann, 2018, p. 44)
Anticipatory competency	"the ability to understand and evaluate multiple futures – possible, probable and desirable – and to create one's own visions for the future, to apply the precautionary principle, to assess the consequences of actions, and to deal with risks and changes" (Rieckmann, 2018, p. 44)
Normative competency	"the ability to understand and reflect on the norms and values that underlie one's actions and to negotiate sustainability values, principles, goals, and targets, in a context of conflicts of interests and trade-offs, uncertain knowledge and contradictions" (Rieckmann, 2018, p. 44)
Strategic competency	"the ability to collectively develop and implement innovative actions that further sustainability at the local level and further afield" (Rieckmann, 2018, p. 44)
Collaboration competency	"the ability to learn from others; understand and respect the needs, perspectives and actions of others (empathy); understand, relate to and be sensitive to others (empathic leadership), deal with conflicts in a group; and facilitate collaborative and participatory problem-solving" (Rieckmann, 2018, p. 44)

Key competency	Definition
Critical thinking competency	"the ability to question norms, practices and opinions; to reflect on own one's values, perceptions and actions; and to take a position in the sustainability discourse" (Rieckmann, 2018, p. 44)
Self-awareness competency	"the ability to reflect on one's own role in the local community and (global) society, continually evaluate and further motivate one's actions, and deal with one's feelings and desires" (Rieckmann, 2018, p. 45)
Integrated problem-solving competency	"the overarching ability to apply different problem-solving frameworks to complex sustainability problems and develop viable, inclusive and equitable solution that promote sustainable development – integrating the above-mentioned competencies" (Rieckmann, 2018, p. 45)

(4) Course outline

Within the fourth subchapter the course outline is presented. While all contributions are depicting this information in a table format, the tables themselves differ in terms of structure and content in order to capture the main and relevant information needed by readers.

(5) Teaching approaches and methods

The fifth subchapter focuses on the pedagogies that were applied in the single teaching formats: authors describe how and why they utilized specific pedagogical approaches and methods. While pedagogical approaches were thereby defined as being placed at a more general level, representing "...the general character or guiding principles of designing learning processes..." (UNESCO, 2017, p. 54), pedagogical methods were understood as being placed at a more specific level, "...needed to facilitate the learning process" (UNESCO, 2017, p. 54). Within the book, an emphasis was put on the teaching approaches presented in Table 1–1 and the teaching methods introduced in Table 1–2 in chapter 1 (subchapter 1.3 "The Role of Pedagogical Approaches and Methods for Teaching Effectiveness"). However, as those are representing only the core pedagogies, in some chapters other, additional approaches and/or methods are described.

(6) Exercises

In the sixth subchapter, authors provide a description of different exercises that are implemented in their courses with a special focus on those exercises that best reflect the applied pedagogical approaches and methods.

(7) Assessment

The seventh subchapter presents information on the assessment principles and forms that were utilized in the single courses.

(8) Prerequisites

The eighth subchapter introduces existent prerequisites for each course related to students (e.g. prior knowledge that is required from students), lecturers/instructors (e.g. core competencies that are required from lecturers), and tools (required tools such as online collaboration platforms or video editing tools).

(9) Recommended resources

In the ninth subchapter a list of recommended resources is provided (including readings, videos or other available material).

(10) General tips for teachers

All chapters end with a short section presenting general tips of authors regarding the implementation of the teaching formats/courses, which are of high importance to those readers aiming at implementing them within their own institution or other educational context.

REFERENCES

Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S., Dripps, W., Habron, G., Harré, N., Jarchow, M., Losch, K., Michel, J., Mochizuki, Y., Rieckmann, M., Parnell, R., Walker, P., & Zint, M. (2021). Key competencies in sustainability in higher education—toward an agreed-upon reference framework. *Sustainability Science*, *16*(1), 13–29. https://doi.org/10.1007/s11625-020-00838-2

De Haan, G. (2010). The development of ESD-related competencies in supportive institutional frameworks. *International Review of Education*, *56*, 315–328. https://doi.org/10.1007/s11159-010-9157-9

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures*, *44*(2), 127–135. https://doi.org/10.1016/j.futures.2011.09.005

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, *6*(2), 203–218. https://doi.org/10.1007/s11625-011-0132-6

Daria Podmetina, Maria Nemilentseva & Marko Torkkeli

Chapter 3. In Search for Innovative Teaching Formats Worldwide

In order to generate an overview of innovative teaching formats applied in teaching for sustainability in Higher Education Institutions worldwide, and as means to collect contributions for this book, an online survey was conducted, which will be presented together with its results throughout this chapter.

3.1. METHODOLOGY

The survey questionnaire was developed based on a detailed literature review. The concept for the questionnaire was mainly build on suggestions for criteria that have been found to influence the effectiveness of teaching in the area of responsibility, ethics and sustainability, as for example, teaching approaches and methods, course duration, group size or the audience of the course (Medeiros et al., 2017; Waples et al., 2009). Additionally, it contained pedagogical impact variables that have been identified during the process (see chapter 1 "Fundamental Insights about Teaching Formats in the Area of Sustainability and Responsibility") as well as descriptive variables such as the course name, its field of education and its primary topics. Table 3–1 gives an overview on all variables included in the questionnaire.

Table 3–1: Overview of questionnaire

Variable	Description
University/Institution	Full name of institution where course is conducted
Country	Country where institution is headquartered
Course name	Full name of course

Variable	**Description**
Primary topics	Primary topics of the course selected from the following list (see also Fig 3–1) (multiple responses allowed): • Circular economy • Corporate social responsibility • Sustainability management • Environmental management • Sustainable innovation management • Corporate citizenship • Corporate governance • Values-based leadership • Responsible leadership • Business / corporate ethics • Sustainable finance • Other (with specification)
Field of education	Field of education in which the study program of the course is anchored in (multiple responses allowed): • Education • Arts and humanities • Social sciences, journalism and information • Business, administration & law • Natural sciences, mathematics and statistics • Information and communication technologies • Engineering, manufacturing and construction • Agriculture, forestry, fisheries and veterinary • Health & welfare • Other (UNESCO-UIS, 2015, pp. 54–58)
Type of course	Indication whether course is part of a specific sustainability-related program or not (stand-alone)
Audience	Audience targeted by the course: • Students (university students, including MBA) • Professionals (practitioners) • Mixed
Level of studies	Level of studies the course belongs to (multiple choices allowed): • Bachelor • Master • MBA/EMBA • Doctoral • Other (with specification)
Delivery format	Percentage of face-to-face and online delivery of content (in a non-pandemic situation)
Voluntariness of course participation	Indication whether course participation is mandatory, elective or voluntary

Variable	**Description**
Workload	Total workload indicated in ECTS credits or hours
Duration of the course	Indication of number of weeks based on a given classification
Group size	Indication of average group size based on a given classification
Teaching approaches	Indication of main teaching approaches used in class (multiple choices allowed): • Lecture-based learning • Experiential learning • Collaborative learning • Active learning • Self-directed learning • Inter-/transdisciplinary learning • Other (with specification) See chapter 1 "Fundamental Insights about Teaching Formats in the Area of Sustainability and Responsibility" for definitions of the approaches.
Teaching methods	Indication of importance of different teaching methods (scale ranging from none to very high): • Lecture • Group discussion • Debate • In-class role play (e.g. Board Meeting Game) • Virtual reality simulation • Case study • Service-learning project (for community) • Sustainability-related consulting project • Sustainability-related research project • Self-reflection task/exercise • Interdisciplinary team teaching • Vision-building exercise • Field trip • Outdoor, nature-related experience • Gamification (e.g. LEGO game) • Arts-based teaching and learning method • Peer-teaching (e.g. student lecturer) • Flipped classroom • Other (with specification) See chapter 1 "Fundamental Insights about Teaching Formats in the Area of Sustainability and Responsibility" for definitions of the methods.

Variable	Description
Teaching criteria/characteristics (impact variables)	Indication of ranking on pedagogical impact variables (scale ranging from none to high): • 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 nature-related experiences • Degree of stakeholder integration • Degree of integration between theory and practice See chapter 1 "Fundamental Insights about Teaching Formats in the Area of Sustainability and Responsibility" for definitions of impact variables.
Contribute to book writing	Indication of interest in contributing to the book and contact details

After the questionnaire template and online tool were completed, the tool was piloted and reviewed by partners of the EFFORT project as well as a number of experts.

Target respondents of the survey were educators using innovative teaching approaches and methods in sustainability, CSR, and ethics-related courses. The sampling for the online survey included 172 contacts of sustainability specialized educators from six continents. The contacts have been acquired using the European School of Sustainability Science and Research (ESSSR) network, the Network for Business Sustainability (NBS), the Principles for Responsible Management Education (PRME) network, the Biomimicry network as well as personal contacts of the EFFORT project partners, speakers from relevant conferences and authors of recent and relevant scientific articles.

The survey was distributed via the Qualtrics online survey platform, and answers were collected during March 2021. 62 responses to the questionnaire were received with a response rate of 36 %. After elimination of unfit answers (e.g., exclusion of unfinished answers), 45 responses were considered for further analysis.

As the questionnaire was also the basis for the selection of contributions for the book, all external authors were asked to provide short abstracts summarising their upcoming contribution. The selection of contribution was based on the abstracts as well as on an evaluation matrix including the degree of innovativeness and the diversity of teaching methods. In total 25 contributions were selected out of which 23 are finally included in the book.

3.2. SURVEY RESULTS

As described above, the analysed sample included 45 respondents. Those were representing five continents: Australia/Oceania (3 respondents), North America (3 respondents), South America (1 respondent), Asia (3 respondents) and Europe (35 respondents).

The most popular topics of the courses included sustainability management, sustainability, corporate social responsibility, sustainable innovation management, corporate ethics, business, environmental management, circular economy, and values-based leadership (see Figure 3–1).

Figure 3–1: Topics of courses[3]

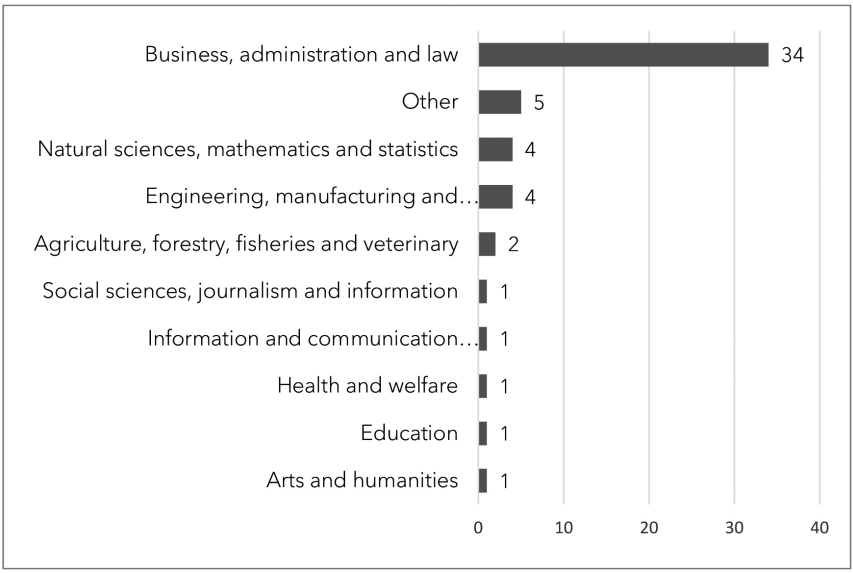
In line with these topics, courses included titles such as "The Three Realms of Sustainability and the Frameworks Associated with Them"; "Sustainable Marketing, Human Rights, Sustainable Reporting"; "Social Inclusion, Equality, Decent Work Conditions and Responsibilities of Every Individual in Business and Society"; "Social Entrepreneurship, Social and Solidarity Economy"; "Climate Policy"; "Legal Perspectives on Sustainability"; "Sustainable System Transitions"; and many more.

In terms of the educational fields of the courses, the field of "business, administration and law" was accentuated in the responses (34 times chosen)

3 Size of the letters relate to numbers of indications by respondents.

(see Figure 3–2). Besides, five times "other" was indicated, out of which three were in connection with already listed fields and two specified "sustainability science". Multiple responses were allowed in this question.

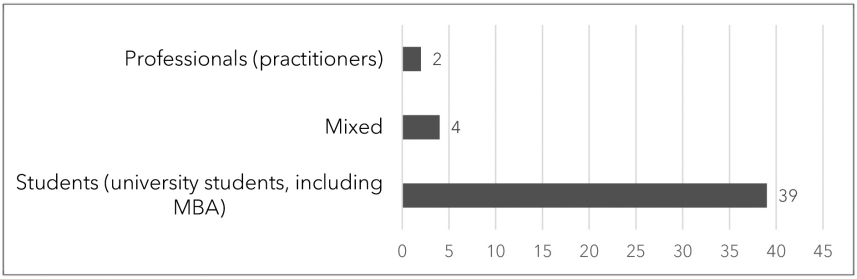
Figure 3–2: Field of education



Respective the type of the course, 71 % of the respondents (32 reponses) indicated that their course is a standalone course (i.e. that it is not connected to any specific sustainability-related program), while the rest indicated that they are offering an integrated course (i.e. that is part of a specific sustainability-related program).

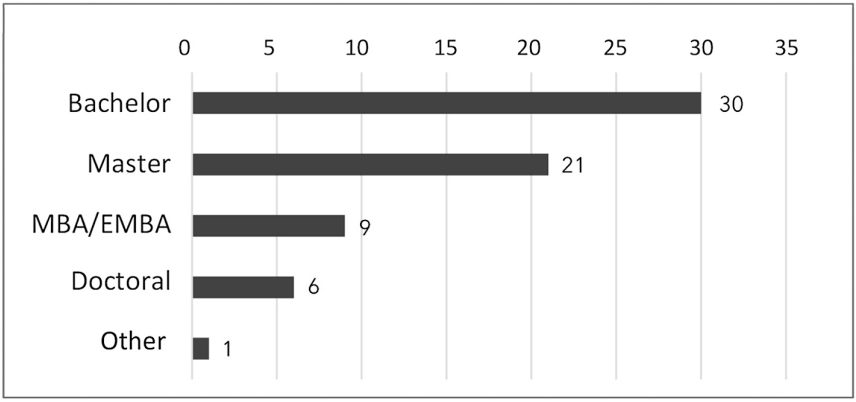
Figure 3–3 represents the target audiences of the courses. A large majority of courses targeted students (university students, including MBA students) (39 responses) and only a few professionals (practitioners) (2 responses) or mixed audiences (4 responses).

Figure 3–3: Audience targeted



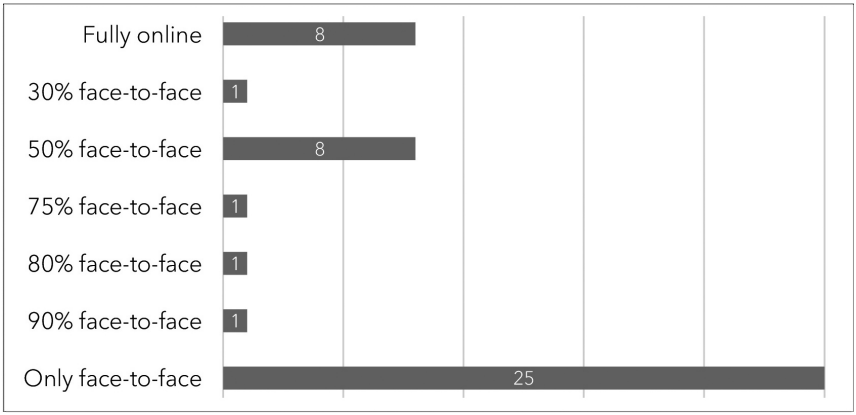
According to the level of studies the courses were classifyable mainly as bachelor (30 responses), master (21 responses), MBA (9 responses), and doctoral level courses (6 responses) (see Figure 3–4). Multiple choices were allowed in this question.

Figure 3–4: Level of studies



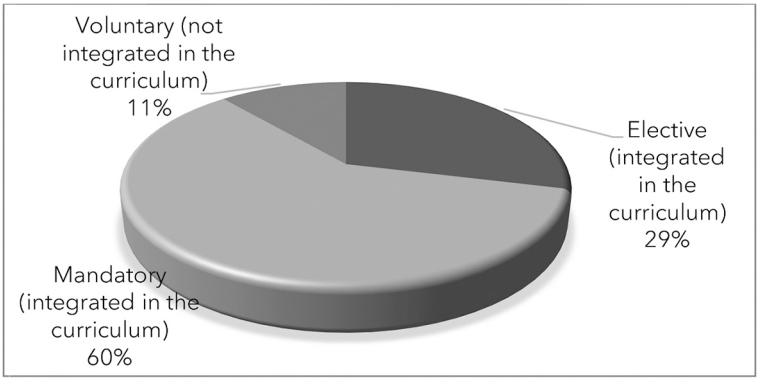
The proportion of face-to-face and online delivery of contents in the courses (in a non-pandemic situation) is represented in Figure 3–5. 25 respondents (56 %) reported teaching fully face-to-face, 8 (18 %) reported half-and-half, and 8 (18 %) reported teaching fully online. Additionally, four respondents reported teaching 30 %, 75 %, 80 % and 90 % face-to-face correspondingly.

Figure 3–5: Delivery of content



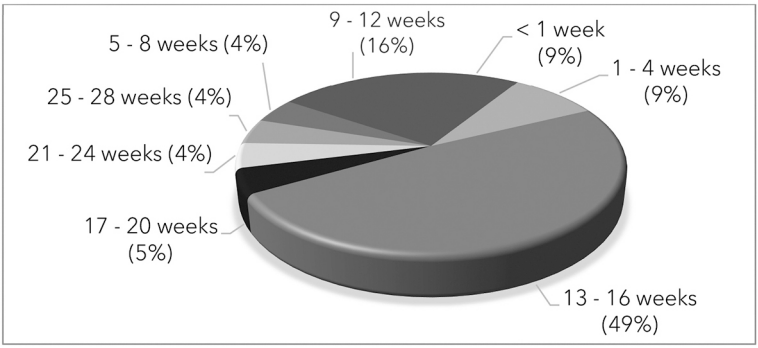
In terms of the voluntariness of course participation for potential participants, the following results were obtained (see Figure 3–6): The majority of the courses was specified as being integrated into the curriculum either in the form of a mandatory course (60 %, 27 responses) or an elective course (29 %, 13 responses). Only 11 % of respondents (5 responses) indicated that their course is a voluntary add-on course, which is not integrated in the curriculum.

Figure 3–6: Voluntariness of course participation



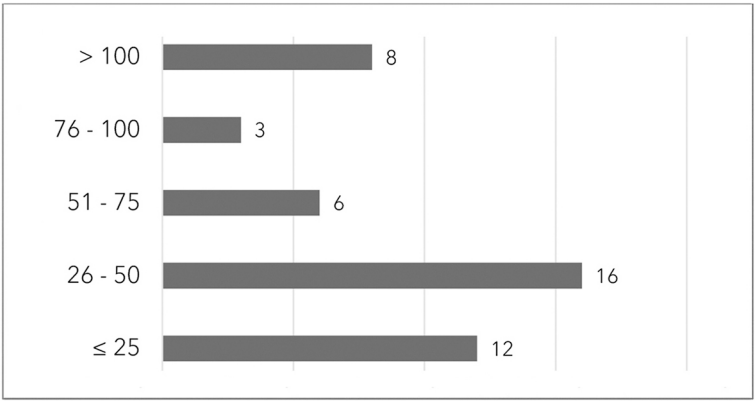
The average duration of courses is represented in Figure 3–7. 17 courses (38 %) last less than 13 weeks, the most common duration of courses is 13 to 16 weeks (22 responses, 49 %), and only 6 (13 %) courses last longer than 16 weeks.

Figure 3–7: Course duration (in weeks)



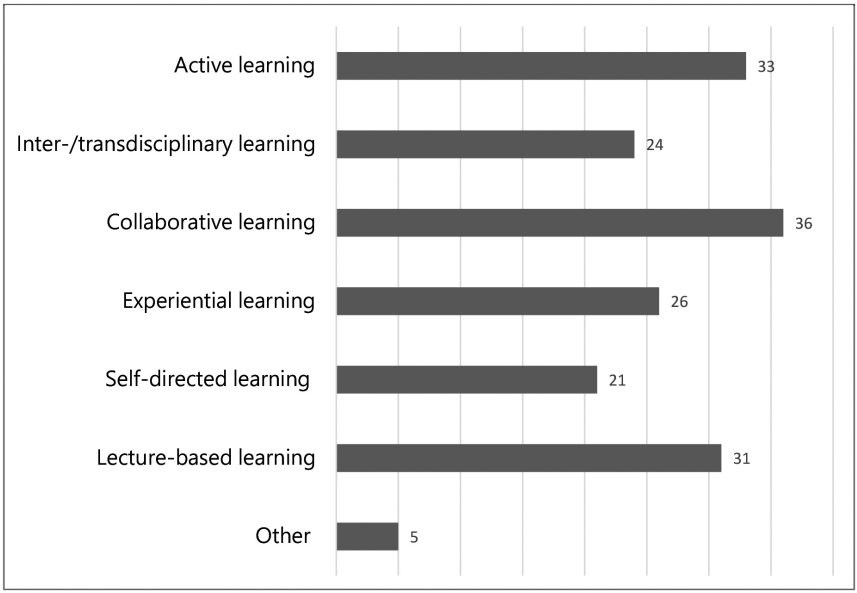
The average group size of courses is represented in Figure 3–8. 12 courses were focused on smaller classes of less than 25 students, 16 courses had a standard group size of 26–50 students, 9 courses had larger group sizes of either 51–75 or 76–100 participants, and 8 courses had large group sizes of more than 100 students.

Figure 3–8: Group size



Teaching approaches used in courses are represented in Figure 3–9. Multiple choices were allowed. Most of the courses applied collaborative learning (36 times indicated), active learning (33 times indicated) and lecture-based learning (31 times indicated). Inter-/transdisciplinary learning was applied in 24 courses, experiential learning in 26 courses, and self-directed learning in 21 courses. Five times it was also reported that other teaching approaches are used in the course.

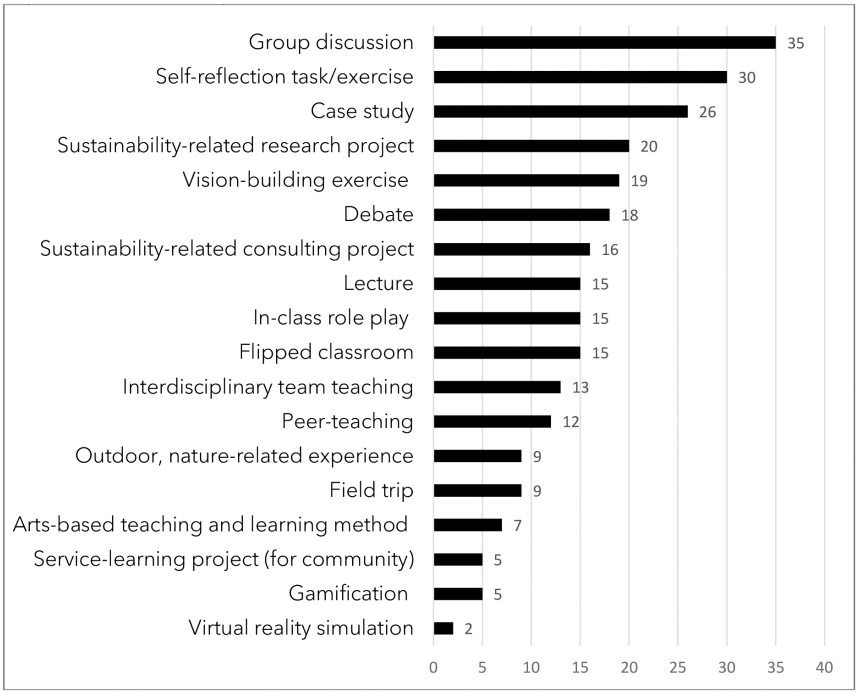
Figure 3–9: Teaching approaches



In terms of teaching methods respondents were requested to indicate the importance of different methods in the context of their course by using a scale ranging from none to very high. Figure 3–10 presents how many times individual teaching methods were indicated as being of high or very high importance. The results show that group discussions (35), self-reflection tasks/exercises (30) and case studies (26) were most frequently indicated as relevant teaching methods. Besides, sustainability-related research projects (20), vision-building exercises (19), debates (18), sustainability-related consulting projects (16), lectures (15), in-class role plays (15), and the method of flipped classroom (15) were indicated relatively often as important. The methods of interdisciplinary

team teaching (13) and peer-teaching (12) were indicated as being relevant by around one quarter of respondents. Finally, the least frequently mentioned teaching methods were virtual reality simulation (2), service-learning projects (for the community) (5), field trips (9), outdoor, nature-related experiences (9), gamification (5) and arts-based teaching and learning methods (7).

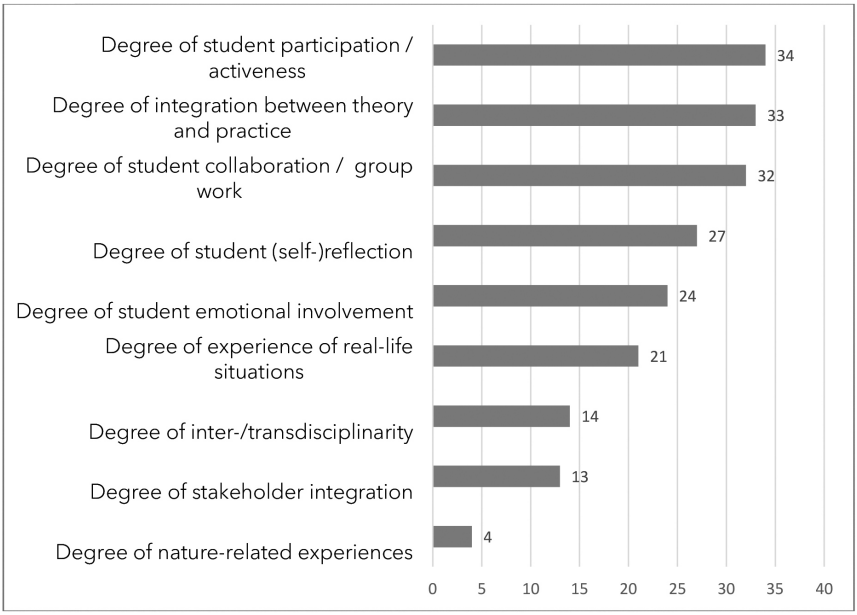
Figure 3–10: Teaching methods



Respective the nine pedagogical impact variables, respondents were requested to assess how their courses rank on them using a scale ranging from none to high. Therewith, respondents indicated the height of the present degree of different teaching characteristics (e.g. student participation/activeness or experience of real-life situations). For each of the nine variables, it was analysed how often respondents indicated a high degree (see Figure 3–11). The teaching characteristics most often indicated as being present with a high degree were student participation / activeness (34), integration between theory and practice

(33) and student collaboration / group work (32). The characteristic least often indicated as having a high degree was nature-related experiences (4).

Figure 3–11: Pedagogical impact variables (number of respondents indicating a high degree)



REFERENCES

Medeiros, K. E., Watts, L. L., Mulhearn, T. J., Steele, L. M., Mumford, M. D., & Connelly, S. (2017). What is Working, What is Not, and What We Need to Know: a Meta-Analytic Review of Business Ethics Instruction. *Journal of Academic Ethics, 15*(3), 245–275. https://doi.org/10.1007/s10805-017-9281-2

UNESCO-UIS (2015). *International Standard Classification of Education. Fields of education and training 2013 (ISCED-F 2013) – Detailed field descriptions*. http://uis.unesco.org/sites/default/files/documents/international-standard-classification-of-education-fields-of-education-and-training-2013-detailed-field-descriptions-2015-en.pdf

Waples, E. P., Antes, A. L., Murphy, S. T., Connelly, S., & Mumford, M. D. (2009). A Meta-Analytic Investigation of Business Ethics Instruction. *Journal of Business Ethics, 87*(1), 133–151. https://doi.org/10.1007/s10551-008-9875-0

Part II: Innovative Teaching Formats

Irene Garnelo-Gomez

Chapter 4. Sustainable Marketing: Creating Positive Impact through Experiential Learning

4.1. COURSE SUMMARY

Table 4–1

Audience and level of studies	Students (Master)	
Group size	≤ 25	
Course duration	10 weeks	
Credits	5 ECTS	
Workload	Presence: 10h lectures + 3h seminars + 5h fieldwork + 4h of Q&A Self-study: 78h of guided independent study	Total: 100h
Contents/primary topics	• Link between marketing and sustainability • Sustainable marketing strategies • Changing behaviour for good	
Main course objectives	• Understand the two-way link between marketing and sustainability • Explore how marketing can be used to encourage more sustainable and responsible consumption, while impacting organisational performance	
Main teaching approaches	• Experiential learning • Collaborative learning • Active learning	
Main teaching methods	• Lectures • Sustainability-related consulting project • Self-reflection task	
Learning environment	Classroom (face-to-face learning) + online activities (blended learning)	
Link to Sustainable Development Goals (SDGs)	SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns Depending on the project with the NGO, the course could contribute to: SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 10 | Reduced Inequalities | Reduce inequality within and among countries	

Table 4–2

Impact assessment	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students engage in a real-life project, working in teams with an NGO.
2. Degree of student collaboration / group work	High	Students work in a team project over a whole term.
3. Degree of student emotional involvement	High	Working on real projects with NGOs, students get out of their 'normal' classroom environment, allowing them to be more aware of the challenges their community is facing. Due to the nature of some projects, the whole journey is quite emotional, and students share their views both in class when evaluating the experience, and through their individual reflection (which constitutes one of the assignments for the course).
4. Degree of inter-/transdisciplinarity	High	Throughout the whole course, concepts and theories from several disciplines (marketing, sustainability, sociology, psychology) are considered. While working on the team project, they also bring ideas learned in other modules. This is a common approach to follow in business education (where this module sits), as interdisciplinarity is embedded in the curriculum (Bajada & Trayler, 2013).
5. Degree of student (self-) reflection	High	Students are required to write an individual reflection, based on the team project.
6. Degree of experience of real-life situations	High	Students engage with real organisations (local NGOs) working on specific community/environmental projects.
7. Degree of nature-related experiences	(None)	References to nature are only made in class.
8. Degree of stakeholder integration	High	Constant reference to a variety of stakeholders when explaining concepts and presenting case studies. Students work in a project done in direct collaboration with different NGOs, addressing a challenge they face and providing potential solutions by applying sustainable marketing strategies.
9. Degree of integration between theory and practice	High	During the delivery of content, theories and concepts are linked to practical examples. Furthermore, students put their knowledge into practice through the team project (working with NGOs).

4.2. COURSE INTRODUCTION

Social and environmental challenges have led to the growth of marketing tools being applied with a sustainable purpose. As a result, organisations and governments are gradually starting to use marketing techniques in order to influence stakeholder behaviour towards pro-sustainable outcomes. It is also increasingly recognised that sustainable marketing can be good for business, leading to

competitive advantage, cost savings and brand enhancement (Jung et al., 2020). The module presented in this chapter has been designed to provide knowledge of the link between marketing and sustainability, and how to evaluate and implement marketing strategies that promote sustainable products, services, and behaviours.

The module content includes evaluation of social and environmental challenges and the role of marketing in sustainability; how to set behaviour objectives: encouraging pro-social and pro-environmental behaviours and preventing harmful behaviour; how to decide on segmentation and target audiences in sustainable marketing; how to develop and implement marketing campaigns focused on social/environmental issues; and how to evaluate and monitor campaigns (and their social and environmental impact). By the end of the module, students should be able to understand how private businesses, governments and charitable organisations can use marketing principles and techniques to influence behaviours for social and environmental good; and how to apply these techniques in a real environment.

The module is delivered throughout lectures, seminars, and Q&A sessions. During the interactive sessions, the lecturer explores theory in relation to sustainable marketing and behaviour change, supporting her argument with real case studies (e.g., from private organisations, but also examples from public institutions (e.g., Public Health England, Department for Transport) and campaigns developed by NGOs) and with insights from her own research projects in the areas of pro-social and pro-sustainable behaviours. Students engage in debates around the advantages and disadvantages of different sustainable marketing campaigns, how they could help society and the environment and/or the role of private and public institutions. The module is delivered following a blended approach, combining face to face sessions and interactive online activities, which are formatively assessed (please look at the Course Outline for more information).

The module is assessed through a team project (40 % of the final grade) and an individual reflection, based on the team project (60 % of the final grade). For the team project, students engage with local NGOs[4], with the aim of designing a sustainable marketing campaign that would help with their functioning (e.g., by attracting more volunteers, improving level of awareness of potential beneficiaries). The module and the assessment have been designed based on the principles of experiential learning (Kolb, 1984), as explained in subchapter 4.5.

4 These are recruited by the lecturer before the course starts (through personal contacts and recommendations – i.e. from NGOs collaborating with the project in previous years).

4.3. LEARNING OBJECTIVES

Table 4–3

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Brundiers et al., 2021)
Cognitive	Build awareness in relation to the main social and environmental challenges today's society is facing.	Systems-thinking competency
	Demonstrate an understanding of the marketing environment in relation to sustainability and the factors affecting it.	Systems-thinking competency
	Identify and evaluate key approaches in sustainable marketing, including concepts related to social purpose marketing and how to change behaviour for good.	Strategic-thinking competency
	Review sustainable marketing campaigns in different organisational contexts (private, public, not-for-profit).	Strategic-thinking competency
Socio-emotional	Develop empathy and awareness towards sustainability issues.	Values-thinking and futures-thinking competencies
	Develop interpersonal and self-reflection skills.	Inter-personal and intra-personal competencies
Behavioural	Demonstrate the ability to develop a marketing campaign focused on social/environmental issues and evaluate its impact.	Integrated problem-solving competency
	Demonstrate the skills of analysis, evaluation and making judgements about real business situations to develop practical experience.	Strategic-thinking competency
	Develop team working skills through the completion of a team project, as well as enhancing their critical thinking, research, presentation, data gathering and information technology skills.	Inter-personal and intra-personal competencies

4.4. COURSE OUTLINE

Table 4–4

Structure		Session focus	Homework
Week 1	Lecture 1 (2h):	Introduction to the course. Lecture topic: "Social and environmental challenges and the role of marketing in sustainability: concepts and theories".	Readings for week 1 (see subchapter 4.9). Students to complete the formatively assessed activities available in BlackBoard, posting their answers (when appropriate) in the relevant discussion board. See examples of activities in subchapter 4.6.
	Q&A session (1h):	General questions about the module and resources for lecture 1.	Prepare questions for the Q&A session.

Structure		Session focus	Homework
Week 2	Lecture 2 (2h):	Lecture topic: "Pro-sustainable and pro-social behaviour: segmentation and targeting for sustainability".	Readings for week 2 (see subchapter 4.9). Students to complete the formatively assessed activities available in BlackBoard, posting their answers (when appropriate) in the relevant discussion board. See examples of activities in subchapter 4.6.
	Seminar 1 (1h):	Explain team project and students to get to know the organisations they will work with.	Students to get into their groups during and after the seminar and prepare a list of questions for the first meeting with the organisation.
Week 3	Lecture 3 (2h):	Lecture topic: "Setting behaviour objectives: encouraging pro-social and pro-environmental behaviours and preventing harmful behaviours".	Readings for week 3 (see subchapter 4.9). Students to complete the formatively assessed activities available in BlackBoard, posting their answers (when appropriate) in the relevant discussion board. See examples of activities in subchapter 4.6. Students to continue working on the team project.
	Q&A session (1h):	General questions about the module and resources for lectures 1 to 3.	Prepare questions for the Q&A session.
Week 4	Lecture 4 (2h):	Lecture topic: "Developing marketing campaigns aimed at addressing social and environmental issues".	Readings for week 4 (see subchapter 4.9). Students to complete the formatively assessed activities available in BlackBoard, posting their answers (when appropriate) in the relevant discussion board. See examples of activities in subchapter 4.6.
	Seminar 2 (1h):	Explaining individual assignment and checking on progress (team project).	Students to continue working on the team project and to decide on main ideas to present to the organisation.
Week 5	Lecture 5 (2h):	Lecture topic: "Evaluating social and environmental impact: monitoring and evaluation".	Readings for week 5 (see subchapter 4.9). Students to complete the formatively assessed activities available in BlackBoard, posting their answers (when appropriate) in the relevant discussion board. See examples of activities in subchapter 4.6. Students to continue working on the team project.
	Q&A session (1h):	General questions about the module and resources for lectures 1 to 5.	Prepare questions for the Q&A session.
Week 6	Seminar 3 (1h):	Group work for the team project.	Students to continue working on the team project.
Week 7		There is no session with the lecturer this week.	Students to continue working on the team project/ individual reflection.
Week 8	Q&A Session (1h):	Final questions team project, Q&A individual assignment.	Submission team project (both to the lecturer and the NGO). Students to work on the individual reflection.
Week 9		There is no session with the lecturer this week.	Students to continue working on the individual reflection.
Week 10	N/A	N/A	Submission individual reflection.

4.5. TEACHING APPROACHES AND METHODS

As explained in the course summary, the module combines different types of teaching approaches and methods. The content materials for the course are delivered following the principles of active learning, avoiding one-way communication and aiming to engage students in the learning process (Bonwell & Eison, 1991). Students complete individual exercises online (see subchapter 4.6), and during the lectures, seminars, and Q&A sessions, they engage in pair or group discussions and debate about different case studies related to sustainable marketing. By debating and working in pairs or small groups, students have the opportunity to reflect and make sense of the topics covered in class (Keeton et al., 2002). As a consequence, they are able to develop a deeper understanding of those topics.

As part of the assessment for this module, students complete a sustainability-related consulting project, focused on providing a benefit to others. The rationale behind the design of this assessment is based on the principles of collaborative learning, as students work together to solve a problem (Laal & Ghodsi, 2012); and experiential learning (Kolb, 1984), proven to enhance learning in higher education (Kolb & Kolb, 2005). During the fieldwork, through the communication with the NGOs and the work students develop for them, students not only gain knowledge about the discipline (i.e., sustainable marketing), but build employability skills such as planning and problem solving and social development and interaction (Fallows & Steven, 2000). Furthermore, the nature of the team project allows us to categorise it as an example of 'situation learning' (Lave & Wenger, 1991). By engaging with local organisations, the learning space expands from the classroom (and the interaction between the students and the lecturer) to the wider community. For the second assessment of this module, students complete a self-reflection task, focused on the team project. By reflecting on the work completed as a group for the NGOs, students are able to dig deeper into their thoughts and feelings and bring together what they have learned in the module and the experience acquired when developing the sustainable campaign for their organisations (Osipova et al., 2011).

In business schools, it is common practice to work on consultancy projects with private organisations, in particular when working on dissertations or final year projects. However, there is still a need to promote collaboration between universities and the not-for-profit sector[5]. More modules related to sustainabil-

5 Please note that students could also develop sustainable marketing campaigns for private organisations. In this case, local NGOs were chosen because most times they would not be able to pay for such a service (some of them do not even have a person in charge of marketing and/or do not have a marketing strategy).

ity should be included in the curriculum, and those modules should include aspects of experiential learning. The benefits and potential impact of doing so are varied. For instance, sustainability-related issues, such as those related to ethics, are more effectively communicated if an experiential approach is followed in the course (Sims, 2002). At the same time, sustainability and sustainability challenges become real, driving students to focus and engage more with the materials, while truly committing to the project and the organisation they work with. In doing so, students begin a transition from learners to experts in the field of sustainable marketing, through the knowledge acquired in these communities of practice (i.e., the not-for-profit sector). But students do not only benefit professionally. Based on the feedback received at the end of the course and on the different conversations with students, it could be argued that by following the teaching methods and approaches explained above, students are able to develop and improve their awareness about sustainability, and to some extent build their own 'sustainable identities'. Once the course is finished, students are not only able to develop a sustainable marketing campaign, but they are more aware and (at least some of them) have changed their own individual behaviour, becoming more sustainable individuals.

4.6. EXERCISES

Apart from completing the assessment explained in the next subchapter and engaging in debate in class (when delivering interactive sessions), students are encouraged to complete different activities per session/week. The activities are posted in BlackBoard by the lecturer and are linked to a discussion board. Students answer the activities individually, by creating a thread, and the lecturer provides formative feedback. The goal of this type of activities is to encourage students to engage with the module materials, so they can get a better understanding of the theories and concepts covered. This type of activities could work in any module, despite the module size (but should be clearly linked to the content covered that week, to promote engagement).

Behaviours that Sustainable/Social Marketing Could Influence

Example activity related to materials for week one. Students are asked to provide examples of behaviours that could be influenced using sustainable/social marketing. This is one of the first activities proposed in the module and invites them to think about the broader role of marketing. The activity is presented to students as follows.

Please think about examples of behaviours that sustainable/social marketing *could influence* in relation to the following (I'll provide one example for the first one):

- Health-Related Behaviours (e.g., skin cancer prevention)
- Injury Prevention-Related Behaviours
- Environmental-Related Behaviours
- Community Involvement Behaviours

This activity should take around 10 minutes to be completed.

How do Sustainable Brands Compete with 'Conventional' Brands/Competitors?

Example activity related to materials for week two. Students are invited to choose a sustainable brand, and analyse their marketing strategy (considering, between others, what tactics they use to compete against substitutes). The activity is presented to students as follows.

Choose a sustainable brand (e.g., Ecover, LUSH, Patagonia) and check what they do in terms of marketing (e.g., how they promote themselves, how they 'sell' their products). Then answer the following question: What tactics do you think they use to *compete against substitutes*? (e.g., how do they compete against price for instance?). This activity should take around 15 minutes to be completed.

Behaviour, Knowledge, and Belief objectives

Example activity related to materials for week three. Students are described an initiative by Levi's, focused on reducing water pollution and scarcity, encouraging consumers to wash less. They need to identify the behaviour, knowledge and belief objectives related to the initiative. The activity is presented to students as follows.

Levi's sews a 'Care tag for our planet' into every pair of jeans they produce (the tag says 'wash less, wash cold, line dry, donate or recycle'). The purpose of Levi's initiative is to reduce water pollution and scarcity; the focus is to encourage consumers to wash less (reducing water consumption and pollution); wash cold (which is more sustainable); and line dry (without using electricity). Could you identify *behaviour, knowledge and belief objectives* related to this campaign? This activity should take around 10 minutes to be completed.

Place Strategy

Example activity related to materials for week four. The activity is focused on 'place strategies'. Students are presented with three scenarios, explaining the target audience and the goods they want to provide to them as part of the campaign. Students need to decide which distribution channels would be more appropriate (e.g., stand by the train station; stand outside university). The activity is presented to students as follows.

Imagine where these target audiences hang out and what *distribution channels* (for goods/services associated with the campaign) you might consider:

- Groups of seniors you want to provide with small, portable pedestrian flags to keep and wave when entering crosswalks (campaign by the council).
- University students you want to provide with litter picking kits (campaign by Veolia and the University, for example).
- Cyclists you want to provide with a pair of free bike lights (campaign by Btwin and the police, for example).

This activity should take around five minutes to be completed.

Collaborations to Share Budgets

Example activity related to materials for week five. Students are presented with four scenarios and invited to share ideas for a potential collaboration between private sector and public sector/NGO so the budget could be shared for a campaign. The activity is presented to students as follows.

What ideas do you have for a potential *collaboration* between private sector and public sector/NGO (e.g., LEGO® and Save the Children):

- Influencing women to recognise the signs of a heart attack?
- Promoting reading every day?
- Trying to encourage sustainable consumption?
- Encouraging people to do more exercise?

This activity should take around 10 minutes to be completed.

Online Quizzes

Throughout the duration of the course, the lecturer also invites students to complete quizzes online (to review materials). Quizzes are formed by multiple choice questions, and normally include ten questions. Formative feedback is also provided in relation to the answers given to the quiz. Example of a quiz question is presented below.

When implementing your sustainable marketing campaign, you could organise the phases based on the 'Stages of Change' theory. In the first phase you would be targeting:

1. Those who are not aware about the social/environmental issue you are trying to tackle.
2. Those most ready to undertake the behaviour.
3. Those who start showing some awareness about the social/environmental issue.

4.7. ASSESSMENT

This course is assessed through two pieces of work; a team project and an individual assignment.

Team project

Students work in collaboration with a local NGO and design a marketing campaign focused on a real challenge the organisation is facing (e.g., build awareness related to their services, recruitment of volunteers). Importantly, due to the course having only five ECTS, students are only required to provide a proposal for the campaign (explaining the focus, target audience, marketing mix tools the organisation could use, how to evaluate the campaign, etc). They are not required to design/produce any materials for the campaign (although they are invited to provide ideas/examples on how these could look, if that would help the organisation). The format in which the team project is delivered is decided with the organisation (e.g., Power Point with notes, a report in Word format, a flyer), and should be agreed with the lecturer. The team project needs to be submitted two weeks before the end of the term, both to the lecturer and the NGO, and weights 40 % of the overall module mark.

Individual assignment

Students are also required to write a 1500-word individual reflection, based on the work developed for the team project and covering three specific areas: Application of sustainable marketing concepts and theories; Decisions regarding marketing strategy; and a Personal reflection, explaining how the team project and the course have influenced students' views on the role of marketing in society and sustainability. The individual assignment needs to be submitted on the last week of the term, and weights 60 % of the overall module mark.

4.8. PREREQUISITES

Required prior knowledge from students:

- Basics of marketing (if they have not acquired any marketing knowledge in the past, I recommend a book on 'Principles of Marketing', so they familiarise themselves with the topic, in particular targeting and segmentation, and the marketing mix).

Required instructor and their core competences:

- Lecturer (competences: sustainability, marketing, social marketing).

Required tools:

- Web-based virtual learning software, which allows lecturers to share resources (e.g., handouts, videos, web links) and also interact with students through features like discussion boards (e.g., BlackBoard).
- Video-editing tools such as Camtasia or Microsoft's Video Editor (if lectures are not delivered face-to-face).

4.9. RECOMMENDED RESOURCES

For each week, the lecturer provides a set of handouts (Power Point or PDF format), activities to complete online (see subchapter 4.6) and a reading list. There are two recommended module core-texts:

- Martin, D., & Schouten, J. (2014). *Sustainable Marketing*. Pearson.
- Lee, N. R., & Kotler, P. (2016). *Social marketing: Changing behaviors for good*. Sage Publications.

Students are provided with *essential* and *further* readings as follows (some 'key' further readings are provided as examples, but the full reading list include several).

Social and environmental challenges and the role of marketing in sustainability: concepts and theories (Week 1)

- Essential readings:
  - Chapters 1, 4 and 8 of Martin & Schouten (2014).
  - Chapter 1 of Lee & Kotler (2016).

- Further readings:
  - Gordon, R., Carrigan, M., & Hastings, G. (2011). A framework for sustainable marketing. *Marketing Theory*, *11*(2), 143–163.
  - Katrandjiev, H. (2016). Ecological marketing, green marketing, sustainable marketing: synonyms or an evolution of ideas. *Economic Alternatives*, *1*(7), 71–82.
  - Danciu, V. (2013). The contribution of sustainable marketing to sustainable development. *Management & Marketing*, *8*(2), 385–400.

Pro-sustainable and pro-social behaviour: segmentation and targeting for sustainability (Week 2)

- Essential readings:
  - Chapter 7 of Martin & Schouten (2014).
  - Chapter 5 of Lee & Kotler (2016).
- Further readings:
  - Poortinga, W., & Darnton, A. (2016). Segmenting for sustainability: The development of a sustainability segmentation model from a Welsh sample. *Journal of Environmental Psychology, 45*, 221–232.
  - Kamenidou, I. C., Mamalis, S. A., Pavlidis, S., & Bara, E. Z. G. (2019). Segmenting the generation Z cohort university students based on sustainable food consumption behavior: A preliminary study. *Sustainability, 11*(3), 837.

Setting behaviour objectives: encouraging pro-social and pro-environmental behaviours and preventing harmful behaviours (Week 3)

- Essential readings:
  - Chapters 6, 7 and 8 of Lee & Kotler (2016).
- Further readings:
  - Emery, B. (2011). *Sustainable Marketing*. Pearson Education. (In particular chapter 5 “Motivating behavioural change”).
  - Lefebvre, R. C. (2011). An integrative model for social marketing. *Journal of Social Marketing, 1*(1), 54–72.

Developing marketing campaigns aimed at addressing social and environmental issues (Week 4)

- Essential readings:
  - Chapters 10, 11, 12, 13 and 14 of Lee & Kotler (2016). Students do not need to read chapters 10 to 14 in full. They should focus on the first part of the chapter – i.e., the steps.
- Further readings:
  - French, J., Merritt, R., & Reynolds, L. (2011). *Social Marketing Casebook*. Sage.
  - Perkins, H. W., Linkenbach, J. W., Lewis, M. A., & Neighbors, C. (2010). Effectiveness of social norms media marketing in reducing drinking and driving: A statewide campaign. *Addictive Behaviors, 35*(10), 866–874.

Evaluating social and environmental impact: monitoring and evaluation (Week 5)

- Essential readings:
  - Chapter 6 of Martin & Schouten (2014).
  - Chapters 15 and 17 of Lee & Kotler (2016).
- Further readings:
  - Lučić, A. (2020). Measuring Sustainable Marketing Orientation—Scale Development Process. *Sustainability, 12*(5), 1734.
  - Veríssimo, D., Bianchessi, A., Arrivillaga, A., Cadiz, F. C., Mancao, R., & Green, K. (2018). Does it work for biodiversity? Experiences and challenges in the evaluation of social marketing campaigns. *Social Marketing Quarterly, 24*(1), 18–34.

4.10. GENERAL TIPS FOR TEACHERS

I would recommend fellow educators provide as many examples as possible, while making links to specific concepts and theories. Some students 'doubt' the power of marketing for creating social and/or environmental good, believing marketing can only be used to 'trick' consumers and create a profit. The more examples you provide, the more students will believe in the broader role of marketing, and in how the field could actually contribute to the creation of positive impact.

I would also recommend providing the following advice to students, in particular when working on the team project:

- Research as much as possible about the organisation before your first meeting.
- Have a set of questions ready every time you meet the organisation (to maximise your time together).
- Make sure that the proposal you submit is realistic, so the organisation is able to make it tangible (considering their financial and human resources). If they do not possess the required financial or human resources, but you still believe the proposal is doable, suggest ways to find those resources (e.g., recruiting a marketing volunteer/trustee).

REFERENCES

Bajada, C., & Trayler, R. (2013), Interdisciplinary business education: curriculum through collaboration, *Education + Training*, *55*(4/5), 385–402. https://doi.org/10.1108/00400911311326027

Bonwell, C.C., & Eison, J. A. (1991). *Active Learning: Creating Excitement in the Classroom*. ASHEERIC Higher Education Report No.1, George Washington University, Washington, DC.

Brundiers, K., Barth, M., Cebrián, G., Cohen, M., Diaz, L., Doucette-Remington, S. et al. (2021). Key competencies in sustainability in higher education—toward an agreed-upon reference framework. *Sustainability Science*, *16*(1), 13–29. https://doi.org/10.1007/s11625-020-00838-2

Fallows, S., & Steven, C. (2000). Building employability skills into the higher education curriculum: a university-wide initiative. *Education + Training*, *42*(2), 75–83. https://doi.org/10.1108/00400910010331620

Jung, J., Kim, S. J., & Kim, K. H. (2020). Sustainable marketing activities of traditional fashion market and brand loyalty. *Journal of Business Research*, *120*, 294–301. https://doi.org/10.1016/j.jbusres.2020.04.019

Keeton, M. T., Sheckley, B. G., & Griggs, J. K. (2002). *Effectiveness and efficiency in higher education for adults: A guide for fostering learning*. Iowa: Kendall Hunt.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. New Jersey: Prentice-Hall.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of Management Learning & Education*, *4*(2), 193–212. https://doi.org/10.5465/amle.2005.17268566

Laal, M., & Ghodsi, S. M. (2012). Benefits of collaborative learning. *Procedia-Social and Behavioral Sciences*, *31*, 486–490. https://doi:10.1016/j.sbspro.2011.12.091

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation*. Cambridge: Cambridge University Press.

Osipova, A., Prichard, B., Boardman, A. G., Kiely, M. T., & Carroll, P. E. (2011). Refocusing the lens: Enhancing elementary special education reading instruction through video self-reflection. *Learning Disabilities Research & Practice*, *26*(3), 158–171. https://doi.org/10.1111/j.1540-5826.2011.00335.x

Sims, R. R. (2002). Business Ethics Teaching for Effective Learning. *Teaching Business Ethics*, *6*(4), 393–410. https://doi.org/10.1023/A:1021107728568

UNESCO. (2017). *Education for sustainable development goals: Learning objectives.* UNESCO Publishing

Marina Schmitz

Chapter 5. Sustainable Futures of Business – Future Studies Meets Sustainable Management Education

5.1. COURSE SUMMARY

Table 5–1

Audience and level of studies	Students (Master)	
Group size	≤ 25	
Course duration	7 weeks	
Credits	6 ECTS	
Workload	Presence: 21h Self-study: 54h	Total: 75h
Contents/primary topics	• Sustainable development • Wicked problems and systems thinking • Futures and utopia/visions	
Main course objectives	• Getting familiar with the field of scenario development and future studies; develop visions/scenarios of respective futures, evaluate and implement them in line with sustainable development and considering our current social/environmental challenges • Reflecting on own learning experience and the creative and strategic solutions development process of the group to enhance one's futures literacy • Applying creativity techniques for brainstorming and ideation/prototyping	
Main teaching approaches	• Active learning • Experiential learning • Collaborative learning	
Main teaching methods	• Group discussion • Vision-building exercises • Self-reflection tasks/exercises	
Learning environment	Hybrid classroom (face-to-face and online learning)	

Link to Sustainable Development Goals (SDGs)	Students may select those that are most relevant for their sectors. SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 5–2

Impact assessment:	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students are working on their business sector visions/futures during each of the sessions
2. Degree of student collaboration / group work	High	Students are working in a team of 2–3 students on their own business sector visions throughout the whole course, thus are continuously engaged in group discussions
3. Degree of student emotional involvement	Medium	Through the journaling exercises after each session, students are reflecting on what they have learned and articulate their own emotional stands regarding selected sustainability-related issues
4. Degree of inter-/transdisciplinarity	Medium	The idea of this course is to combine future studies and management education, which is deepened in selected workshops
5. Degree of student (self-) reflection	High	Students write a reflective journal about how their chosen sector solutions changed after each session. However, the respective journaling questions could also be answered in a more personal way if preferred
6. Degree of experience of real-life situations	Low	Besides the two workshops involving improv theatre and LEGO® Serious Play®, the students are only exposed to exercises and theoretical reading assignments
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Medium	Students are invited to conduct interviews with representatives of one stakeholder group to enrich their sector futures
9. Degree of integration between theory and practice	High	Besides providing brief lecture and theory input, the course consists of many direct application opportunities of that theory

5.2. COURSE INTRODUCTION

The innovative nature of the submission is related to the unique combination of the discipline of future studies (Miller, 2018c) and its application to sustainability/sustainable management within the broader field of management education. Against the backdrop of VUCA (volatility, uncertainty, complexity, and ambiguity) and BANI (brittle, anxious, non-linear, incomprehensible) environments, students need to learn about adequate methods, skills, and competencies to deal with the complexity and uncertainty that characterize wicked problems (Crowley & Head, 2017). In this course, students follow the journey of the different future workshop ("Zukunftswerkstatt" in German) phases (preparation, critique, visioning, and implementation phase) (Jungk & Müllert, 1997). Along with these phases, they are invited to develop the respective futures for their assigned

business sector (e.g., tourism, fashion, mobility, etc.). Navigating through these phases provides students with ideas to create compelling narratives for sustainable business development by learning about and experiencing selected exercises reaching from trends analysis, foresight, and scenario planning to backcasting and prototyping. In addition to sharing these exercises in the usual classroom setting, students will also engage in two improv and LEGO® Serious Play® workshops. This procedure enables students to go beyond critically reflecting the status quo of various industries by exploring different visions of these and working towards implementing respective futures.

Currently, the future studies methodology is primarily used in scenario planning as a strategic management tool. However, anticipation (Miller et al., 2018; Poli, 2019), as well as futures literacy and its application (Bergheim, 2018; Miller, 2015, 2018a, 2018b) go beyond that by "exploring and developing creative, novel and inclusive solutions," as indicated by Sardar (2010, p. 180), broadening its application potential. Additionally, the future workshop methodology can be applied to management education and beyond since it can be adjusted to different disciplines, educational levels, and country contexts.

5.3. LEARNING OBJECTIVES

Table 5–3

Learning objective dimension (UNESCO, 2017)	**Operationalization**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Understanding current social, environmental, and economic developments and its interlinkages	Systems thinking competency
	Understanding the connection between sustainable development, SDGs, and business	Systems thinking competency
	Evaluating business sectors in regard to current global challenges	Strategic competency
	Familiarising oneself with the field of scenario development and future studies	Anticipatory competency
	Developing scenarios/visions of desirable and/or potential futures, evaluating, and using them in strategic decision making	Anticipatory competency

Learning objective dimension (UNESCO, 2017)	**Operationalization**	**Competency referred to (Rieckmann, 2018)**
Socio-emotional	Reflecting on one's learning experience and the creative and strategic solution development process of the group/ class	Self-awareness competency
	Increasing collaboration skills through group work	Collaboration competency
	Fostering futures literacy ("futures literacy empowers the imagination, enhances our ability to prepare, recover and invent as changes occur" (UNESCO, 2021))	Anticipatory competency
Behavioural	Applying creativity techniques for brainstorming and ideation/prototyping	Integrated problem-solving competency
	Fostering communication skills through group work, presentations, and reflective journal writing	Collaboration competency/Critical thinking competency

5.4. COURSE OUTLINE

Table 5–4

Structure		**Session Focus**	**Homework**
Preparation Phase	Week 1*	Course introduction, Intro to future studies, Administrative details, Team formation	Students can meet with their team for a fun activity to get to know each other better. They can start by defining values for working together and write down team rules. Students are tasked to pick an industry and communicate it via teams within one week. Students are asked to read the following texts to prepare for the "critique phase." • Bregman, R. (2017). *Utopia for Realists*: *And How We Can Get There*. Bloomsbury. [Chapter 1: The Return of Utopia] • Gidley, J. (2017). *The Future. A Very Short Introduction.* Oxford University Press. [Chapter 6: Grand global futures challenges] For the journaling exercise, students should reflect on the content of week 1 by sharing their thoughts on the following questions: • What might be done in your context to pay attention to *different* futures? • Are they as *diverse* as they could be? • How might you explore or communicate the future(s) to which you are attending in greater *depth*?

Structure		Session Focus	Homework
Critique Phase	Week 2*	Grand challenges, VUCA/ BANI world, Wicked problems, Megatrend, Systems Thinking, SDGs, Systems Mapping, Utopias	Students should read the texts to prepare for the "critique phase." • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. [Chapter 5: New Figures for a New Era] • *Miller, R. (Ed.). (2018). Transforming the Future: Anticipation in the 21st Century.* UNESCO Publishing; Routledge Taylor & Francis Group. [Chapter 4: Futures Literacy Laboratories (FLL) in practice] Students should narrow down their choice of critical issues they want to focus on with their group and formulate a question they want to explore in the future. How would their most desired and positive future feel/look like? Students should identify an expert (e.g., business professional or academic) from the sector they are working on. If needed, they should schedule an interview with them within the next weeks. This interview content might help to narrow down their choice of critical issues they want to focus on. For their journaling contemplation, they should reflect on the content of week two by answering the following questions: • Which exercises helped you to inform and develop your model further? How? What were the challenges you encountered? • How did your personal experiences and worldviews/beliefs play a role here?
Visioning Phase	Week 3*	Express and explore your utopia through creative means (improv theatre workshop with trainer)	For students' journaling exercise, they should reflect on the content of week 3 (tasks students carried out during the improv workshop) and/or on the following readings: • Kaku, M. (2012). *Physics of the Future. How science will shape human destiny and our daily lives by the year 2100.* [Chapter 9: A Day in the Life in 2100] • Zeddies, L. (2021). *Utopia 2048* [Chapter: Epilogue and Afterword (pp. 274–283)] They should also share their thoughts on the following questions (1–2 pages): • What could be a potential day in the life in 2100 that you can imagine for your industry/sector? • Like the Epilogue in Utopia 2048, what would be a relict or item of the past that you could imagine as a symbol of your industry/sector to be exhibited at the "Museum of Big History"?

Structure		Session Focus	Homework
	Week 4*	Businesses and the future, Utopias and future(s) research, scenario development, foresight, gamification	Students should have a look at some scenarios or foresight reports of their industry. How are these able to help develop their future scenario? How can the data provided in these reports allow them to construct their scenario/vision? Students should read the following texts to prepare for the "critique phase." • Miller, R., Poli, R., & Rossel, P. (2018). The Discipline of Anticipation: Foundations for Futures Literacy. In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st century* (pp. 51–65). UNESCO Publishing; Routledge Taylor & Francis Group. • Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, 10(1), 4–21. For their journaling exercise, they need to reflect on the content of week 4 by sharing their thoughts on the following questions: • What do your desirable future(s) look like for your industry, and how can this help guide and initiate transformation? • How have the gamified elements of today's session helped you explore new futures/scenarios/utopias?
Implementation Phase	Week 5*	Utopias and transformation, transformation theories, path congruence, extrapolation, retropolation, backcasting, prototyping	Students should read the following texts to prepare for the "implementation phase." • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There. Bloomsbury.* [Chapter 9 & 10, pp. 203–250] • Göpel, M. (2016). *The Great mindshift: How a new economic paradigm and sustainability transformations go hand in hand.* The Anthropocene: Volume 2. Springer Open. [Chapter 5, pp. 149–168] For their journaling exercise, they should reflect on the content of week 5 by sharing their thoughts on the following questions: • If you would transfer the principles of your utopia to the present, how would you behave in your industry? How have the exercises helped? Please write a future manifesto. Imagine being a player in the industry/sector you are working on. • Which transformation theories can best be applied to your utopia/scenario? How can they help to facilitate the realization/implementation of it?

Structure		Session Focus	Homework
Implementation Phase	Week 6*	Prototyping your scenario/solution with Lego® Serious Play® (LSP workshop with external facilitator)	For their journaling exercise, they need to reflect on the content of week 6 (tasks and activities they carried out during class), and share their thoughts on the following questions (1–2 pages): • What can methods such as Lego Serious Play add to the development of sector scenarios/visions (in general terms and specifically for your scenario/vision)? • In which phases of the process do you find the LSP method particularly useful? Conversely, during which phases do you think it could be problematic or not helpful? Why? • How did the problem reversal/inversion technique (*Kopfstandmethode*) help you to shape your scenario?
	Week 7*	Debrief and Final Presentations	

*Note: The sessions should be scheduled in a biweekly manner, with an average duration of 180mins.

5.5. TEACHING APPROACHES AND METHODS

Although the call for an integration of future-oriented education (Rieckmann, 2012) to improve and challenge the university environment (Conway, 2019, 2020) was made a couple of years ago, there is still some room for improvement. Furthermore, future-oriented competence (i.e., anticipatory competency) has also been mentioned as one of the key competences for sustainability (Rieckmann, 2018; UNESCO, 2017). Thus, combining future studies and sustainable development in management education addresses this blind spot in higher education.

The course outline of the teaching format was structured along with the phases of the future workshop ("Zukunftswerkstatt") method (Jungk & Müllert, 1997): Preparation-, Critique-, Visioning-, and Implementation- Phase. The Preparation Phase is used to get to know each other, set the scene, and form the working groups. In the Critique Phase, students learn about the status quo and business challenges (e.g., using the SDGs as a framework). Based on these trends and challenges, the Visioning and Implementation Phase provides them with many tools to jointly develop and implement their future scenarios by integrating workshop elements such as LEGO® Serious Play® and improv theatre. Active, experiential, and collaborative learning were facilitated based on the aforementioned future workshop methodology. These are achieved through group settings, joint exercises, weekly reading assignments, and a reflective journal. To introduce the basic tenets of the course and respective exercises,

lecture-based learning elements are used in addition to active and creative learning students experienced during the various activities and workshops.

The following three teaching approaches were used as the main components: Experiential learning was mainly addressed through the two workshops, LEGO® Serious Play® and improv theatre, during which students could physically engage and elaborate on their sector visions and scenarios (Bevan & Kipka, 2012; Eckhaus et al., 2017; Kayes, 2002; Kolb & Kolb, 2017; Lidón et al., 2011; Reynolds, 2009; Savage et al., 2015). Furthermore, by assigning students to the different teams and sectors, collaborative learning and interaction was ensured to accomplish implicit or explicit shared and individual learning tasks and goals (Hei et al., 2015; Laal & Laal, 2012; Meijer et al., 2020; Strijbos & Fischer, 2007; van der Linden et al., 2000), on-campus as well as online via collaborative tools (Al-Samarraie & Saeed, 2018; Strauß & Rummel, 2020). Furthermore, through exercises, student activity and engagement were high, which ensured active learning that can go beyond the explanations of the course instructor (Bernstein, 2018; Børte et al., 2020; Claro & Esteves, 2021; MacVaugh & Norton, 2012; Prince, 2004).

As part of the teaching methods applied in the future workshop phases, trends analyses, foresight approaches (Foresight Futures, 2021; GCPSE & UNDP, 2018; Hines & Bishop, 2013; Hines & Slaughter, 2015; National Intelligence Council & Office of the Director of National Intelligence; Popper, 2008), and tools (Watson, 2021) can be used during the critique phase to familiarize oneself with the current status quo or near future. Building on this knowledge, the visioning phase introduces students to scenario development exercises, utopian/dystopian storytelling, science-fiction thinking, forecasting, and backcasting. These methods aim at envisioning possible, probable, or preferable futures, meant to address complex issues or wicked problems of our time.

Scenario development and analysis is the process of building scenarios, comparing them, and evaluating their expected consequences (Alcamo, 2008; Bishop et al., 2007), sometimes combined with other approaches, such as causal layered analysis (CLA) (Inayatullah, 2008). Building different scenarios (most commonly used in the 2x2 form) has also found its way into the sustainability discussion, ranging from current climate or sustainable development research (Butler et al., 2016; Kuhnhenn et al., 2020) to consultancy reports (Arup, 2019; Zuehlke et al., 2020).

Storytelling and building narratives can change organizational dynamics (Boje, 2011; Geiger & Antonacopoulou, 2009; Gersie, 2015). Thus, both narratives, utopian (Bregman, 2017; Zeddies, 2021) and dystopian storytelling, can help to critically explore real problems the world (including sectors and organizations) is facing during the critique and visioning phases. However, course instructors need to be careful with the amount of dystopian storytelling

they apply to the class since it may leave the reader no hope of escape from the unpleasant realities (Jameson, 2005) and thus limits visioning capabilities. Besides utopian and dystopian storytelling, science-fiction-related reading assignments can help to explore and envision different futures (Bina et al., 2017; Rajaniemi & Weisman, 2019; Zaidi, 2017) or engage in worldbuilding (McDowell, 2019; Zaidi, 2019). One of these (sustainable) future narratives is called "solarpunk" (Razaghi, 2019; Reina-Rozo, 2021; Williams, 2019).

During the visioning (and implementation) phase, forecasting and backcasting are methods of planning that can be useful. Whereas forecasting deals with predicting most likely futures based on specific trends, backcasting is concerned with how desirable futures can be created (Bengston et al., 2020; Bibri, 2018; Ebert et al., 2009; Phdungsilp, 2011; Robinson, 2003; Schuck et al., 2018; Vergragt & Quist, 2011).

Gamification, model building, or prototyping can also be applied during the visioning and implementation phases. There are various possibilities to apply this methodology to the field of future studies (Inayatullah, 2017), e.g., The Thing of the Future, Polak Game, Sarkar Game (Candy, 2018; Hayward & Candy, 2017; Inayatullah, 2013), and other board, card, or online games. In addition to applying some of these games throughout the visioning phase, LEGO® Serious Play® (LSP) was used in a workshop setting to increase creativity and facilitate prototyping in a co-creative way (Dann, 2018; Feng, 2020). Students were able to build different visions (Grienitz & Schmidt, 2012), and thus LSP facilitated learning development through kinesthetic means (James, 2013; Kristiansen & Rasmussen, 2014; McCusker, 2014; Peabody & Noyes, 2017; Roos & Victor, 2018).

In addition to the teaching methods used during the future workshop phases, group discussions were fostered through various exercises during which students had the opportunity to work on their respective sector visions. After each session, journaling questions facilitated self-reflection, providing opportunities for students to reflect on, e.g., personal roles, attitudes, and responsibilities related to a range of sustainability issues (Cotton & Winter, 2010; Winter et al., 2015).

5.6. EXERCISES

The exercises described below provide only a selection. More exercises will be available upon request from the author.

Exploring Mega Trends

This exercise can be used during the critique phase and the main goal of the exercise is to familiarise oneself with current trends/risks and applying them to a respective business sector.

Students are asked to explore the "Mega Trends and Technologies 2017–2050" map by Richard Watson (see link below). They are invited to discuss which trends/risks influence the respective industry/sector they picked in their group. Which powerful question can students ask to narrow down on their future scenario for the industry/sector? Students can find the map via this link: https://nowandnext.com/thinking-tools/

Systems Mapping – Stakeholder Mapping

This exercise can be used during the critique phase (or implementation phase) and the main goal of the exercise is to understand which stakeholders are relevant.

Students are tasked to map stakeholders within their (business sector) system. Students should think about their…

- Values: What do they believe stakeholders care about? What do they believe is important to the stakeholders?
- Loyalties: Whose position might stakeholders feel is important not to go against and why? Who do stakeholders have a close relationship with, or history, that they would not want to upset?
- Tensions/Losses: What do students believe could make stakeholders tense or uncomfortable? Is there something stakeholders would lose or have to give up? What might it be?

Scenario Development (Four Scenarios)

This exercise can be used during the visioning phase and the main goal of the exercise is to develop four scenarios and discussing respective (un)desirable futures.

- Students can decide whether they want to go for adaptive or transformative scenario planning.

- They should think about the uncertainty and strength aspects of the drivers of transformation. Which ones would they select for their industry? Students are asked to write them down once they have decided and add them to the y-/x-axes in the digital collaboration tool.
- To design each quadrant, students may select images that symbolise each aspect and/or use post-its to write down the most important aspects they discussed for each of the four scenarios.

Futures Wheel

This exercise can be used during the implementation phase and the main goal of the exercise is to explore some "what if" scenarios which match to respective sectors.[6]

Students are asked to complete one or more Futures Wheel(s) about a "What if"? from their topic.

1. Students start with the "What if"? questions they chose. They can ask themselves what might happen next. Then, working with their group, they are asked to come up with 3–4 possible consequences and write each one in a bubble that connects to the centre.
2. Then they should ask themselves what happens due to the first set of consequences? Students should write those consequences in another layer of bubbles.
3. They should continue until they have at least four layers of consequences. Students should remember to add positive and negative consequences in one branch and write – or + and the related STEEP category next to each bubble to check.
4. Students should choose the consequences they think are most interesting or represent the biggest change from the future they originally imagined.

Backcasting

This exercise can be used during the implementation phase and the main goal of the exercise is to identify steps to realise your future.

6 Instructors can have a look at the following references for examples and further insights: King, K., & West, J. R. (2018). *Futures Thinking Playbook*. https://issuu.com/wtforesight/docs/futuresthinkingplaybook-final (page 100f.) – an example is illustrated on page 103; Bengston, D. N., Westphal, L. M., & Dockry, M. J. (2020). Back from the Future: The Backcasting Wheel for Mapping a Pathway to a Preferred Future. *World Futures Review*, 12(3), 270–278. https://doi.org/10.1177/1946756720929724

Backcasting is a method for planning the actions necessary to reach desired future goals. This method is often applied in a workshop format with stakeholders participating.[7]

- Students are invited to list down their long-term goals. They should think of a time frame between 1 and 20 years.
- Students should work backward to figure out the necessary actions to achieve the long-term goal step by step.
- Students can collect insights over difficulties that might be encountered, steps that need to be taken, and resources needed to achieve the goal.

5.7. ASSESSMENT

The course assessment is divided into a media output (70 %, group grade) and a reflective journal (30 %, individual grade).

Students are invited to choose one of the following media formats to present their final vision/future for their chosen sector:

- Video (8–10 minutes)
- Podcast (25–30 minutes)
- Blog (8–10 content elements, approx. length of 3,000 words per group member)

Additionally, after each session, students will receive guiding questions which will compose their reflective journal. They are asked to write 1–2 pages after each session, a total of min. 3000 words. The respective questions have been added to the course outline table above.

As students' visions of respective sector futures are neither right nor wrong (since nobody can predict the future), course instructors are encouraged to grade the execution (i.e., storytelling, depth of details elaborated on in the reflective journal and consideration given to respective course elements/readings/exercises) of both outputs rather than the sector visions themselves.

7 Students can have a look at the following papers for application examples: Robinson, J. (2003). Future subjunctive: backcasting as social learning. *Futures*, 35(8), 839–856; Phdungsilp, A. (2011). Futures studies' backcasting method used for strategic sustainable city planning. *Futures*, 43(7), 707–714.

5.8. PREREQUISITES

Required prior knowledge from students:

- Basics of sustainable development/sustainable management

Required instructors and their core competencies:

- Lecturer (competences: sustainability/sustainable development and future studies training)
- Acting/drama coach (competences: improv theatre-based teaching)
- LEGO® Serious Play® coach (competences: LSP methodology)

Required tools:

- Online communication and collaboration platforms (e.g., Zoom, Moodle, and Miro board)
- Video/Audio editing tools (freeware)

5.9. RECOMMENDED RESOURCES

The recommended resources listed below provide only a selection. More resources will be available upon request from the author.

Table 5–5

Topic	Resources
Preparation phase	• Nandy, A. (1996). Bearing witness to the future. *Futures*, 28(6–7), 636–639. https://doi.org/10.1016/0016-3287(96)84465-X • Addis, D. R., Wong, A. T., & Schacter, D. L. (2007). Remembering the past and imagining the future: Common and distinct neural substrates during event construction and elaboration. *Neuropsychologia*, *45*(7), 1363–1377. https://doi.org/10.1016/j.neuropsychologia.2006.10.016 • Candy, S., & Dunagan, J. F. (2016). The Experiential Turn. *Human Futures*, 26–29. • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. (Chapter 1) • Gidley, J. (2017). *The Future: A Very Short Introduction* (First edition). *Very short introductions: Vol. 516*. Oxford University Press. (Chapter 6)

Topic	Resources
Critique phase	• Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155 169. • Crowley, K., & Head, B. W. (2017). The enduring challenge of 'wicked problems': Revisiting Rittel and Webber. *Policy Sciences*, 50(4), 539–547. Steffen, W., Broadgate, W., Deutsch, L., Gaffney, O., & Ludwig, C. (2015). The trajectory of the Anthropocene: The Great Acceleration. *The Anthropocene Review*, *2*(1), 81–98. https://doi.org/10.1177/2053019614564785 (data dashboard: http://www.igbp.net/news/pressreleases/pressreleases/planetarydashboardshowsgreataccelerationinhumanactivitysince1950.5.950c2fa1495db7081eb42.html) • Bergheim (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 6) • Sachs, J. D. and Sachs, L. E. (2021). Business Alignment for the Decade of Action. *Journal of International Business Policy*, 4, 22–27. • Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 11) • Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 9) • Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 10) • Harari, Y. N. (2015). *Sapiens: A Brief History of Humankind*. Harper. • Harari, Y. N. (2016). *Homo Deus: A Brief History of Tomorrow*. Harvill Secker. • Harari, Y. N. (2019). *21 Lessons for the 21st Century*. Vintage. • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. (Chapter 5) • Miller, R. (2018). Futures Literacy Laboratories (FLL) in practice: An overview of key design and implementation issues. In R. Miller (Ed.), *Transforming the future: Anticipation in the 21st century* (pp. 95–109). Routledge Taylor & Francis Group.
Visioning phase	• Kaku, M. (2012). *Physics of the Future: How science will shape human destiny and our daily lives by the year 2100*. Anchor Books. (Chapter 9) • Zeddies, L. (2021). *Utopia 2048*. (Chapter: Epilogue and Afterword (pp. 274–283)) • Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 7) • Butler, J., Bohensky, E. L., Suadnya, W., Yanuartati, Y., Handayani, T., Habibi, P., Puspadi, K., Skewes, T. D., Wise, R. M., Suharto, I., Park, S. E., & Sutaryono, Y. (2016). Scenario planning to leapfrog the Sustainable Development Goals: An adaptation pathways approach. *Climate Risk Management*, 12, 83–99. https://doi.org/10.1016/j.crm.2015.11.003 • Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 8) • Cooperrider, D. L., & Whitney, D. K. (2005). *Appreciative Inquiry: A Positive Revolution in Change*. Berrett-Koehler. • Hayward, P., & Candy, S. (2017). The Polak Game, or: Where do you stand? *Journal of Futures Studies*, 22(2), 5 14. • Inayatullah, S. (2013). Using Gaming to Understand the Patterns of the Future. The Sarkar Game in Action. *Journal of Futures Studies*, 18(1), 1–12. • Candy, S. (2018). Gaming Futures Literacy: The Thing from the Future. In R. Miller (Ed.), *Transforming the future: Anticipation in the 21st century*. Routledge Taylor & Francis Group. • Miller, R., Poli, R., & Rossel, P. (2018). The Discipline of Anticipation: Foundations for Futures Literacy. In R. Miller (Ed.), *Transforming the future: Anticipation in the 21st century* (pp. 51–65). Routledge Taylor & Francis Group. • Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, 10(1), 4–21.

Topic	Resources
Implementation phase	• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 10) • Bengston, D. N., Westphal, L. M., & Dockry, M. J. (2020). Back from the Future: The Backcasting Wheel for Mapping a Pathway to a Preferred Future. *World Futures Review*, 12(3), 270–278. https://doi.org/10.1177/1946756720929724 • King, K., & West, J. R. (2018). *Futures Thinking Playbook*. Teach the Future. https://issuu.com/wtforesight/docs/futuresthinkingplaybook-final • Folke, C. et al. (2021). Our future in the Anthropocene biosphere. *Ambio*, 50(4), 834–869. https://doi.org/10.1007/s13280-021-01544-8 • Göpel, M. (2016). *The Great mindshift: How a new economic paradigm and sustainability transformations go hand in hand. The Anthropocene*: Volume 2. Springer Open. https://doi.org/10.1007/978-3-319-43766-8 • Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. *Environmental Innovation and Societal Transitions*, 1(1), 24–40. https://doi.org/10.1016/j.eist.2011.02.002 • Ebert, J. E. J., Gilbert, D. T., & Wilson, T. D. (2009). Forecasting and backcasting: Predicting the impact of events on the future. *Journal of Consumer Research*, 36(3), 353 366. • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There.* Bloomsbury. (Chapter 9 & 10) • Phdungsilp, A. (2011). Futures studies' backcasting method used for strategic sustainable city planning. *Futures*, 43(7), 707–714.

5.10. GENERAL TIPS FOR TEACHERS

Course instructors are requested to resume the role of a learning facilitator rather than a lecturer. Additionally, as futures are open to variety, they are also encouraged not to limit the exploration of respective futures at the beginning. However, they are invited to help students narrow their ideas at a later stage. The name/title of the course (formerly: "Future Scenarios for Sustainable Business Solutions", changed to: "Sustainable Futures of Business") needs to be carefully chosen as instructors may want to attract a broader audience (e.g., maybe even an audience not yet interested in the topic of sustainability) and account for the fact that futures are open and that e.g., sustainability itself offers more of a normative standpoint, which might limit students' visioning.

REFERENCES

Alcamo, J. (2008). *Environmental futures: the practice of environmental scenario analysis*. Elsevier.

Al-Samarraie, H., & Saeed, N. (2018). A systematic review of cloud computing tools for collaborative learning: Opportunities and challenges to the blended-learning environment. *Computers & Education*, *124*, 77–91. https://doi.org/10.1016/j.compedu.2018.05.016

Arup. (2019). *Four plausible futures: 2050 scenarios*. https://www.arup.com/perspectives/publications/research/section/2050-scenarios-four-plausible-futures

Bengston, D. N., Westphal, L. M., & Dockry, M. J. (2020). Back from the Future: The Backcasting Wheel for Mapping a Pathway to a Preferred Future. *World Futures Review*, *12*(3), 270–278. https://doi.org/10.1177/1946756720929724

Bergheim, S. (2018). An extended Futures Literacy process: Design lessons from measuring well-being. In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st Century* (pp. 247–256). UNESCO Publishing; Routledge Taylor & Francis Group.

Bernstein, D. A. (2018). Does active learning work? A good question, but not the right one. *Scholarship of Teaching and Learning in Psychology*, *4*(4), 290–307. https://doi.org/10.1037/stl0000124

Bevan, D., & Kipka, C. (2012). Experiential learning and management education. *Journal of Management Development*, *31*(3), 193–197. https://doi.org/10.1108/02621711211208943

Bibri, S. E. (2018). Backcasting in futures studies: a synthesized scholarly and planning approach to strategic smart sustainable city development. *European Journal of Futures Research*, *6*(13), 1–27. https://doi.org/10.1186/s40309-018-0142-z

Bina, O., Mateus, S., Pereira, L., & Caffa, A. (2017). The future imagined: Exploring fiction as a means of reflecting on today's Grand Societal Challenges and tomorrow's options. *Futures*, *86*, 166–184. https://doi.org/10.1016/j.futures.2016.05.009

Bishop, P., Hines, A., & Collins, T. (2007). The current state of scenario development: An overview of techniques. *Foresight*, *9*(1), 5–25. https://doi.org/10.1108/14636680710727516

Boje, D. M. (Ed.). (2011). *Storytelling and the future of organizations: An Antenarrative book*. Routledge.

Børte, K., Nesje, K., & Lillejord, S. (2020). Barriers to student active learning in higher education. *Teaching in Higher Education*, 1–19. https://doi.org/10.1080/13562517.2020.1839746

Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury.

Butler, J., Bohensky, E. L., Suadnya, W., Yanuartati, Y., Handayani, T., Habibi, P., Puspadi, K., Skewes, T. D., Wise, R. M., Suharto, I., Park, S. E., & Sutaryono, Y. (2016). Scenario planning to leap-frog the Sustainable Development Goals: An adaptation pathways approach. *Climate Risk Management*, *12*, 83–99. https://doi.org/10.1016/j.crm.2015.11.003

Candy, S. (2018). Gaming Futures Literacy: The Thing from the Future. In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st Century.* UNESCO Publishing; Routledge Taylor & Francis Group.

Claro, P. B., & Esteves, N. R. (2021). Teaching sustainability-oriented capabilities using active learning approach. *International Journal of Sustainability in Higher Education*, *22*(6), 1246–1265. https://doi.org/10.1108/IJSHE-07-2020-0263

Conway, M. (2019). Contested ideas and possible futures for the university. *On the Horizon*, *28*(1), 22–32. https://doi.org/10.1108/OTH-10-2019-0070

Conway, M. (2020). Editorial: Special Issue on Imagining Possible Futures for the University. *World Futures Review*, *12*(4), 307–310. https://doi.org/10.1177/0047281620979089

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 (Eds.), *Sustainability Education: Perspectives and Practice across Higher Education* (pp. 39–54). Taylor & Francis.

Crowley, K., & Head, B. W. (2017). The enduring challenge of 'wicked problems': revisiting Rittel and Webber. *Policy Sciences*, *50*(4), 539–547. https://doi.org/10.1007/s11077-017-9302-4

Dann, S. (2018). Facilitating Co-Creation Experience in the Classroom with Lego Serious Play. *Australasian Marketing Journal*, *26*(2), 121–131. https://doi.org/10.1016/j.ausmj.2018.05.013

Ebert, J. E. J., Gilbert, D. T., & Wilson, T. D. (2009). Forecasting and Backcasting: Predicting the Impact of Events on the Future. *Journal of Consumer Research*, *36*(3), 353–366. https://doi.org/10.1086/598793

Eckhaus, E., Klein, G., & Kantor, J. (2017). Experiential learning in management education. *Business, Management and Economics Engineering*, *15*(1), 42–56.

Feng, J. B. (2020). Integrate LEGO® Serious Play® for Collective Creativity. *Entrepreneur & Innovation Exchange.* Advance online publication. https://doi.org/10.32617/523-5f0c4ea4569ee

Foresight Futures. (2021, December 21). *Maree Conway — Foresight Futures*. https://foresightfutures.net/about/maree-conway

GCPSE, & UNDP. (2018). *Foresight Manual: Empowered Futures for the 2030 Agenda*. UNDP Global Centre for Public Service Excellence.

Geiger, D., & Antonacopoulou, E. (2009). Narratives and Organizational Dynamics. *The Journal of Applied Behavioral Science*, *45*(3), 411–436. https://doi.org/10.1177/0021886309336402

Gersie, A. (2015). *Storytelling for a Greener World*. Hawthorn Press.

Grienitz, V., & Schmidt, A.-M. (2012). Scenario workshops for strategic management with Lego® Serious Play®. *Problems of Management in the 21st Century*, *3*(1), 26–36. https://doi.org/10.33225/pmc/12.03.26

Hayward, P., & Candy, S. (2017). The Polak Game, or: Where do you stand? *Journal of Futures Studies*, *22*(2), 5–14.

Hei, M. S. A. de, Strijbos, J.-W., Sjoer, E., & Admiraal, W. (2015). Collaborative learning in higher education: Lecturers' practices and beliefs. *Research Papers in Education*, *30*(2), 232–247. https://doi.org/10.1080/02671522.2014.908407

Hines, A., & Bishop, P. C. (2013). Framework foresight: Exploring futures the Houston way. *Futures*, *51*, 31–49. https://doi.org/10.1016/j.futures.2013.05.002

Hines, A., & Slaughter, R. (2015). *Thinking About the Future: Guidelines for Strategic Foresight* (2nd edition). Hinesight.

Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, *10*(1), 4–21.

Inayatullah, S. (2013). Using Gaming to Understand the Patterns of the Future – The Sarkar Game in Action. *Journal of Futures Studies*, *18*(1), 1–12.

Inayatullah, S. (2017). Gaming, Ways of Knowing, and Futures. *Journal of Futures Studies*, *22*(2), 101–106.

James, A. R. (2013). Lego Serious Play: A three-dimensional approach to learning development. *Journal of Learning Development in Higher Education.* Advance online publication. https://doi.org/10.47408/jldhe.v0i6.208

Jameson, F. (2005). *Archaeologies of the Future: The Desire Called Utopia and Other Science Fictions*. Verso.

Jungk, R., & Müllert, N. R. (1997). *Zukunftswerkstätten: Mit Phantasie gegen Routine und Resignation* (Überarb. und aktualisierte Neuausg., 6. Aufl.). *Heyne-Bücher 19, Heyne-Sachbuch: Vol. 73*. Heyne.

Kayes, D. C. (2002). Experiential learning and its critics: Preserving the role of experience in management learning and education. *Academy of Management Learning & Education*, *1*(2), 137–149.

Kolb, A. Y., & Kolb, D. A. (2017). Experiential Learning in Management Education. *Business, Management and Education*, *15*(1), 42–56.

Kristiansen, P., & Rasmussen, R. (2014). *Building a Better Business Using the Lego® Serious Play® Method*. Wiley. https://doi.org/Robert

Kuhnhenn, K., Costa, L., Mahnke, E., Schneider, L., & Lange, S. (2020). *A Societal Transformation Scenario for Staying Below 1.5°C.*

Laal, M [Marjan], & Laal, M [Mozhgan] (2012). Collaborative learning: What is it? *Procedia – Social and Behavioral Sciences*, *31*, 491–495. https://doi.org/10.1016/j.sbspro.2011.12.092

Lidón, I., Rebollar, R., & Møller, C. (2011). A collaborative learning environment for management education based on experiential learning. *Innovations in Education and Teaching International*, *48*(3), 301–312. https://doi.org/10.1080/14703297.2011.593706

MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, *13*(1), 72–87. https://doi.org/10.1108/14676371211190326

McCusker, S. (2014). Lego®, Serious Play TM: Thinking About Teaching and Learning. *International Journal of Knowledge, Innovation and Entrepreneurship*, *2*(1), 27–37. http://nrl.northumbria.ac.uk/id/eprint/32497/1/ijkie_august2014_sean%20mccuskerv3.pdf

McDowell, A. (2019). Storytelling Shapes the Future. *Journal of Futures Studies*, *23*(3), 105–112.

Meijer, H., Hoekstra, R., Brouwer, J., & Strijbos, J.-W. (2020). Unfolding collaborative learning assessment literacy: A reflection on current assessment methods in higher education. *Assessment & Evaluation in Higher Education*, *45*(8), 1222–1240. https://doi.org/10.1080/02602938.2020.1729696

Miller, R. (2015). Learning, the Future, and Complexity. An Essay on the Emergence of Futures Literacy. *European Journal of Education*, *50*(4), 513–523. https://doi.org/10.1111/ejed.12157

Miller, R. (2018a). Futures Literacy Laboratories (FLL) in practice: An overview of key design and implementation issues. In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st Century* (pp. 95–109). UNESCO Publishing; Routledge Taylor & Francis Group.

Miller, R. (2018b). Sensing and making-sense of Futures Literacy: Towards a Futures Literacy Framework (FLF). In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st Century* (15–50). UNESCO Publishing; Routledge Taylor & Francis Group.

Miller, R. (Ed.). (2018c). *Transforming the Future: Anticipation in the 21st Century*. UNESCO Publishing; Routledge Taylor & Francis Group. https://doi.org/10.4324/9781351048002

Miller, R., Poli, R., & Rossel, P. (2018). The Discipline of Anticipation: Foundations for Futures Literacy. In R. Miller (Ed.), *Transforming the Future: Anticipation in the 21st Century* (pp. 51–65). UNESCO Publishing; Routledge Taylor & Francis Group.

National Intelligence Council, & Office of the Director of National Intelligence. Global Trends 2040: A More Contested World.

Peabody, M. A., & Noyes, S. (2017). Reflective boot camp: Adapting LEGO® SERIOUS PLAY® in higher education. *Reflective Practice*, *18*(2), 232–243.

Phdungsilp, A. (2011). Futures studies' backcasting method used for strategic sustainable city planning. *Futures*, *43*(7), 707–714.

Poli, R. (2019). Introducing Anticipation. In R. Poli (Ed.), *Springer eBook Collection. book of Anticipation: Theoretical and Applied Aspects of the Use of Future in Decision Making* (pp. 1–14). Springer. https://doi.org/10.1007/978-3-319-31737-3_1-1

Popper, R. (2008). Foresight methodology. *The book of Technology Foresight*, 44–88.

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

Rajaniemi, H., & Weisman, J. (2019). *The New Voices of Science Fiction*. Tachyon Publications.

Razaghi, T. (2019). *Exploring Ecotopian Futures: Solarpunk Narratives and their Multifaceted Modes of Engagement.* Karl-Franzens-Universität Graz. http://unipub.uni-graz.at/obvugrhs/4508513

Reina-Rozo, J. D. (2021). Art, Energy and Technology: the Solarpunk Movement. *International Journal of Engineering, Social Justice, and Peace*, *8*(1), 55–68. https://doi.org/10.24908/ijesjp.v8i1.14292

Reynolds, M. (2009). Wild Frontiers—Reflections on Experiential Learning. *Management Learning*, *40*(4), 387–392. https://doi.org/10.1177/1350507609335848

Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures*, *44*(2), 127–135. https://doi.org/10.1016/j.futures.2011.09.005

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Robinson, J. (2003). Future subjunctive: backcasting as social learning. *Futures*, *35*(8), 839–856.

Roos, J., & Victor, B. (2018). How It All Began: The Origins Of LEGO® Serious Play®. *International Journal of Management and Applied Research*, *5*(4), 326–343.

Sardar, Z. (2010). The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name? *Futures*, *42*(3), 177–184. https://doi.org/10.1016/j.futures.2009.11.001

Savage, E., Tapics, T., Evarts, J., Wilson, J., & Tirone, S. (2015). Experiential learning for sustainability leadership in higher education. *International Journal of Sustainability in Higher Education*, *16*(5), 692–705. https://doi.org/10.1108/IJSHE-10-2013-0132

Schuck, S., Aubusson, P., Burden, K., & Brindley, S [Sue]. (2018). Backcasting: Testing the Feasibility of Alternative Futures. In S. Schuck, P. Aubusson, K. Burden, & S. Brindley (Eds.), *Uncertainty in teacher education futures: Scenarios, politics and STEM* (pp. 115–130). Springer. https://doi.org/10.1007/978-981-10-8246-7_8

Strauß, S., & Rummel, N. (2020). Promoting interaction in online distance education: Designing, implementing and supporting collaborative learning. *Information and Learning Sciences*, *121*(5/6), 251–260. https://doi.org/10.1108/ILS-04-2020-0090

Strijbos, J.-W., & Fischer, F. (2007). Methodological challenges for collaborative learning research. *Learning and Instruction*, *17*(4), 389–393. https://doi.org/10.1016/j.learninstruc.2007.03.004

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

van der Linden, J., Erkens, G., Schmidt, H., & Renshaw, P. (2000). Collaborative Learning. In R.-J. Simons, J. van der Linden, & T. Duffy (Eds.), *New Learning* (pp. 37–54). Springer, Dordrecht. https://doi.org/10.1007/0-306-47614-2_3

Vergragt, P. J., & Quist, J. (2011). *Backcasting for sustainability: Introduction to the special issue*. Elsevier.

Watson, R. (2021, August 23). *What's Next – Thinking tools*. https://nowandnext.com/thinking-tools/

Williams, R. (2019). 'This Shining Confluence of Magic and Technology': Solarpunk, Energy Imaginaries, and the Infrastructures of Solarity. *Open Library of Humanities*, *5*(1), Article 60. https://doi.org/10.16995/olh.329

Winter, J., Cotton, D., Hopkinson, P., & Grant, V. (2015). The university as a site for transformation around sustainability. *International Journal of Innovation and Sustainable Development*, *9*(3–4), 303–320.

Zaidi, L. (2017). *Building Brave New Worlds: Science Fiction and Transition Design*. Thesis for: Master of Design, Strategic Foresight and Innovation. OCAD University. http://openresearch.ocadu.ca/id/eprint/2123/

Zaidi, L. (2019). Worldbuilding in Science Fiction, Foresight, and Design. *Journal of Futures Studies*, *23*(4), 15–26.

Zeddies, L. (2021). *Utopia 2048*. https://www.utopia2048.com/

Zuehlke, H. M., Boehler, C., & Ermer, M. (2020). *Sustainarama – How sustainability will change the world in 2050*. Roland Berger GmbH.

Philipp Kenel & Diana Bank Weinberg[8]

Chapter 6. Interdisciplinary Teaching for Sustainability: "Doing Business Differently"

6.1. COURSE SUMMARY

Table 6–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	12 weeks	
Credits	15 ECTS (for the overall module)	
Workload	Presence: 180h Self-study: 195h	Total: 375h (for the overall module)
Contents/primary topics	• 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	
Main course objectives	• Educational: fostering a deep understanding of sustainable development and the role of business, as well as making a contribution to educating responsible leaders • Professional: broadening the students' perspectives regarding their job opportunities beyond the 'traditional' profit-oriented private sector (i.e. public sector, welfare associations, social enterprises, NPOs, NGOs, etc.) • Academic: engaging with different approaches and developing interdisciplinary thinking as well as preparing students for their Bachelor's thesis through independently writing a longer paper	
Main teaching approaches	• Inter-/Transdisciplinary learning • Lecture-based learning • Active learning	

8 *The authors deeply thank their colleagues at the Berlin School of Economics and Law who have been teaching this module with them, especially Claudia Gather, who had a pivotal role in initiating this module as well as Shai Hoffmann and Alexander Beck, who have been teaching by their side for most of the time.*

Main teaching methods	• Interdisciplinary team teaching • Lecture • Sustainability-related research project
Learning environment	Classroom (face-to-face learning) Beyond classroom (occasional field trips)
Link to Sustainable Development Goals	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns

Table 6–2

Impact assessment:	**(None) Low/Medium/High**	**Explanation**
1. Degree of student participation / activeness	High	Students are working on an independent research project during the semester and are engaging in extensive in-class discussions.
2. Degree of student collaboration / group work	Medium	Students are working on group assignments in and additionally out of class.
3. Degree of student emotional involvement	Medium	Students are formulating and expressing their emotional stands towards sustainability-related issues in class and confronting own positions with other perspectives in class.
4. Degree of inter-/transdisciplinarity	High	Students are working on an own research project where knowledge of several disciplines needs to be taken into account and combined. The module is taught by four to five lecturers of different academic and professional backgrounds.
5. Degree of student (self-) reflection	Medium	Students are reflecting on personal sustainability-related experiences in class and on their learning towards the end of the module.
6. Degree of experience of real-life situations	Medium	Students are working on case studies in class and are going on a field trip.
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Medium	Several guest lectures are invited throughout the semester. Students that choose to integrate an empirical part in their final assignment usually hold interviews with representatives of an organization or stakeholder group.

Impact assessment:	(None) Low/Medium/High	Explanation
9. Degree of integration between theory and practice	Medium	The module integrates short case studies and many practical examples. Several of the four to five lecturers are practitioners (not mainly working in academia). Depending on the choice of the students, the final assignment may have a practical focus.

6.2. COURSE INTRODUCTION

Societies worldwide are finally acknowledging the effects of climate change and of the multiple ecological crises of our times. The most essential foundations of human life on the planet are at risk, while, at the same time, poverty and inequalities persist, leading us to challenge the current model of economic activity and growth (Raworth, 2017). However, people all over are starting to react and are searching for alternatives to the current business models. In recent years, more and more organizations have emerged that try to combine social, environmental and economic goals. Perhaps the best-known international example is Grameen Bank, founded by Nobel Peace Prize winner Muhammad Yunus, introducing microcredits as a way of combating poverty. Other businesses, such as the tree-planting search engine Ecosia in Germany, pursue mainly environmental causes. Nonetheless, these ventures share a common ground. Under different headlines and labels – such as *collaborative economy*, *social and solidarity economy*, *commons*, *social entrepreneurship*, *corporate social responsibility or divestment* – a range of socioeconomic movements is experienced that are actively turning sustainability into one of the most important megatrends of our times (Birkhölzer, 2015; Defourny et al., 2010; Lundström et al., 2014; Unterberg et al., 2015).

The module described within this contribution – "Doing Business Differently"[9] – dives into these various approaches that experiment with new economic logics. The students engage with economic, socio-political and financial questions revolving around this topic: how widespread are such approaches (both in the local/regional and in an international context), what different concepts and examples are out there and how may they be classified and assessed? What role does sustainable entrepreneurship play in developing and emerging countries, especially for the people of the bottom of the pyramid? How do you define and measure the success of companies whose goal is not

9 The original module title in German is: "Gemeinsam anders Wirtschaften".

(exclusively) to maximize profits? What role do modern forms of financing, management and ownership, such as crowdfunding or holacracy play in this movement? This also raises much more general questions, such as: what is the role of business in the 21st century? Or rather: what could the role of business be? As well as: what model of development and prosperity is suitable for the 21st century?

The present module addresses the above-mentioned fundamental developments and changes for businesses, economies and societies, which are still often ignored in mainstream business and economics education. It takes an interdisciplinary approach, because tackling these important and highly complex phenomena adequately requires to go beyond a mere 'business-school lens'.

6.3. LEARNING OBJECTIVES

Table 6–3

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework of Rieckmann (2018)**
Cognitive	Students know important theories of alternative economic practices, sustainability and social entrepreneurship	Systems thinking competency
	Students acquire awareness about the importance of social entrepreneurship in developed as well as in emerging economies, including its relationship to the sustainable development goals (SDGs)	Anticipatory competency
	Students understand which actors are involved in the processes of (business) transformation towards sustainability and how the interaction of the various actors affects the success or failure of these ventures	Systems thinking competency, Collaboration competency
	Students reflect on different notions of economic success and development – both on a societal level as well as for organizations	Normative competency, Critical thinking competency
	Students analyze case studies relating to social and sustainable business, including in emerging economies	Systems thinking competency
Socio-emotional	Students develop interpersonal skills and empathy through deepening their understanding of different social realities around the globe	Normative competency, Collaboration competency
	Students present (an idea for) an individual research idea/project to others in a convincing way, and learn to listen to feedback and to apply it	Collaboration competency
	Students reflect on the role of sustainability for their own career choices and further professional development	Normative competency, Self-awareness competency

Learning objective dimension (UNESCO, 2017)	Learning objective	Competency referred to framework of Rieckmann (2018)
Behavioural	Students apply sustainability-related aspects to their understanding and evaluation of businesses and other organizations in the future	Normative competency, Strategic competency
	Students articulate sustainability aspects of their work to others	Self-awareness competency
	Students take a position in the sustainability discourse	Critical thinking competency

6.4. COURSE OUTLINE

'Doing Business Differently' is an intensive (12 hours per week) module.[10] It comprises four to five courses by different lecturers who are rooted in various academic disciplines (business, politics, sociology, law and finance) and professional backgrounds (social entrepreneurs, bankers, lawyers, managers in the private and public sector). In this subchapter, we describe the two course outlines of the authors of this article. Table 6–4 refers to the course "Social Entrepreneurship with a Special Emphasis on Emerging Markets", table 6–5 to the course "Social and Sustainable Business: Hybrid Organizations, Social Impact and Society".

Table 6–4

Structure		Session focus	Homework
Week 1	Session 1 (2 hours)	"Introduction and foundations of social entrepreneurship" Students are asked to bring forth their knowledge of social entrepreneurship (SE) and emerging markets (EMs).	Read Lundström et al. (2014), chapter 4 Read EUROSTAT (2016), Introduction
Week 2	Session 2 (2 hours)	"Entrepreneurship in a nutshell" Students are asked to explain what entrepreneurship is in general.	Read Grieco (2015), chapter 3 and Annex A
Week 3	Session 3 (2 hours)	"A review of social entrepreneurship research" Students discuss among themselves the similarities and differences between some of the authors mentioned in this chapter.	Read Lundström et al. (2014), chapter 3

10 The module was taught at a university of applied science in Germany since 2017 for undergraduate students in Business Administration and Economics. However, the module might well be replicable in other contexts.

Structure		Session focus	Homework
Week 4	Session 4 (2 hours)	"Conceptualizing social entrepreneurship" A discussion centered around the different concepts of SE in EMs is facilitated.	Read Grieco (2015), chapter 2
Week 5	Session 5 (2 hours)	"Social entrepreneurs: Opportunities, resources and social problems" The idea that social entrepreneurs can change society and communities is discussed.	Read Volkmann et al. (2012), chapter 1
Week 6	Session 6 (2 hours)	"Social entrepreneurship, community participation and embeddedness": Embeddedness is a concept that encompasses community participation and belonging. In this context, SE is explained.	Students start thinking in which subject they will write the final project. For this, they need to choose two supervisors (from the teaching team) and write an one-page research proposal. Read EUROSTAT (2016), chapter 11
Week 7	Session 7 (2 hours)	"Social innovation and new business models" Porter´s idea of "shared value" is discussed after watching a video by him (see sub-chapter "recommended resources").	Read Volkmann et al. (2012), chapter 5
Week 8	Session 8 (2 hours)	"How to drive the process of social entrepreneurship: The role of government, and the private and social sectors" A continuation of Porter's "shared value" is explained within the government/private/social sectors.	Read Volkmann et al. (2012), chapter 3
Week 9	Session 9 (2 hours)	"Sustainable entrepreneurship" The role of sustainability in EMs and how SE is developing in those markets are described.	In class presentations of topics chosen Read Lundström et al. (2014), chapter 7
Week 10	Session 10 (2 hours)	"Social entrepreneurship: Gendered entrepreneurship?" The role of SE in EMs is discussed.	Read Lundström et al. (2014), chapter 13 Read EUROSTAT (2016), chapter 5
Week 11	Session 11 (2 hours)	"Native and immigrant entrepreneurship" The role and differences among native and immigrant entrepreneurship is elucidated with examples from the text.	Read Guercini & Milanesi (2019), chapter 2
Week12	Session 12 (2 hours)	Meetings with students for the final project, coaching and consulting on individual papers/projects	Continue with the final project

Table 6–5

Structure		Session focus	Homework
Week 1	Session 1 (4 hours)	"Introduction: Setting the scene and establishing an emotional connection: what does it imply to you to 'do business differently'? What needs to change in the (business) world?" Students are asked to position themselves in the classroom with the help of guiding questions, leading to discussion.	
Week 2	Session 2 (4 hours)	"Climate change – this changes everything?" Guest speaker (for example from the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety)	
Week 3	Session 3 (4 hours)	"Big questions and small projects" Students choose examples for businesses or organizations (operating in the locality/region of the university) that aim for transformation towards sustainability and present their example to their peers. Students may choose examples from local/regional newspapers, magazines or websites (provided in class).	With the help of a template, students complete a systematic profile of their chosen organization. This may serve as an initial step for a case study.
Week 4	Session 4 (4 hours)	"New socioeconomic phenomena (e.g. social and sustainable business) as a field of research" In groups, students come up with their own definitions of a social or sustainable business. These are then compared to definitions from the literature, allowing to highlight common ground as well as differences. In addition, this allows to discuss different traditions of the social economy and to theorize the "social".	Students familiarize themselves with empirical studies on social business in the respective national/regional context (provided on an e-learning platform), reading is led by guiding questions.
Week 5	Session 5 (4 hours)	"Research training and paper writing I" Students are put in the role of the teacher and mock mark papers (by former students, provided by teacher in an anonymized form). Students collect feedback and jointly carve out what makes out a good research paper.	Students brainstorm first ideas for paper.
Week 6	Session 6 (4 hours)	"Research training and paper writing II" Students are developing a broad idea into a research question with the help of peer-to-peer feedback. They are also planning the research and writing process.	Students choose two supervisors (from the teaching team) and write a one-page research proposal.

Structure		Session focus	Homework
Week 7	Session 7 (4 hours)	"Research training and paper writing III": Short lecture on introduction to methods of social research, in particular qualitative interviews. Discussion on the adequate employment of interviews and what goes into choosing and acquiring interview partners. Exercise on interviewing, practical interview techniques (in pairs).	
Week 8	Session 8 (4 hours)	"Introduction to social impact (measurement)"	Students read about a specific method/tool for social impact measurement (e.g. the SROI). Material is provided via an e-learning platform (three different tools are provided, students are assigned one out of three).
Week 9	Session 9 (4 hours)	"Social impact (measurement) II" In groups, students exchange ideas on the reading of their impact measurement tool and become "experts" for their tool and design a poster that explains it. Then the groups present their tool and poster to other groups in a "gallery walk".	
Week 10	Session 10 (4 hours)	"From GDP to Gross National Happiness?" Taking the debate from an organizational to a societal level: from social impact to measuring progress. A short film on Bhutan and the concept of Gross National Happiness is shown, followed by a discussion. Students work in groups on the question which indicator(s) they would propose to the government in order to measure economic and social progress.	
Week 11	Session 11 (individual time slots)	Meetings with students for the final project, coaching and consulting on individual papers/projects.	
Week12	Session 12 (individual time slots)	Meetings with students for the final project, coaching and consulting on individual papers/projects.	

6.5. TEACHING APPROACHES AND METHODS

The module described here ("Doing Business Differently") is a large module of fifteen credits in which four to five lecturers in one semester each teach a course of a similar theme, but from different perspectives. The idea is for

students to understand how a subject has different sides to it and to learn how to integrate them as well as to recognize that different types of knowledge are needed to understand complex matters. Each lecturer has a different disciplinary and professional background and develops the topic under a different lens; different disciplines are integrated into one module, therefore creating an opportunity for inter-/transdisciplinary learning (for a definition of this approach see chapter 1 of the book).

The authors agree with Stentoft (2017, p. 52), who argues that in today's world "pedagogical approaches must offer the possibilities for interdisciplinary learning and the transgression of previously well-established disciplinary boundaries in order to satisfy political and societal demands for development and innovation". Based on this, they believe that it is precisely this form of interdisciplinary learning that is the strongest asset of this module, integrating different and diverse lecturers, perspectives and approaches to teaching and making it innovative and original. In order to provide an interdisciplinary learning environment, it is aimed, first, at a high diversity in backgrounds, experiences and perspectives of the teaching team. Some teachers are practitioners, while others are more deeply rooted in academia. While the individual four to five courses are generally managed by each lecturer independently, there are a couple of joint sessions, creating moments of genuinely interdisciplinary team teaching (Lozano et al., 2017; for a definition see chapter 1 of the book). In addition, all teachers invite guest speakers (social entrepreneurs or professionals in international development) throughout the semester.[11]

Second, the authors jointly develop topics that require different perspectives. For instance, in the past, they have contrasted the concept of social entrepreneurship in the context of a developed economy with social entrepreneurship in the developing world, which besides understanding the business aspects is inevitably linked to broader "macro" aspects of the respective economic and social contexts. Similarly, the topic of social impact (measurement) was addressed on an organizational level (What tools are there in order to measure non-financial (social) impact, such as the "Social Return on Investment"? How can these tools be applied, what needs to be taken into account, both in terms of accuracy and practicability?) and at the same time, broader political implications of impact measurement were discussed and linked to debates on measuring progress as well as the critique of GDP as an indicator and alternative measurement concepts (such as 'Gross National Happiness' in Bhutan or wellbeing statistics that are increasingly issued by governments, especially in

11 Apart from academic-professional diversity, the authors also believe that a diverse teaching team in terms of gender, race, nationality, sexual orientation, (dis)ability, etc. might enhance the learning experience of this module.

the UK). At times, this was also combined with approaches of problem-based learning, which according to Stentoft (2017) are particularly suited in order to promote interdisciplinary learning. For example, students were required to conduct a simple impact report for a specific business or organization. Other (inevitably interdisciplinary) themes that have been addressed in the module were sustainable finance or gender in (social) business.

Furthermore, there is only one examination (with an oral and written part) for the entire module, integrating the contents of all courses. As a final assignment, the students need to independently complete a large paper, and are coached by two different lecturers of the core teaching team – with one main and one second supervisor. In preparation for the assignment (but also accounting for 10 % of the final grade), the students present their topic in a short presentation to the whole group (lecturers and students) about ten weeks before submitting their papers. In doing so, the students improve their presentation skills, which is an essential skill once the graduate reaches the workplace.

This final paper and – more importantly – the research process may be framed as a sustainability-related research project (for a definition see chapter 1 of the book). Students are encouraged – but it is not compulsory – to integrate a proper empirical part. This has led students to conduct primary research via qualitative interviews, often within a case study of a specific organization, sometimes combined with the analysis of documents and other secondary data. According to the authors´ experience, about one third of the students choose to work empirically, while the others choose to do a literature-based paper. This final paper will result in increased research and writing skills, which are vital for the final BA thesis. The choice of topics for the paper is handled very freely, which for several students at first seems quite challenging. However, the free choice of topics is a conscious decision on the part of the teaching team, in order to encourage individual commitment to a topic and active learning, which inevitably "require[s] the educator to privilege the learner's participation over his or her own declarative knowledge of the subject" (MacVaugh & Norton, 2012 p. 74). Another benefit of this approach is that it is a great training for working independently on a longer project and managing (time) resources – very important skills in both academia and the workplace.

Additionally, the weekly sessions (also see subchapter "Course Outline") mostly combine different teaching approaches and methods, most importantly lecture-based learning as well as many group exercises, in class discussions and debates (for a definition of approaches and methods see chapter 1 of the book). In an attempt to go beyond the cognitive level and foster socio-emotional learning and skills, we also employ self-reflection tasks and exercises throughout the semester. This allows students to share their personal experiences and reflect, for example, on personal sustainability-related roles, attitudes, and responsibili-

ties (Cotton & Winter, 2010). On some occasions, field trips are conducted (for a definition see chapter 1 of the book). These provide an additional opportunity to establish a connection with potential employers. One such field trip was to GLS Bank, a sustainable bank in Germany.

Since it was introduced in 2017, the module ("Doing Business Differently") has had an excellent reception among students. As most of them go to a business school to learn traditional business skills, the course has integrated what they have already learned but put it into a different context, which includes sustainability, community responsibility and what Raghuram Rajan urges in his 2020 book "The Third Pillar: How Markets and the State Leave the Community Behind": restoring the balance (Rajan, 2020).

6.6. EXERCISES

Exercise 1 (course "Social Entrepreneurship with a Special Emphasis on Emerging Markets", week 1)

A video is shown in class and students are asked to discuss what they saw, their opinion and assessment, and how the video taught them an issue that differed from their country of origin (most of the students were German). One example could be the TED Talk by Bunker Roy (2011) on the school he helped found called "Barefoot College" in India (see subchapter "Recommended Resources").

Exercise 2 (course "Social Entrepreneurship with a Special Emphasis on Emerging Markets", week 8)

An article/case study was given a few days before the next meeting so that students could read and analyze it before class. Various questions were posed and students were divided into groups to discuss one question per group. The class would regroup and each group would discuss the article. One such example was a case study (Volkmann et al., 2012, p. 20) on a British magazine sold by homeless people in the UK.

Exercise 3 (course "Social and Sustainable Business: Hybrid Organizations, Social Impact and Society", week 3)

Students are given a large pool of material that contains many examples for sustainable ventures, for example physical copies of the magazine *Enorm* or the websites of networks such as *Social Impact Lab* or *Social Entrepreneurship*

Netzwerk Deutschland or *Berlin.imWandel*.[12] In pairs (so that students interact and exchange ideas while remaining in a pressure-free space), students read through the material and choose a venture they would like to present to their peers. The goal is first to make students aware of the vast diversity of sustainable businesses (in terms of company size but also field of action) and that in this diversity, there is "something for everybody". It seems almost guaranteed that students will find a project that in addressing a cause they care about really speaks to them and allows them to establish a socio-emotional connection to the idea of social and sustainable business.
After presenting (only the most basic idea) of the chosen venture, in a second step, students are asked to dig deeper into the functioning and business model of the venture. As homework and with the help of a template, students then complete a systematic profile of their chosen organization. This may serve as an initial step for a case study.

Exercise 4 (course "Social and Sustainable Business: Hybrid Organizations, Social Impact and Society", week 4)

In groups (of approximately four), students come up with their own definitions of a social or sustainable business. These are then compared to each other allowing to highlight common ground as well as differences. This exercise allows to commence a value-based discussion, because different groups will emphasize different aspects and will have a different understanding of what it means to be "social" or "sustainable", which inevitably is a normative question. The student definitions then may also be contrasted with definitions from the literature, building a bridge to ongoing academic debates on standards and definitions and allowing to discuss different traditions of the social economy.

Exercise 5 (course "Social and Sustainable Business: Hybrid Organizations, Social Impact and Society", week 10)

After engaging with a critical perspective on GDP as an indicator of measuring economic and social progress and learning about alternative concepts (such as 'Gross National Happiness' in Bhutan), students are asked to come up with their own indicators for measuring progress. A guiding question for a group exercise (three to four students) may be: "Which indicator(s) would you propose to the government in order to measure economic and social progress?".

12 This material applies to the context of Berlin/Germany. Please adapt to your local/regional context.

Assuming that different groups come up with different propositions, groups might then be asked to compare their concepts with each other. In case that there are many different propositions (which is very likely), the class could be asked to having to agree on only three ideas/indicators. This would require the whole class to engage, set priorities and exchange arguments, to the extent of negotiating in between the groups.

This exercise may easily be expanded and adapted. In order to increase the real-life connection and role-play element of the exercise with the aim of increasing socio-emotional engagement, it might be set up as a United Nations scenario, where different groups represent different countries or expert groups that are discussing the future of measuring progress.

6.7. ASSESSMENT

Students choose a subject they want to tackle in a project during the semester and that closely relates to at least two courses of the module. In the past, topics were very diverse, reflecting the various personal interests of students and have ranged e.g. from a case study on a feminist cooperative in Syria to the environmental assessment of different types of bags (e.g. paper, plastic, cotton) to a discussion of the concept of a universal basic income as a new form of social security. In front of all students and all four to five teachers, each student does a short presentation of the chosen topic and the preliminary table of contents. In this presentation, students and teachers pose questions to the presenter to understand the subject matter in depth. This also gives the chance to the student to be more focused on the chosen subject. This exchange of ideas and how well the student responds to questions counts towards 10 % of the final grade.

As a final assignment, the students need to independently complete a large paper, which counts towards 90 % of the final grade. For this, students are coached by two lecturers of the core teaching team – with one main and one second supervisor. The written work is given to the lecturers about ten weeks after the oral assessment mentioned above. All four to five teachers then divide the papers amongst themselves so that each paper has two readers, thus minimizing bias. Corrections are undertaken and teachers meet again to evaluate the papers based on:

1. Topic chosen and depth of analysis
2. Theoretical part and use of academic literature
3. Development and analysis of data or of a case study

4. Discussion, Recommendations and Conclusions
5. Language and Grammar.

6.8. PREREQUISITES

- Required prior knowledge from students
  - This course is taught to students who are close to graduation. Therefore, the basic courses in business and economics must have been taken and passed successfully: macro/microeconomics, social science, business strategy, principles of finance, sales and marketing strategies, supply chain management, international business, principles of human resource management. A course on project management would be highly recommended.
  - Students should also know how to use online collaborative platforms such as Zoom (video communication platform), Moodle (educational platform), Google docs (online document editor), etc.
- Required instructors and their core competencies
  - Lecturers must have at least a BA degree in any academic discipline relating to the course and/or on the ground practical experience in the issues being taught.
  - As we have explained, the module's greatest asset is its interdisciplinarity and bringing different professional backgrounds together. In the case of the authors, a mix of different practitioners (a lawyer, a banker and an entrepreneur), as well as academics (sociology, business, political science) was involved in the teaching team, in addition to several guest speakers and field trips. Therefore, a fruitful mixture of different but related disciplines along with concrete experience are required of those teaching this course.

6.9. RECOMMENDED RESOURCES

Academic literature, studies and textbooks

Birkhölzer, K. (2015). Social enterprise in Germany: a typology of models. In *ICSEM Working Papers*, 15.

EUROSTAT (2016). *Sustainable development in the European Union. A statistical glance from the viewpoint of the UN SDGs*.

Grieco, C. (2015). *Assessing social impact of social enterprises: does one size really fit all?* Springer Briefs in Business.

Grove, A., & Berg, G. A. (Eds.) (2014). *Social business. theory, practice and critical perspectives*. Springer Science & Business Media.

Defourny, J., Hulgård, L., & Pestoff, V. (2010). Social enterprise, social entrepreneurship, social economy, solidarity economy: An EMES Reader on the SE Field. European Research Network.

Lundström, A., Zhou, C., von Friedrichs, Y., & Sundin, E. (Eds.) (2014). *Social entrepreneurship. Leveraging economic, political and cultural dimensions*. Wiesbaden: Springer.

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st century economist.* London: Random House.

Ridley-Duff, R., & Bull, M. (2011). *Understanding Social Enterprise*, London: Sage.

Volkmann, C. K., Tokarski, K. O., & Ernest, K. (Eds.) (2012). *Social entrepreneurship and social business. An introduction and discussion with case studies*. Springer Gabler.

Videos

TED (2011, October). *Bunker Roy: Learning from a barefoot movement* [Video]. YouTube. https://www.youtube.com/watch?v=6qqqVwM6bMM&ab_channel=TED.

TED (2019, October). *How to turn one big idea into a social enterprise | Melina Georgousakis | TEDxMacquarieUniversity* [Video]. YouTube. https://www.youtube.com/watch?v=hw2sMqDOcDg

Porter, M. (2013, June). *The case for letting business solve social problems* [Video]. TED Conferences https://www.ted.com/talks/michael_porter_the_case_for_letting_business_solve_social_problems

Social Impact Concepts, Tools and Reports

International Federation for the Economy for the Common Good e.V. (n.d.). *Gemeinwohl-Matrix*. https://web.ecogood.org/de/unsere-arbeit/gemeinwohl-bilanz/gemeinwohl-matrix/

Papi-Thornton, D. (2016). *Tackling Heropreneurship: Why we need to move from "the social entrepreneur" to social impact*. https://ssir.org/articles/entry/tackling_heropreneurship#

Papi-Thornton, D. (n.d.). *Social impact educator toolkit*. https://re-code.ca/wp-content/uploads/2018/01/Social-impact-educator-kit-1.pdf

Social Enterprise Alliance (2021). *Impact gaps assessment tool*. https://socialenterprise.us/article/impact-gaps-assessment-tool/

Social Value UK (2021). *Social value case studies*. https://socialvalueuk.org/what-is-social-value/social-value-case-studies/

The SROI Network (2012). *A guide to social return on investment*. https://socialvalueuk.org/wp-content/uploads/2016/03/The%20Guide%20to%20Social%20Return%20on%20Investment%202015.pdf

6.10. GENERAL TIPS FOR TEACHERS

To teach a module like the one described here, instructors should:

- have knowledge about the material the other lecturers are addressing and share syllabi at the beginning of the semester
- be in constant touch with other teachers to discuss weekly teachings and coordinate so as to not repeat activities
- coordinate to relate activities for maximum student benefit
- discuss any issues that may relate to student performance
- encourage students to think about research topics early on and to really make their topics their own

A member of permanent faculty should be responsible for coordinating the module (administration) and be in charge of all communication regarding formal aspects (attendance, term dates, requirements for presentation and papers, etc.), while leaving room for flexibility and contents of the individual courses.

To ensure that the module can run successfully, it has proven helpful to have a pool of five to six people (especially when working with professionals/practitioners, who only teach on the side and are not able to teach every semester) — so that conductors can always rely on approximately four teachers for every semester.

REFERENCES

Birkhölzer, K. (2015). Social Enterprise in Germany: A Typology of Models. In *ICSEM Working Papers*, 15.

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 (Eds.). *Sustainability education: perspectives and practice across higher education* (pp. 39–54). Earthscan.

Defourny, J., Hulgård, L., & Pestoff, V. (2010). Social enterprise, social entrepreneurship, social economy, solidarity economy: An EMES Reader on the SE Field. European Research Network.

EUROSTAT (2016). *Sustainable development in the European Union. A statistical glance from the viewpoint of the UN SDGs*.

Grieco, C. (2015). *Assessing social impact of social enterprises: does one size really fit all?* Springer Briefs in Business.

Guercini, S., & Milanesi, M. (2019). Native and immigrant entrepreneurship. In B. Dallago & E. Tortia (Eds). *Entrepreneurship and local economic development* (pp. 306–322). Routledge.

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.

Lundström, A., Zhou, C., von Friedrichs, Y. & Sundin, E. (Eds.) (2014). *Social entrepreneurship. Leveraging economic, political and cultural dimensions*. Wiesbaden: Springer.

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

Rajan, R. (2020). *The third pillar: how markets and the state leave the community behind.* Penguin Books.

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st century economist.* London: Random House.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

Stentoft, D. (2017). From saying to doing interdisciplinary learning: Is problem-based learning the answer? *Active Learning in Higher Education, 18*(1) 51–61.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Unterberg, M., Richter, D., Jahnke, T., Spiess-Knafl, W., Sänger, R. & Förster, N. (2015). *Herausforderungen bei der Gründung und Skalierung von Sozialunternehmen. Welche Rahmenbedingungen brauchen Social Entrepreneurs?* Hamburg: Evers & Jung.

Volkmann, C. K., Tokarski, K.O. & Ernest, K. (Eds.) (2012). *Social entrepreneurship and social business. An introduction and discussion with case studies*. Springer Gabler.

Maria Vasileva Ilieva

Chapter 7. The Interconnection Among Social, Environmental, and Economic Aspects of the 17 SDGs

7.1. COURSE SUMMARY

Table 7–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	14 weeks	
Credits	2 ECTS	
Workload	Presence: 24h Self-study: 50h	Total: 74h
Contents/primary topics	• Globalisation, population, migration • Sustainability, environment, ethics, governance, corruption • Equality, inequality, gender, poverty, labour market, social movements	
Main course objectives	• Analyse and present information on the business and managerial implications of sustainability • Discuss aspects of sustainability from different scientific perspectives in a particular country and worldwide • Use critical thinking and express opinions on current sustainability issues and propose solutions	
Main teaching approaches	• Active learning • Collaborative learning • Inter- and transdisciplinary learning	
Main teaching methods	• Interdisciplinary teaching • Group discussion • Self-reflection tasks/exercises	
Learning environment	Classroom (face-to-face learning) or Virtual classroom (synchronous and non-synchronous learning)	

Link to Sustainable Development Goals	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved nutrition and promote sustainable agriculture SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the means of implementation and revitalize the global partnership for sustainable development

Table 7–2

Impact assessment:	**(None) Low/Medium/High**	**Explanation**
1. Degree of student participation / activeness	Medium	40–50 minutes of each lecture are dedicated to group discussions on sustainability issues and presenting the results to the class.
2. Degree of student collaboration / group work	Medium	Students are working in class on group assignments.
3. Degree of student emotional involvement	Medium	Students have opportunity to articulate their own emotional stance on selected sustainability-related issues.

Impact assessment:	(None) Low/Medium/High	Explanation
4. Degree of inter-/transdisciplinarity	Medium	Each lecture covers diverse issues from different scientific perspectives (sociology, politics, law, economics, business, management, finance, psychology, and education) in different cultural and national settings.
5. Degree of student (self-) reflection	Medium	Students have room for reflections on personal experiences related to sustainability issues.
6. Degree of experience of real-life situations	Low	Students work on case studies, which are based on real-life events.
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Low	Students identify stakeholders and their demands, and try to find solutions to their problems but do not have opportunities to interact with them.
9. Degree of integration between theory and practice	Medium	In class, the presentation of theory is followed by discussions based on examples from practice that require direct application of the theory presented.

7.2. COURSE INTRODUCTION

This social sciences course presents the interconnection among social, environmental, and economic aspects of the 17 Sustainable Development Goals (SDGs) and their implementation into the business and management field. Sustainability has been a main topic of discussion in the area of social sciences and business practice for a long time. Companies engage in "competitive environmentalism" to preserve their positive image and gain reputation by being included in the greenest companies' list (Griskevicius et al., 2012). Rapid industrialisation and population growth cause disruptions in the balance between human and natural (physical) systems, which leads to global environmental changes (O'Brien, 2010). Companies need to invest in renewable natural capital (Kumar Duraiappah et al., 2013), engage in the green economy (Turok & Borel-Saladin, 2013), and improve disaster risk and human development (Fra Paleo, 2013). Rising levels of inequalities (Mathie et al., 2016) and the growing power of social movements (Vergara-Camus, 2016) also affect business activities around the world, which catalyse changes in companies' policies on gender equality at all levels and human rights at subsidiaries' production sites.

The aim of the course is to develop skills and abilities for students to identify social issues, provide knowledge about sustainable business and management, and create value for future leaders. The course covers diverse topics

in different cultural and national settings. Each of the topics corresponds to social issues and sustainability development goals (SDGs), which can help to resolve them.

The main course objectives are to teach students how to analyse and present information about social sciences and sustainability and find implications in connection to business and management. Students should be able to discuss aspects of social sciences and sustainability from different scientific perspectives and social issues in a particular country and all over the world. They need to use critical thinking and express opinions on current social and sustainability problems and propose ways of solving them.

The structure of the course is designed to cover all three dimensions of sustainability: environmental, economic, and social. The topics include globalisation, population, migration, sustainability, environment, ethics, governance, corruption, equality, inequality, gender, poverty, labour market, and social movements.

The teaching approach is a combination of active learning (Prince, 2004; MacVaugh and Norton, 2012) and collaborative learning (Strijbos, 2016). The sources included in the World Social Science Reports (WSSRs) represent different scientific perspectives: sociology, politics, law, economics, business, management, finance, psychology, and education. They facilitate using inter-/transdisciplinary learning (Greig and Priddle, 2019) by combining materials from several areas on the same topic in each lecture. The teacher uses a combination of interdisciplinary teaching (Lozano et al., 2017) and group discussion (Yang et al., 2011) as teaching methods. (for a definition of the approaches of active, collaborative and inter-/transdisciplinary learning as well as the method of group discussions see chapter 1 in the book).

The teacher uses cases about real problems from different societies to illustrate the connection of the course to practice. In this way, the topics can initiate discussions and compare global social issues with those in a particular country. The teacher also explains the connection to business and how all these phenomena influence business and management. In this way, students can see the connection between some real-life social and sustainability issues and topics discussed in class and the connection between international business and social sciences. The idea behind exposing students to a variety of cases is to demonstrate that different societies around the world encounter similar problems. Students learn about other ways of dealing with the same issues, which can provide them with ideas on how to solve problems in their own society. Observing the same problems from different scientific and cultural perspectives enriches students' life experience and understanding of the world.

7.3. LEARNING OBJECTIVES

Table 7–3

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework of Rieckmann (2018)**
Cognitive	Students analyse and present information on implications of sustainability for business and management.	Systems thinking competency
	Students discuss aspects of sustainability from different scientific perspectives and social issues in a particular country and worldwide.	Normative competency
	Students use critical thinking and express their opinions on current sustainability problems and propose solutions.	Critical thinking competency
Socio-emotional	Students collaborate and cooperate with their classmates/team members.	Collaboration competency
	Students identify their personal experiences and share them in persuasive manner.	Self-awareness competency
	Students show empathy and sensitivity to people experiencing social issues.	Anticipatory competency
Behavioural	Students propose solutions to address social issues and achieve SDGs.	Problem-solving competency
	Students implement actions personally.	Strategic competency

7.4. COURSE OUTLINE

Table 7–4

Structure		**Session focus**	**Additional materials for self-study**
Week 1	Session 1 (100 min)	Introduction to social sciences and the 17 SDGs	Short texts presenting social sciences from different scientific perspectives
Week 2	Session 2 (100 min)	Economics and sociology in the context of globalisation	Texts and videos about globalisation and urbanisation and how they affect the economic and societal development
Week 3	Session 3 (100 min)	Population challenges	Videos about population distribution, migration, ageing populations, and future opportunities
Week 4	Session 4 (100 min)	Inequality from the perspective of law, politics, economics, and sociology	Texts and videos on the Nordic and Japanese models. Film suggestions addressing inequalities

Structure		Session focus	Additional materials for self-study
Week 5	Session 5 (100 min)	Economic growth and poverty reduction: the inequality connection	Texts and videos about the global poor, poverty trap, wealth, and inequality redistribution
Week 6	Session 6 (100 min)	Gender and political inclusion as an answer to gender and economic inequality	Text and videos about gender inequality, the reasons for its existence, and the ways to address it. A film suggestion about Margaret Thatcher's life and legacy
Week 7	Session 7 (100 min)	Inequality and global social policy: policies, actors and strategies	Text and videos about social inequality and education as a way to overcome it
Week 8	Session 8 (100 min)	Financial crisis, corruption, and global income inequality	Texts and videos about income inequality, basic income, and future redistribution of wealth
Week 9	Session 9 (100 min)	Responding to the global environmental change	Texts and videos about environmental problems and their solutions
Week 10	Session 10 (100 min)	Global governance, ethics, and sustainable development	Texts and videos about ethics and the practical implications of sustainability
Week 11	Session 11 (100 min)	Progressing from management to governance and sustainable development	Texts and videos about sustainable societies and natural disasters
Week 12	Session 12 (100 min)	Social sciences and sustainability in Japan	Texts and videos about environmental and societal changes in Japan and Asia Pacific region (this session can have a different country focus, depending on the location of the university)
Week 13	Session 13 (100 min)	Change towards responsible social sciences and achievement of SDGs	Texts about transformation and future perspectives
Week 14	Session 14 (100 min)	Why social movements matter for addressing inequalities and ensuring social justice	A text about social protests

7.5. TEACHING APPROACHES AND METHODS

The teaching approach is a combination of active, learning (Prince, 2004; MacVaugh and Norton, 2012), collaborative learning (Strijbos, 2016), and inter/transdisciplinary learning (Greig and Priddle, 2019) (for definitions see chapter 1 of the book). An interdisciplinary approach is needed for teaching sustainability because reality is very complex, and finding solutions to emerging problems should be done by collaboration among diverse disciplines (Junyent & de Ciurana, 2008). It is important to incorporate active sustainability learning in higher education (Chang et al., 2019) so that students will be trained in their own fields along with "environmental and sustainable criteria and

values" (Junyent & de Ciurana, 2008). Teaching future business leaders about the theoretical foundations of sustainability and practice-oriented reconnection of people with nature and society (Islam, 2019) is currently one of the great challenges for higher education (Junyent & de Ciurana, 2008).

The course is organised as inter-/transdisciplinary learning by presenting different scientific perspectives: sociology, politics, law, economics, business, management, finance, psychology, and education. In addition, the teacher provides examples from practice. Each session is executed as half active learning and half collaborative learning. The patterns of different approaches can be 50 min./30 min./20 min: 50 minutes of interaction between the teacher and the class using materials shared beforehand about theory, followed by 30 minutes of group discussion and 20 minutes of student presentations (or 40 min./30 min./30 min., correspondingly).

The methods used in the course are also a combination of interdisciplinary teaching (Lozano et al., 2017), group discussion (Yang et al., 2011), short text or video case studies (Alt et al., 2020), and self-reflection tasks/exercises (Cotton and Winter, 2010) (for a definition of the methods see chapter 1 of the book). Factual knowledge (theory) is combined with practical and interaction-oriented exercises, which helps students recollect experiences from the past and create new experiences (Bevan & Kipka, 2012; Leal Filho, 2021). Student learning should be considered as a personal process in which students build their knowledge "while still considering the social construction of knowledge" (Junyent & de Ciurana, 2008). Group discussions facilitate interpersonal competence in sustainability along with other "four key competencies (systems thinking competence, anticipatory competence, normative competence, strategic competence)" (Crofton, 2000; de Haan, 2006; Kearins & Springett, 2003; Wiek et al., 2011).

The materials for each lecture are shared with the students beforehand, and they must come prepared for the class. In each class, the teacher can use a presentation as a guideline with all the important parts of the lesson that will be included in the final test. The text in the presentation follows the content of the WSSRs and is used as a basis for the active learning process. The teacher asks questions, and students answer based on what they have learned from the materials. The teacher can provide additional explanations by giving examples from their own professional experience or international travels and interactions. At the end of each lecture, the teacher provides some interesting case or video, which connects to the material from a different perspective, for students to discuss.

The teacher can use short texts (4–12 pages each) from the World Social Science Reports by UNESCO publishing (ISSC et al., 2016; ISSC & UNESCO, 2013; UNESCO & ISSC, 2010). The teacher can divide them into main and

additional reading materials. The main materials are included in the teacher's presentation. They are organised around the main topic of the lecture and are used as a guideline for the students. The additional reading materials, which are usually cases for different countries, are non-compulsory and the students can read them in their spare time if they are interested in the topic. Other reading materials, such as articles by the World Economic Forum, can also be used. For each lecture, the teacher can use videos for additional illustration of the different points included in the slides. The teacher has complete freedom to choose and combine the different sources according to the needs and interests of the students.

The teacher groups the students or asks them to form teams of five to six students. Each team must read a different case or watch a video about a different company and discuss it for 30 minutes. It's better to monitor their activity but leave them to work without interference and be available in case they need some help or guidance. The teacher can encourage students to use photos, stickers, and emojis in their answers in the MS Teams Class Notebook (if used within the course), as arts-based teaching and learning methods. At the end of the lecture, each team must present to the class for two to three minutes. In this way, everybody comes to understand the different aspects of the problem while listening to the other teams' presentations. Students will demonstrate a high level of creativity in representing their point of view.

If quizzes are used for ongoing grading (during online teaching), then some self-reflection exercises can be used from time to time to break the repetitiveness. These assignments can be organised in a way that students can express their opinion, visions, or feelings about a particular SDG. In this way, students can see the connection between some real-life problems and topics discussed in class as well as see the connection between international business (their major) and sustainability.

The innovativeness of using these approaches and methods in this context is that there are many perspectives from all spheres of knowledge that intertwine with the different SDGs. Sustainability is usually presented with a focus on the environmental dimension only. This combination of different teaching approaches and methods provides an opportunity for students to develop diverse skills while they gain knowledge. It encourages students to be creative while gathering information, analysing the facts, and presenting them. Students see that people around the world face similar problems that can be addressed using different approaches. When students watch videos or read cases about real situations, they connect emotionally to the people they study about. This broadens their horizons and expands their network within the class.

7.6. EXERCISES

The exercises help students understand and find solutions to real-life situations in connection to the lecture's topic. Students discuss different questions that do not have a right or wrong answer. The teacher briefly explains the exercise and distributes the supporting materials for face-to-face classes or shares them beforehand on a chosen collaboration platform (e.g., MS Teams) for online classes. These exercises work best for a group of five to six students.

Exercise 1

One of the options is to use a case about a particular country or region. If the text is two to three pages, then each team must read half a page and then present their solution in front of the class. It's better to use short texts, so that students will not spend too much time on reading and have plenty of time for discussion. For example, the text can be about household sustainability in Australia (see subchapter "Recommended Resources" below).

Another way to initiate a discussion is with three to four short videos on the same or very similar topic. Again, each team watches one of the videos and presents their solution to the problem from different perspectives. The videos can be about the benefits of planting trees or the problems that cutting trees can cause (see subchapter "Recommended Resources" below).

Exercise 2

The teacher can use a short text from an external source as a warm-up and an illustration of the problem to be discussed. For example, a text about Small Island Developing States by the United Nations Conference on Trade and Development details the problem of rising sea level at the Maldives, Kiribati, and Tuvalu (see subchapter "Recommended Resources" below). After this short introduction, the teacher can provide a longer video divided into smaller increments and distribute it to each team. The video can show, for example, the local population in Tuvalu and their lifestyle (see subchapter "Recommended Resources" below). This helps students connect emotionally with the characters and better understand the problem of rising sea levels. Students share their solution to the problem based on the part of the video they had watched. Thus, the whole class can understand the different elements of the story.

Exercise 3

Students must use pictures to illustrate sustainability at their university or in the surrounding area and explain the benefits of sustainability to the local popu-

lation. Topics can be, for example, sustainable transportation, planted trees, or renovated buildings. The teacher shows pictures with examples, and students go out of the classroom and take pictures for 20 to 30 minutes. Another option is that students use photos from the university or a company website of their choice or stickers from the MS Teams' Class Notebook (if used within the course) to illustrate their argument.

For example, an old building was demolished, and a new building was built in its place. The new building will have better insulation, which saves electricity, helps the environment, and reduces risk of heat stroke during heat waves. Additionally, newer buildings are safer during earthquakes or typhoons. Another example could be about a train promoting SDGs or whole families using bicycles as the main means of transportation. The teacher can show a photo with a sign promoting walking around campus.

7.7. ASSESSMENT

For face-to-face teaching:

- Class participation – group discussions: 30 % of the grade
  - Short case studies or videos to work on during the class with other team members and present them in front of everybody at the end of the class
- Final exam – test on the material covered in the lectures: 70 % of the grade
  - Multiple-choice questions for students to select the right answer according to the text in the presentations shown during the classes

For online teaching – ongoing grading on a weekly basis:

- Synchronous teaching
  - Test for each lecture: 70 % of the grade Multiple-choice questions for students to select the right answer according to the text from the presentation
  - Class participation – group discussions conducted via online collaboration platform (e.g. MS Teams): 30 % of the grade Short case studies or videos to work on during class with other team members and present them in front of everybody at the end of the class
- Asynchronous teaching
  - Test for each lecture: 100 % of the grade Multiple-choice questions for students to select the right answer according to the text from the presentation

Every second or third lecture, the teacher can give an open question with no right or wrong answer so that students can express their opinions.

7.8. PREREQUISITES

- Required prior knowledge from students
  - Introduction to Global Business
  - Basics of sustainable development
- Required instructors and their core competencies
  - Lecturer (competences: sustainability, social sciences, international business and management, real-life business expertise/experience)
- Required tools
  - Online collaboration platforms (e.g., MS Teams)
- Required sources
  - World Social Science Reports are open access sources, and students can download them from the links provided in the syllabus for free.
  - There is also an option to download every short article as a separate PDF file and distribute it to the students beforehand or during the class.

7.9. RECOMMENDED RESOURCES

Topic 1. Introduction to Social Sciences and the 17 SDGs

- Main Resources:

Calliods, F., & Jeanpierre L. (2010). General introduction. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 1–5). UNESCO Publishing.

- Additional reading:

UNESCO & ISSC (2010). Environmental and ecological economics. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (p. 209). UNESCO Publishing.

UNESCO & ISSC (2010). Law and social science. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (p. 195). UNESCO Publishing.

UNESCO & ISSC (2010). Applications of psychology to human health and well-being. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (p. 217). UNESCO Publishing.

UNESCO & ISSC (2010). Psychology applications to human challenges. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 217 – 218). UNESCO Publishing.

Corral-Verdugo, V. (2010). Flash. The psychology of sustainability. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (p. 218). UNESCO Publishing.

- Videos:

City of Melbourne (Facebook Official page) (2020, March). *Affordable housing* [Video]. Facebook. https://www.facebook.com/cityofmelbourne/videos/525435561448933/

Brut.Nature (Facebook Official page) (2018, January). *Portrait of Wangari Maathai*, [Video]. Facebook. https://www.facebook.com/brutnature/videos/202306896992982/UzpfSTEwMDAwMTU5OTY0ODM3NjoxNzU5NDUwNzE0MTE4MjMz/?q=Wangari%20Maathai&epa=SEARCH_BOX

World economic forum (Facebook Official page) (2020, January). *3 innovative ways people are farming the ocean without destroying it* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/608624649956252/?v=608624649956252

World economic forum (Facebook Official page) (2019, December). *This is why kids in Estonia are performing among the best in the world* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/566774994109763/

Topic 2. Economics and Sociology in the Context of Globalisation

- Main Resources:

Lebaron, F. (2010). Economics and sociology in the context of globalization. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 197–198). UNESCO Publishing.

Sassen, S. (2010). Cities in today's global age. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 27–31). UNESCO Publishing.

- Additional reading:

Sánchez-Rodríguez, R., & Seto, K. C. (2013). Urbanization and global environmental change. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 527–528). UNESCO Publishing.

- Videos:

Edeos — digital education GmbH (2011, October). Globalization [Video]. YouTube. https://youtu.be/3oTLyPPrZE4

World Economic Forum (Facebook official page) (2020, February). *Pittsburgh was one of America's most famous industrial towns* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/208689650257537/

Topic 3. Population Challenges

- Main Resources:

Chamie, J. (2010). Foreseeing future population challenges. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 24–26). UNESCO Publishing.

LinkedIn. (2020). *LinkedIn Opportunity Index 2020: How people around the world feel about opportunity, Growth from Knowledge.* https://economicgraph.linkedin.com/content/dam/me/business/en-us/talent-solutions/emerging-jobs-report/pdf/LinkedIn-Opportunity-Index-2020-Global-White-paper.pdf

- Videos:

GOOD magazine (2016, March). If The World Were 100 People | GOOD Data [Video]. YouTube. https://youtu.be/QFrqTFRy-LU

TED-ed (2013, April). How to live to be 100+ – Dan Buettner [Video]. YouTube. https://youtu.be/ff40YiMmVkU

Edeos — digital education GmbH (2011, December). International Migration [Video]. YouTube. https://youtu.be/lOZmqIwqur4

LinkedIn (2020, April). LinkedIn Opportunity Index Japan [Video]. YouTube. https://youtu.be/yURJwot3nEc

LinkedIn (2020, April). LinkedIn Opportunity Index Singapore [Video]. YouTube. https://youtu.be/ORhD4FbY_DA

LinkedIn (2020, April). LinkedIn Opportunity Index Australia [Video]. YouTube. https://youtu.be/Jjo0L1ELzHE

Topic 4. Inequality from Law, Politics, Economics and Sociology Perspective

- Main resources:

Stewart, F. (2016). Horizontal inequalities. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 51–54). UNESCO Publishing, Paris.

Leach, M. (2016). Towards equality: transformative pathways. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 184–190). UNESCO Publishing, Paris.

- Additional reading:

World Economic Forum. (2020). *The Nordics are a model for all the world*. https://www.weforum.org/agenda/2020/01/the-new-nordic-model/

Koike, Y. (2015). *Why inequality is different in Japan*. World Economic Forum. https://www.weforum.org/agenda/2015/03/why-inequality-is-different-in-japan

- Videos:

World Economic Forum (Facebook Official page) (2020, January). *This is why Nordic countries work so well for everyone* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/457972668412110/?v=457972668412110

World Economic Forum (Facebook Official page) (2020, February). *The PM of Finland Sanna Marin says you can achieve the American dream more easily in the Nordic countries* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/177833740149605/?v=177833740149605

- Film suggestions (illustrating different aspects of inequality and how to overcome them):

Boyle, D., & Tandan, L. (2008). *Slumdog Millionaire* [Film]. Celador Films, Film4, Fox Searchlight Pictures, Warner Bros., Pathé.

Muccino, G. (2006). *The Pursuit of Happiness* [Film]. Columbia Pictures, Relativity Media, Overbrook Entertainment, Escape Artists.

Fontaine, A. (2009). *Coco Before Chanel* [Film]. Haut et Court, Ciné@, Warner Bros., France 2 Cinéma, Canal+, CinéCinéma, France 2 (FR2), Playtime, Cofinova 5, Banque Populaire Images 9, Scope Pictures, Tax Shelter du Gouvernement Fédéral Belge, Soficapital, SCOPE Invest.

Topic 5. Economic Growth and Poverty Reduction: the Inequality Connection

- Main resources:

Kanbur, R. (2016). Economic growth and poverty reduction: the inequality connection. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 122–125). UNESCO Publishing, Paris.

Kabeer, N. (2016). Leaving no one behind': the challenge of intersecting inequalities. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp.55 – 58). UNESCO Publishing, Paris.

- Additional reading:

Gupta, A. (2010). The construction of the global poor: an anthropological critique. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 13–16). UNESCO Publishing.

Rogers, D. S. (2013). Bringing poor people's voices into policy discussions. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 362 – 364). UNESCO Publishing.

- Videos:

EconClips (2016, November). *How is Wealth Created | Savings and Investments* [Video]. YouTube. https://youtu.be/Oi9cq7tXkmg

International Hub (2019, January). *The poverty trap* [Video]. YouTube. https://youtu.be/KxjW-HU1BCM

Lindau Nobel Laureate Meetings (2017, November). *Inequality: Redistribution* [Video]. YouTube. https://youtu.be/IuGX8BsXo1Q

Lindau Nobel Laureate Meetings (2017, November). *Inequality: Lending* [Video]. YouTube. https://youtu.be/YF3GT8heEtY

Topic 6. Gender and Political Inclusion as an Answer to Gender and Economic Inequality

- Main resources:

Razavi, S. (2016). Rising economic inequality and gender inequality: intersecting spheres of injustice. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 78–81). UNESCO Publishing, Paris.

Nazneen, S. (2016). A seat at the table is not enough: gender and political inclusion. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 219–222). UNESCO Publishing, Paris.

- Additional reading:

Agarwal, B. (2013). Gender and environmental change. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 93–99). UNESCO Publishing.

- Videos:

CNBC International (2018, March). *What does equal pay mean for the economy?* | *CNBC Explains* [Video]. YouTube. https://youtu.be/E4Ey_57IYwc

Netflix (2020, April). *Explained* | *Why Women Are Paid Less* | *FULL EPISODE* | *Netflix* [Video]. YouTube. https://youtu.be/hP8dLUxBfsU

BBC (Facebook Official page) (2020, March). *Why this tech millionaire had to change her name to 'Steve'* | *BBC Ideas* [Video]. Facebook. https://www.facebook.com/bbc/videos/1326355430880914/

World Economic Forum (Facebook Official page) (2020, January). *This tennis star had just won Wimbledon, but this is what a journalist asked her* [Video]. Facebook. https://www.facebook.com/worldeconomicforum/videos/1033122307037564/?v=1033122307037564

National Geographic Magazine (Facebook Official page) (2019, October). *Women of Impact: Changing the World* her [Video]. Facebook. https://www.facebook.com/NGM/videos/544325902997340/?v=544325902997340

National Geographic Magazine (Facebook Official page) (2019, November). *JANE – Streaming on Disney+ Nov. 12* [Video]. Facebook. https://www.facebook.com/NGM/videos/2193076620995769/?v=2193076620995769

Nobel Prize (Facebook Official page) (2020, February). *Shirin Ebadi: advice to young women* [Video]. Facebook. https://www.facebook.com/nobelprize/videos/857653691341703/

TED-Ed (Facebook Official page) (2020, March). *The historic women's suffrage march on Washington* [Video]. Facebook. https://www.facebook.com/TEDEducation/videos/531920060775343/

TED – Ed (2018). *The breathtaking courage of Harriet Tubman – Janell Hobson* [Video]. TEDEd. https://ed.ted.com/lessons/the-courage-of-harriet-tubman-janell-hobson

TED – Ed (2018). *The most successful pirate of all time – Dian Murray* [Video]. TEDEd. https://ed.ted.com/lessons/the-most-successful-pirate-of-all-time-dian-murray

- Film suggestions:

Lloyd, Ph. (2011). *The Iron Lady* [Film]. DJ Films, Pathé, Film4, Canal+, Goldcrest Pictures, UK Film Council, CinéCinéma. https://www.imdb.com/title/tt1007029/?ref_=nm_flmg_act_22

Topic 7. Inequality and Global Social Policy: Policies, Actors and Strategies

- Main resources:

Deacon, B. (2016). Inequality and global social policy: policies, actors and strategies. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 197–200). UNESCO Publishing, Paris.

Woolcock, M. (2016). Critical elements for ensuring the success of more inclusive social policies. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 241–244). UNESCO Publishing, Paris.

- Additional resources:

Tedesco, J. C. (2010). The politician and the researchers. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 323–324). UNESCO Publishing.

- Videos:

The Economist (2019, November). *How modern families increase social inequality | The Economist* [Video]. YouTube. https://youtu.be/hSmAYUnZyxE

The Economist (2020, January). *Charity: how effective is giving? | The Economist* [Video]. YouTube. https://youtu.be/QaN6ibm5r-I

The Economist (2018, May). *Was Karl Marx right? | The Economist* [Video]. YouTube. https://youtu.be/TMmDebW_OBI

The Economist (2018, June). *Should we tax the rich more? | The Economist* [Video]. YouTube. https://youtu.be/Y0xwmGM0DOY

ABC News Australia (2020, January). *Why Finland's schools outperform most others across the developed world | 7.30* [Video]. YouTube. https://youtu.be/7xCe2m0kiSg

Edutopia (2012, January). *Finland's Formula for School Success (Education Everywhere Series)* [Video]. YouTube. https://youtu.be/HsdFi8zMrYI

The Economist (2019, April). *Is private education good for society? | The Economist* [Video]. YouTube. https://youtu.be/aV6w-zoacYk

Topic 8. Financial Crisis, Corruption and Global Income Inequality

- Main resources:

Rothstein, B. (2016). Inequality and corruption. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 245–247). UNESCO Publishing, Paris.

Belser, P. (2016). Wage and income inequality. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 49–50). UNESCO Publishing, Paris.

Wright, E.O. (2016). Unconditional basic income. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 237–238). UNESCO Publishing, Paris.

- Additional reading:

Harvey, D. (2010). A financial Katrina? Geographical aspects of the financial crisis. In UNESCO, & ISSC, World Social Science Report: Knowledge divides (pp. 21–23). UNESCO Publishing.

Moore, M. (2016). Could changes in the international tax system be a strategy for dealing with inequality?. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 217–218). UNESCO Publishing, Paris.

- Videos:

TED-Ed (2013). *Meet global corruption's hidden players – Charmian Gooch* [Video]. YouTube. https://youtu.be/gE9KAJ8ui3A

CNBC International (2018). *Why is inequality rising?* | *CNBC Explains* [Video]. YouTube. https://youtu.be/FXmsj4dh-RI

CNBC International (2019). *Why is inequality worse for young people?* | *CNBC Explains* [Video]. YouTube. https://youtu.be/7WegzglZlwA

The Guardian (2020). *Why aren't millennials buying homes?* [Video]. YouTube. https://youtu.be/SnIEx4ym-vI

CNBC (2019). *Why The Inequality Gap Is Growing Between Rich And Poor* [Video]. YouTube. https://youtu.be/41y4c1Oi5Uo

CNBC International (2017). *Who owns the world's wealth?* | *CNBC Explains* [Video]. YouTube. https://youtu.be/KVWd5udOTXg

DW Documentary (2019). *Germany: The discreet lives of the superrich* | *DW Documentary* [Video]. YouTube. https://youtu.be/NXaVLXSZdEw

CNBC International (2017). *What is universal basic income?* | *CNBC Explains* [Video]. YouTube. https://youtu.be/W2Xv_9vSDE8

CNBC International (2018). *Is universal basic income working? We went to Finland to find out* | *CNBC Reports* [Video]. YouTube. https://youtu.be/mkF-Lsy-SlM

DW Documentary (2019). *How poor people survive in the USA* | *DW Documentary* [Video]. YouTube. https://youtu.be/JHDkALRz5Rk

CNBC Make It (2020). *Why It's Cheaper To Have A Baby In Finland Than The U.S.* [Video]. YouTube. https://youtu.be/_FvUmHdjccc

The Economist (2020). *How Africa could one day rival China* | *The Economist* [Video]. YouTube. https://youtu.be/p8fl-u1UMVA

Topic 9. Responding to the Global Environmental Change

- Main resources:

O'Brien, K. (2010). Responding to the global environmental change: social sciences of the world unite!. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 11–12). UNESCO Publishing.

Turok, I., & Borel-Saladin, J. (2013). Promises and pitfalls of the green economy. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 289–294). UNESCO Publishing.

Head, L., Farbotko, C., Gibson, Ch., Gill, N., & Waitt, G. (2013). Environmental issues and household sustainability in Australia. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 316–320). UNESCO Publishing.

- Additional reading:

Arnould, G. (2013). Education, science and climate change in French schools. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 338–339). UNESCO Publishing.

Small island developing states face uphill battle in COVID-19 recovery. (2021, June 10). UNCTAD. https://unctad.org/news/small-island-developing-states-face-uphill-battle-covid-19-recovery

- Videos:

National Geographic (2017, August). *Causes and Effects of Climate Change | National Geographic* [Video]. YouTube. https://youtu.be/G4H1N_yXBiA

The Economist (2019, September). *Climate Change: can nature repair the planet? | The Economist* [Video]. YouTube. https://www.youtube.com/watch?v=WRgv4V1ZxN4

Yes Theory (2019, November). *Traveling to the Least Visited Country in the World* [Video]. YouTube. https://youtu.be/ODuEl4oNae0

CNBC International (2019, November). *Who is leading in renewable energy? | CNBC Explains* [Video]. YouTube. https://youtu.be/fyqDC_AKVgE

Edeos- digital education GmbH (2012, September). *Renewable Energy and the Energy Transition* [Video]. YouTube. https://youtu.be/25bmXpEPosc

CNBC (2019, September). *The Rise Of Solar Power* [Video]. YouTube. https://youtu.be/od5yWB5aE0c

Bryce, E., (2015, April). *What really happens to the plastic you throw away – Emma Bryce* [Video]. TED-Ed YouTube Channel. https://youtu.be/_6xlNyWPpB8

Al, S. (2020, April). *What happens if you cut down all of a city's trees? – Stefan Al* [Video]. TED-Ed YouTube Channel. https://youtu.be/zarll9bx6FI

CNBC (2019, November). *Can Planting Billions Of Trees Halt Climate Change?*" [Video]. YouTube. https://youtu.be/yvDRQe2oCt4

The Economist (2019, September). *Climate change: the trouble with trees | The Economist* [Video]. YouTube. https://youtu.be/EXkbdELr4EQ

Topic 10. Global Governance, Ethics and Sustainable Development

- Main resources:

Martinelli, A. (2013). Global governance and sustainable development. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 467- 471). UNESCO Publishing.

van Vugt, M., & Griskevicius, V. (2013). Going green? Using evolutionary psychology to foster sustainable lifestyles. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 312–315). UNESCO Publishing.

- Additional reading:

Monreal Gonzalez, P. (2013). Ethics as a core driver of sustainability in the Caribbean. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 388–390). UNESCO Publishing.

Song, L. (2013). Incentives for low-carbon communities in Shanghai, China. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 333–334). UNESCO Publishing.

- Videos:

The United Nations (2018, April). *Do you know all 17 SDGs?* [Video]. YouTube. https://youtu.be/0XTBYMfZyrM

United Nations Development Programme (UNDP) (2018, December). *This is how the UN moves the SDGs from paper to practice.* [Video]. YouTube. https://youtu.be/TH8IsHLQ2mQ

GIZ (2014, June). *The Corporate Sustainability Handprint® I GIZ* [Video]. YouTube. https://youtu.be/5A_p2KMBRfo

Edeos- digital education GmbH (2013, December). *Smartphones and Sustainability* [Video]. YouTube. https://youtu.be/8EqXQ42QAaY

Edeos- digital education GmbH (2016, March). *Meat and Sustainability* [Video]. YouTube. https://youtu.be/iBpXJcWmTBY

Topic 11. Progressing from Management to Governance and Sustainable Development

- Main resources:

Fra Paleo, U. (2013). A functional risk society? Progressing from management to governance while learning from disasters. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 434–438). UNESCO Publishing.

Kumar Duraiappah, A., Muñoz, P., & Darkey, E. (2013). Inclusive wealth and the transition to sustainability. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 90–92). UNESCO Publishing.

- Additional reading:

Sanchez Betancourt, D., & Reusser, D. (2013). Transition to sustainable societies – was Rio+20 a missed opportunity?. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 439–440). UNESCO Publishing.

Sachs, J. D. (2013). The challenge of sustainable development and the social sciences. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 79–83). UNESCO Publishing.

- Videos:

National Geographic (2015, December). *Earthquakes 101 | National Geographic* [Video]. YouTube. https://youtu.be/e7ho6z32yyo

National Geographic (2018, September). *Hurricanes 101 | National Geographic* [Video]. YouTube. https://youtu.be/LlXVikDkyTg

National Geographic (2019, August). *Tornadoes 101 | National Geographic* [Video]. YouTube. https://youtu.be/aacHWoB7cmY

Science Insider (2018, October). *Why Hurricanes Hardly Ever Hit Europe* [Video]. YouTube. https://youtu.be/Q1JeRQnpkM0

Topic 12. Social Sciences and Sustainability in Japan

- Main resources:

Brisson, Th., & Tachikawa, K. (2010). Current topics of social science research in Japan. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 180–181). UNESCO Publishing.

Uyar, A. (2010). Social sciences in Japan after Fukushima. In UNESCO, & ISSC, *World Social Science Report: Changing Global Environments* (pp. 215–219). UNESCO Publishing.

- Additional reading:

Beaton, J. (2013). Social science research on global environmental change in the Asia-Pacific region. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 220–221). UNESCO Publishing.

- Videos:

CNBC International (2018). *Why does Japan work so hard? | CNBC Explains* [Video]. YouTube. https://youtu.be/9Y-YJEtxHeo

Wall Street Journal (2015). *Japan Is Changing How We'll Grow Old (360 Video)* [Video]. YouTube. https://youtu.be/zahhBhg2z-Q

BBC News (2019). *Rent-a-sister: Coaxing Japan's hikikomori men out of their bedrooms – BBC News* [Video]. YouTube. https://youtu.be/q9IRmUEsz6g

The Feed SBS (2015). *Japan's independent kids* [Video]. YouTube. https://youtu.be/P7YrN8Q2PDU

Life in Japan (2020). *Why We Go to Japanese School | Life in Japan Episode 58* [Video]. YouTube. https://youtu.be/U7jMlgPK27Q

Drew Binsky (2017). *10 Ways JAPAN is 10 Years Ahead of the World* [Video]. YouTube. https://youtu.be/kzIBbF-8lAU

Topic 13. Change towards Responsible Social Sciences and Achievement of SDGs

- Main resources:

St. Clair, A. L. (2013). Towards responsible social sciences. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 408–411). UNESCO Publishing.

Weber, E. U. (2013). Individual and collective behavior change. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 306–311). UNESCO Publishing.

- Additional reading:

Brown, K., O'Neill, S., & Fabricius, Ch. (2013). Social science understandings of transformation. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 100–106). UNESCO Publishing.

Miller, M. (2013). Changing the conditions of change by learning to use the future differently. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 107–111). UNESCO Publishing.

Topic 14. Why Social Movements Matter for Addressing Inequalities and Ensuring Social Justice

- Main resources:

Vergara-Camus, L. (2016). Why social movements matter for addressing inequalities and ensuring social justice. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 250–253). UNESCO Publishing, Paris.

Mathie, A., Alma, E., Ansorena, A., Basnet, J., Ghore, Y., Jarrín, S., Landry, J., Lee, N., von Lieres, B., Miller, V., de Montis, M., Nakazwe, S., Pal, S., Peters, B., Riyawala, R., Schreiber, V., Shariff, M. A., Tefera, A., & Zulminarni, N. (2016). Grass-roots pathways for challenging social and political inequality. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 259–262). UNESCO Publishing, Paris.

- Additional reading:

Ortiz, I., & Burke, S. (2016). Inequalities and protests. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 254–255). UNESCO Publishing, Paris.

7.10. GENERAL TIPS FOR TEACHERS

The descriptions given are examples of different combinations of materials that can be used for this course. There are plenty of sources and topics included in WSSRs, which provide freedom of choice and flexibility to teachers. Teachers can adapt the course to the needs and expectations of their own students. The materials can also be adjusted to non-native students' English language level.

REFERENCES

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.

Bevan, D., & Kipka, C. (2012). Experiential learning and management education. Journal of Management Development*, 31*(3),193–197.

Chang, C.-H., Kidman, G., & Wi, A. (Eds.). (2019). *Issues in teaching and learning of education for sustainability: theory into practice* (1st ed.). Routledge. https://doi.org/10.4324/9780429450433

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* (pp. 39-54). Earthscan.

Crofton, F. (2000). Educating for sustainability: opportunities in undergraduate engineering. *Journal of Cleaner Production, 8*(5), 397–405.

de Haan, G. (2006). The BLK '21' programme in Germany: a 'Gestaltungskompetenz'-based model for education for sustainable development. *Environmental Education Research, 1*, 19–32.

Fra Paleo, U. (2013). A functional risk society? Progressing from management to governance while learning from disasters. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 434 – 438). UNESCO Publishing.

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

Griskevicius, V., Cantu, S. M., & Van Vugt, M. (2012). The evolutionary bases for sustainable behaviors: Implications for marketing, policy and social entrepreneurship. *Journal of Public Policy and Marketing, 31*, 115–128.

Islam, M. S. (2019). Sustainability from theory to practice: Chinese New Year as an avenue for sustainability education. In C.-H. Chang, G. Kidman, & A. Wi. (Eds.). *Issues in Teaching and Learning of Education for Sustainability: Theory into Practice* (1st ed.). Routledge. https://doi.org/10.4324/9780429450433

ISSC, & UNESCO (2013). *World Social Science Report: Changing Global Environments*. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000224677

ISSC, IDS, & UNESCO (2016). *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World*, UNESCO Publishing, Paris.

Junyent, M., & de Ciurana, A. M. G. (2008). Education for sustainability in university studies: a model for reorienting the curriculum. *British Educational Research Journal, 34*(6), 763–782.

Kearins, K., & Springett, D. (2003). Educating for sustainability: developing critical skills. *Journal of Management Education, 27*(2),188–204.

Kumar Duraiappah, A., Muñoz, P., & Darkey, E. (2013). Inclusive wealth and the transition to sustainability. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 90 – 92). UNESCO Publishing.

Leal Filho, W. (2021). Non-conventional learning on sustainable development: achieving the SDGs. *Environmental Sciences Europe, 33*, 97. https://doi.org/10.1186/s12302-021-00525-8

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.

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

Mathie, A., Alma, E., Ansorena, A., Basnet, J., Ghore, Y., Jarrín, S., Landry, J., Lee, N., von Lieres, B., Miller, V., de Montis, M., Nakazwe, S., Pal, S., Peters, B., Riyawala, R., Schreiber, V., Shariff, M. A., Tefera, A., & Zulminarni, N. (2016). Grass-roots pathways for challenging social and political inequality. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 259 – 262). UNESCO Publishing, Paris.

O'Brien, K. (2010). Responding to the global environmental change: social sciences of the world unite!. In UNESCO, & ISSC, *World Social Science Report: Knowledge divides* (pp. 11 – 12). UNESCO Publishing.

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

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

Strijbos, J. W. (2016). Assessment of Collaborative Learning. In G. T. L. Brown & L. Harris (Ed.). book of Social and Human Conditions in Assessment (pp. 302–318). Routledge.

Turok, I., & Borel-Saladin, J. (2013). Promises and pitfalls of the green economy. In ISSC, & UNESCO, *World Social Science Report: Changing Global Environments* (pp. 289 – 294). UNESCO Publishing.

UNESCO, & ISSC (2010). *World Social Science Report: Knowledge divides*. UNESCO Publishing. https://unesdoc.unesco.org/ark:/48223/pf0000188333

UNESCO (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Vergara-Camus, L. (2016). Why social movements matter for addressing inequalities and ensuring social justice. In ISSC, IDS, & UNESCO, *World Social Science Report 2016, Challenging Inequalities: Pathways to a Just World* (pp. 250 – 253). UNESCO Publishing, Paris.

Wiek, A., Withycombe, L., & Redman, C.L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science, 6*, 203–218. https://doi.org/10.1007/s11625-011-0132-6

Yang, C., Yong, Z., & Dong, X. (2011). An information structuring approach for group discussion. Procedia Engineering, 15, 1261–1265.

Gustavo Vargas-Silva & William A. Kitch

Chapter 8. How to Educate Responsible Engineers with Both Eyes Open

8.1. COURSE SUMMARY

Table 8–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	15 weeks	
Credits	4.5 ECTS	
Workload	Presence: reviewing learning materials 40h Self-study: preparing reports 30h	Total: 70h
Contents/primary topics	• Technological and infrastructure systems (manufacturing, water, energy, power supply, and transportation) • Principles of sustainable development	
Main course objectives	• Applying the principles of sustainable development to analyse the impact of technological and infrastructure systems.	
Main teaching approaches	• Lecture-based learning • Inter-/transdisciplinary learning • Self-directed learning	
Main teaching methods	• Sustainability-related research project • Self-reflection task/exercise • Arts-based teaching and learning method	
Learning environment	Virtual classroom (online learning)	
Link to Sustainable Development Goals (SDGs)	SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained,inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns	

Table 8–2

Impact assessment:	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Conducting own research / documentation, following suggested learning material, and working on weekly activities and a team final project.
2. Degree of student collaboration / group work	High	Participating in a team final project over a whole semester. Students take place in teams and share different perspectives with students of two different programmes: Civil and Mechanical Engineering.
3. Degree of student emotional involvement	Medium	Articulating one's own emotional stance on sustainability-related issues and generating one's own judgment and attitudes regarding sustainable development.
4. Degree of inter-/transdisciplinarity	Medium	Most learning activities (including the final project) reflect the transferability of applied concepts and methods related to engineering, economy, architecture, social issues, environmental aspects, and ecological impacts, in order to develop a holistic solution approach.
5. Degree of student (self-) reflection	High	Writing weekly reflexive reports about first-hand learning sustainability experiences, critically reflecting one's own knowledge, experiences, assumptions, beliefs, values, personal roles, and attitudes.
6. Degree of experience of real-life situations	Low	Discussing both case studies and final projects based on real-world scenarios focused on solving actual sustainability problems/challenges in both local and global scales.
7. Degree of nature-related experiences	(None)	Virtual classroom learning.
8. Degree of stakeholder integration	Low	One guest lecture about local electric grid by a representative of a stakeholder group in a regional scale.
9. Degree of integration between theory and practice	High	Modules consisting of learning activities providing coherence between theory and practice elements, requiring a direct application of the interaction of such elements.

8.2. COURSE INTRODUCTION

As highlighted by several authors (Ashford, 2004; Glavič, 2020; Perpignan et al., 2020) the increasing universal concern for moving toward more sustainable development practices presents considerable challenges to both education and research. As society becomes more aware of and expresses a greater interest in the challenges of climate change and its impact on society, the academic engineering community must make the transition to incorporating sustainable development principles in the engineering curriculum. This transition is essential to prepare the next generation of leaders in both engineering education and practice (Desha et al., 2009). In this context, engineering education for sustain-

able development emphasises the need for engineers to play a significant role in developing technically, environmentally, and socially responsible innovations (Byrne et al., 2010). Integrating sustainability fully into curricula and changing the engineering paradigm requires support from leading scientists, faculty and university leadership (Kamp, 2006).

On that line of thought, a Sustainable Development Principles course was developed as part of the 18 foundational basic courses for two Bachelor of Science degrees: in Civil Engineering and in Mechanical Engineering. This course deals with the principles of sustainable development as they apply to engineering systems. Students work in teams to study an engineering system of their choice, learning and applying principles of sustainable energy, materials, and economics in a systems approach to developing a sustainable solution for a given engineering problem.

8.3. LEARNING OBJECTIVES

Table 8–3

Learning objective dimension (UNESCO, 2017)	Operationalization	Competency referred to (Rieckmann, 2018)
Cognitive	Develop a personal definition of Sustainable Development and describe the engineer's responsibility in the process.	Anticipatory competency
	Explain the characteristics of systems thinking and why it is essential to sustainable development.	Systems thinking competency
	Describe the principles of sustainable energy systems and sustainable materials.	Systems thinking competency
	Perform life cycle financial analyses of an engineering system.	Systems thinking competency
	Within a team, perform a sustainability assessment of an engineering system and make recommendations for its sustainable development.	Systems thinking competency
Socio-emotional	Envision change and achieve sustainable transformation starting at a college level.	Anticipatory competency
	Differentiate between needs and wants in the light of Sustainable Development Principles.	Critical thinking competency
	Develop social skills permitting students to collaborate, negotiate and communicate.	Collaboration competency

Learning objective dimension (UNESCO, 2017)	Operationalization	Competency referred to (Rieckmann, 2018)
Socio-emotional	Promote self-reflection skills, values, attitudes, and motivations that allowing students to develop themselves.	Self-awareness competency
	Foster reflection on their own personal belonging to diverse groups (gender, social, economic, political, ethnical, national).	Critical thinking competency
	Encourage thinking and recognition on their own access to justice and their shared sense of humanity.	Critical thinking competency
Behavioural	Reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations.	Self-awareness competency
	Challenge cultural and societal orientations in consumption and production.	Critical thinking competency
	Plan, implement and evaluate consumption-related activities using existing sustainability criteria.	Anticipatory competency

8.4. COURSE OUTLINE

Table 8–4

Week	Topic	Project milestones
Module1: Introduction		
1	Introduction	
2	Sustainability Concepts	Topics proposed (Challenge choice): Students choose a challenge
3	Systems Engineering	Establish teams (Socialisation): Students meet team members
Module 2: Components of Sustainability		
4	Sustainable Energy Systems	Team agreement (Signature) Students define team agreement
5	Scope and system boundaries	Project proposal (Challenge definition and project component): Students define scope and boundaries of the challenge
6	Sustainable Water Systems	
7	Sustainable Materials	
8	Causal Loop Analysis	Systems analysis (project component): Students perform a causal loop analysis of the system where the challenge is framed
Module 3: Economic Analysis		
9	Time value of money	

Week	Topic	Project milestones
10	Life cycle cost analyses	
11	Economic analysis	Economic analysis (project component): Students complete an economic analysis of the system
Module 4: Engineering Project Application		
12	Project progress meetings	
13	Project progress meetings	
14	Project progress meetings	
15	Final Project Presentations	Final report: Students submit a final report and oral presentation
	No final exam	

8.5. TEACHING APPROACHES AND METHODS

Delivery Methods

This is an online course. There are no scheduled synchronous meetings or lectures during the entire class. There is a weekly schedule of assignments and deliverables where students can dig into cognitive competences by means of several delivery methods like self-reading, case study analysis, and arts-based learning (films and documentaries). Furthermore, students are expected to work in teams to meet the learning outcomes and complete the course project. There are also individual assessments of students' knowledge. Students will develop both socio-emotional and behavioural skills in parallel. Both problem-based and team-based learning have been demonstrated to be high impact pedagogical techniques (Maida, 2011; Kłeczek et al, 2020; Beier et al, 2019; Anwar and Menekse, 2020). Faculty teaching the course have found that these approaches encourage students to engage with the material in a deeper fashion.

Teaching Approach

The typical weekly teaching approach in this course is as follows: All weeks start with a posting of assigned reading and/or video material. Students are expected to read and/or watch the assigned materials and take notes. These assignments cross many disciplines within Science, Technology, Engineering, and Maths (STEM) and sometime include topics outside of STEM disciplines such as art or philosophy. The assignments allow students to tackle several complementary learning approaches dealing with case study-analysis and trans-disciplinary perspective. After completing the assigned readings and/or videos, students are expected to make a thoughtful individual written report on the

topic of the week. Additionally, at the end of each week students are given an exercise to assess their individual understanding of the learning outcome for the week.

As a key collaborative learning experience, students are also required to complete a major team project related to sustainable development as the culminating experience for this class. The teams are selected by the instructor and include three or four students. This project requires teams to define a significant engineering problem, identify the system in which the problem is enclosed, perform a system level analysis of the problem, and generate a sustainable approach to solving the problem. Students can choose the problem from a list provided by instructors. The final project asks students to use a biomimetic approach to development of a possible technological problem. This approach creates change of perspective, encourages out-of-the-box thinking, and fosters entrepreneurial skills. The aim is to promote creativity (using a biomimetic view) and enhance engineering project aptitudes (using a holistic view).

8.6. EXERCISES

Typical Weekly Course Structure

Most weeks start with a posting of assigned reading and/or video material on Tuesdays. Students are expected to read and/or watch the assigned materials and take notes. After completing the assigned reading and/or videos, students are expected to make a thoughtful individual written report to the topic of the week by the end of the day on Thursdays. There is an end of the week exercise due on Fridays.

The reports should cover the following two issues:

- Discussion essay (minimum 500 words): write an essay marshalling facts to support or challenge any claim, fact or position taken in the reading or film, or related to corresponding weekly exercise.
- Questionnaire (minimum 150 words per question): answer specific questions or address specific issues related each learning activity, readings, films, or weekly exercises.

Video Assignments

Every week students are given a documentary film to watch as homework assignments (Liu, 2018; Donnelly, 2020). Films are selected to reflect issues that resonate with the students of the Sustainable Development Principles course. The goal is for viewers to leave more informed, inspired and equipped with concrete actions to take in their lives and communities, related to engineering, sustainability, and economy. Every week (on Tuesdays) a documentary film to watch, as homework assignment, will be given. All watching assignments are available online without fees on a streaming platform (as identified in subchapter "Prerequisites"). Homework should be solved handwritten and be turned in by the end of the day on Thursdays in a PDF format.

Reading Assignments

Reading assignments are selected to cover basic factual information (e.g., global energy sources, carbon cycle, financial terminology) or fundamental skills (e.g., life cycle analysis, time value of money computations). These readings are taken from open-source material whenever possible.

Weekly Exercises

At the end of each week (on Fridays) students are given an exercise to demonstrate their understanding of the learning outcome for the week. These exercises are individual assessments. Table 8–5 presents the twelve exercises given to the students. The students had to prepare a written report addressing issues presented in each exercise.

Table 8–5

Week	Exercise	Covered section
1	Degradation of the local natural environment or when tragedy knocks at your door (essay analysing the situation)	Intro to Economics and Sustainability
2	Economic growth and sustainable development: Are they compatible? (essay analysing the situation)	Design for environment
3	Controlling COVID-19 spread on 'Angelo State' campus or covering coughs and sneezes and keeping hands clean (essay analysing the situation)	Systems Engineering
4	The future of Texas' power supply or how to prevent downtime and power outages (essay analysing the situation)	Energy systems
5	The future of San Angelo's water supply or how to prevent downtime and water outages (essay analysing the situation)	Water systems

Week	Exercise	Covered section
6	The cheapest water bottle or a simplified Life Cycle Analysis (exercise based on databases)	Life Cycle Analysis
7	How to calculate accumulated costs for an order of tennis rackets (calculation exercise)	Accounting fundamentals
8	Time value of money or how much money do you need to save to be a millionaire? (calculation exercise)	Capital and operating funds
9	Cash flow diagrams or how much does it cost to build a bridge? (calculation exercise)	Financial Basics
10	Investing in bonds or how do process and yields work? (calculation exercise)	Financial analysis
11	The Internal Rate of Return (IIR) method or is the investment a good one? (calculation exercise)	Financial analysis
12	Computational tools for Financial Analysis (calculation exercise)	Financial analysis

Final Project

Students are required to complete a major final project related to a biomimetic design challenge of engineering systems, or in other words, emulating nature to solve technological problems. The final project of this course is developed with an approach based on the premise that nature has been innovating for sustainability for four billion years through the processes of evolution, and there is much to be learned from biological systems about both innovation and sustainable development. Summing up, nature offers a palette of ready-made solutions, waiting for the right problem or need to be expressed. That is what is called biomimicry (*bio*, meaning life in Greek, and *mimesis*, meaning to copy and emulate). The main goal of the project is for students to conceptualize and develop a given engineering design from the three perspectives: sustainability, economics, and project development. The fundamental skills student develop in each of these three areas will be applied in later courses through the curriculum.

The project is scaffolded starting with the project proposal developed in week five, followed by the systems analysis in week eight, and the economic analysis in week eleven. Student teams receive feedback on each of these report parts as they are submitted. The last four weeks of the course are devoted to preparation and presentation of the final report. Both written and oral presentations are required.

As discussed in subchapter “Teaching Approaches and Methods”, each student is placed in a team of three to four students. The teams choose and define their own design challenge with instructor guidance. The end product of the project development of a potential approach to solving a technological problem. This final project fosters entrepreneurial skills, encourages a change

of perspective, and promotes out-of-the-box thinking. A secondary objective of the final project is to spark creativity and promote an applied engineering vision.

8.7. ASSESSMENT

The weighting system shown in Table 8–6 is used in determining final grade for the course.

Table 8–6

Item	Percent
Homework [Reports]	10 %
Weekly exercises [Reports]	30 %
Project [Component reports, Final report, and Final presentation]	60 %
Total	100 %

Neatness counts! As an engineer and a professional, students´ work often is read and scrutinised by others. In some instances, it could be a legal document or a piece of evidence in a court of law. It is responsibility of each student that the work she/he prepares is presented in a legible, methodical, and logical manner. Homework grades are primarily based on thoroughness, neatness, and completeness.

Students may collaborate to complete the homework; however, each student must turn in his/her own assignment for grading according to his/her own pace (Newton and Salvi, 2020). Direct copying of other's work is not allowed and may be subject to disciplinary actions.

8.8. PREREQUISITES

Academic prerequisite:

- The prerequisite for the course is College Algebra. Specifically, the following math topics are applied in the course: exponents and radicals, logarithms, factoring, algebraic quotients, systems of equations, inequalities, absolute value, and solution of linear equations.

Technology requirements:

- All watching documentary assignments are to be made available to students on a free of charge streaming platform (e.g., Kanopy, Hoopla Digital).

Communications systems:

- Content delivery and online discussion boards: A Learning Management System (LMS, e.g., Blackboard, Canvas, Moodle) is used to deliver all course content both text and video. Course wide online discussion boards were facilitated through the LMS following the guidance of Wikle and West (2019) The schedule and basic schedule and flow of the course is controlled through the LMS.
- Time sensitive faculty-student communications: All faculty use email to facilitate direct, timely communication with students. Some faculty also use social media platforms such as GroupMe® or WhatsApp® for communications with students.
- Collaborative project tools: Google Drive is used to facilitate and document project work within the student teams. Each team is required to create a Google Drive for the course and allow the instructor to join the drive. In this way the instructor can monitor the process and collaboration.
- Online meeting platform: An online video meeting platform is essential for faculty to communicate with student teams and for internal team communications. Selection of an online meeting platform is at the discretion of the instructor. Google Meets®, MS-Teams, and Webex® can be used as well as systems within the LMS.
- Grading: Grading is conducted both within the LMS and using third part grading tools such as Gradescope®, or Turnitin®. The gradebook is kept within the LMS.

8.9. RECOMMENDED RESOURCES

Selected Documentaries for Use in Course:

- Subject: Consumption & Growth

  Scheltema, R. (Director). (2019). Normal is Over 1.1 [Film]. Telekan.

- Subject: Water and Power System

  Hames, M. (Director). (2019). Thirst for Power [Film]. Alpheus Media.

- Subject: Technologies in Human Life

  Walsh, W. & Blacknell, S. (Directors). (2018). The Future of Work and Death [Film]. First Run Features; Journeyman Pictures.

- Subject: Biomass

  Dater, A. & Merton, L. (Directors). (2017). Burned: Are Trees the New Coal? [Film]. Marlboro Productions.

- Subject: Systems engineering

  Cabrera Research Lab (Producer). (2015). Systems-thinking: A little film about a big idea [Film]. Photosynthesis Productions.

- Subject: Humans on the Planet

  Baichwal, J., de Pencier, N. & Burtynsky, E. (Directors). (2018). Anthropocene: The Human Epoch [Film]. Mercury Films; Seville International.

- Subject: Economy

  Pemberton, J. (Director). (2019). Capital in the Twenty-First Century [Film]. General Film Corporation; Upside Production.

- Subject: Rich/Poor

  Round, K. (Director). (2016). The divide [Film]. Dartmouth Films; Literally Films.

- Subject: Climate Change

  Briggs, M. (Director). (2012). Deep Green, Solutions to Stop Global Warming Now [Film]. Bent Image Lab; Deep Green Films.

General Open Resource Material:

- Theis, T., & Tomkin, J. (Eds.). (2018). *Sustainability: A Comprehensive Foundation*. Urbana-Champagne, IL, USA: University of Illinois. https://open.umn.edu/opentextbooks/textbooks/96
- Meadows, D. (1998). *Indicators and Information Systems for Sustainable*. The Sustainability Institute. http://donellameadows.org/wp-content/userfiles/IndicatorsInformation.pdf
- Cal Poly Pomona (n.d.). Sustainable Learning Suite from Linda Vanasupa. *Materials Engineering*. https://digitalcommons.calpoly.edu/mate_fac/
- Linda Vanasupa (2011, February). Series of videos and PowerPoint presentations on sustainable development. https://www.youtube.com/user/lvanasup

Low-cost subscription material:

- Fiksel, J. R. (2009). Design for environment: A guide to sustainable product development. (Second edition.). McGraw-Hill.

Open-source life cycle analysis resources:

- Sustainability Impact Metrics (spin-off of the Delft University of Technology) (n.d.). Idemat. https://www.ecocostsvalue.com/data/idemat-and-idematlightlca/
- GreenDelta GmbH (n.d.). OpenLCA. https://www.openlca.org/

Global energy resources:

- British Petroleum. (2020). *BP Statistical Review of World Energy, 69th Ed* (p. 68). British Petroleum. https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy.html
- Lawrence Livermore National Laboratory (2020, May 13). *Everything You Need to Know About the Energy Flowcharts* [Video]. YouTube. https://www.youtube.com/watch?time_continue=53&v=OBuAzxp3EE0&feature=emb_logo
- The Global Climate and Energy Project (n.d.). *Global Exergy and Carbon Database* [Dataset] https://gcep.stanford.edu/research/exergycharts.html
- Lawrence Livermore National Laboratory (n.d.-b). Energy Flow Charts [Dataset] https://flowcharts.llnl.gov/home
- *Exergy Economics* (2015, November 12). What Is Exergy? https://exergyeconomics.wordpress.com/exergy-economics-101/what-is-exergy/

8.10. GENERAL TIPS FOR TEACHERS

Instructors of this course have found that frequent communication with both individual students and student teams is essential, particularly since the course is taught in an asynchronous mode. Similarly, good (virtual) communication among students is necessary. These communications must happen in a way they feel comfortable among peers to express their opinions, doubts, and difficulties, and to generate a sense of belonging to the group. The greater the number of interactions/communications, the greater the motivation and involvement in the learning experiences. Finally, flexibility in the ways support and help is offered is essential to facilitate the learning process and achieve the expected course outcomes.

REFERENCES

Anwar, S., & Menekse, M. (2020). Unique contributions of individual reflections and teamwork on engineering students' academic performance and achievement goals. *International Journal of Engineering Education*, *36*(3), 1018–1033. https://www.ijee.ie/1atestissues/Vol36-3/18_ijee3931.pdf

Ashford, N. A. (2004). Major challenges to engineering education for sustainable development: What has to change to make it creative, effective, and acceptable to the established disciplines? *International Journal of Sustainability in Higher Education*, 5(3), 239–250. https://doi.org/10.1108/14676370410546394

Beier, M. E., Kim, M. H., Saterbak, A., Leautaud, V., Bishnoi, S., & Gilberto, J. M. (2019). The effect of authentic project-based learning on attitudes and career aspirations in STEM. *Journal of Research in Science Teaching*, *56*(1), 3–23. https://doi.org/10.1002/tea.21465

Byrne, E.P., Desha, C., Fitzpatrick, J.J. & Hargroves, K. (2010). Engineering education for sustainable development: a review of international progress. Workshop paper for the 3rd International Symposium for Engineering Education, Cork, 30 June – 2 July 2010. University College York, Cork, pp. 1–42. http://hdl.handle.net/10468/372

Desha, C. J., Hargroves, K., Smith, M. H. (2009). Addressing the time lag dilemma in curriculum renewal towards engineering education for sustainable development. *International Journal of Sustainability in Higher Education*, 10(2), 184–199. https://doi.org/10.1108/14676370910949356

Donnelly, D. J. (2020). Integrating filmic pedagogies into the teaching and learning cycle. In: Allender, T., Clark, A., Parkes, R. (Eds.). *Historical Thinking for History Teachers: A new approach to engaging students and developing historical consciousness*. Routledge. https://doi.org/10.4324/9781003115977

Glavič, P. (2020). Identifying Key Issues of Education for Sustainable Development. *Sustainability*, 12(16), 6500. http://dx.doi.org/10.3390/su12166500

Kamp, L. (2006). Engineering education in sustainable development at Delft University of Technology. *Journal of Cleaner Production*, 14(9–11), 928–931. https://doi.org/10.1016/j.jclepro.2005.11.036

Kłeczek, R., Hajdas, M., & Wrona, S. (2020). Wicked problems and project-based learning: Value-in-use approach. *The International Journal of Management Education*, *18*(1), 100324. https://doi.org/10.1016/j.ijme.2019.100324

Liu, S.-C. (2018). Environmental Education through Documentaries: Assessing Learning Outcomes of a General Environmental Studies Course. Eurasia Journal of Mathematics, *Science and Technology Education*, 14(4), 1371–1381. https://doi.org/10.29333/ejmste/83653

Maida, C. A. (2011). Project-Based Learning: A Critical Pedagogy for the Twenty-First Century. *Policy Futures in Education*, *9*(6), 759–768. https://doi.org/10.2304/pfie.2011.9.6.759

Newton, P. M. & Salvi, A. (2020). How common is belief in the learning styles neuromyth, and does it matter? A pragmatic systematic review. *Frontiers in Education*, 5(602451), 1–14. https://doi.org/10.3389/feduc.2020.602451

Perpignan, C., Baouch, Y., Robin, V., Eynard, B. (2020). Engineering education perspective for sustainable development: A maturity assessment of cross-disciplinary and advanced technical skills in eco-design. *Procedia CIRP*, 90, 748–753. https://doi.org/10.1016/j.procir.2020.02.051

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wikle, J.S. & West, R.E. (2019). An Analysis of Discussion Forum Participation and Student Learning Outcomes. *International Journal on E-Learning*, 18(2), 205–228. Waynesville, NC USA: Association for the Advancement of Computing in Education (AACE). https://www.learntechlib.org/primary/p/181356/

Aušrinė Šilenskytė

Chapter 9. Teaching Diversity Management Online: A Learning Journey for Achieving Inclusion

9.1. COURSE SUMMARY

Table 9–1

Audience and level of studies	Students (Bachelor/Master)	
Group size	≤ 25 /26–50 /51–75 /76–100	
Course duration	12 or 27 weeks	
Credits	5 ECTS	
Workload	Presence: 3h (optional) Self-study: 125h	Total: 125h
Contents/primary topics	• My Biases, Prejudice & Stereotypes • Managing Diversity in Organisations • Managing Diversity as a Team Leader/Member	
Main course objectives	• Learning to analyse own prejudices, stereotypes, and biases and evaluate their influence on oneself and others in personal and professional life; • Learning to recognise diversity-related challenges and design strategies for fostering inclusion in diverse teams and organisations; • Developing decision-making and problem-solving, collaborating in diverse teams, and self-management skills.	
Main teaching approaches	• Experiential learning • Collaborative learning	
Main teaching methods	• Self-reflection task/exercises • Vision-building exercises • Role-play	
Learning environment	Virtual classroom (online learning), asynchronous	
Link to Sustainable Development Goals (SDGs)	SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 10 | Reduced Inequalities | Reduce inequality within and among countries	

Table 9–2

Impact assessment:	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students learn through completing the course activities and reflecting on their experiences. In some of the exercises, students select topics to be researched and design solutions for the chosen problem.
2. Degree of student collaboration / group work	Medium	Out of three themes in the course, the second theme includes group and pair exercises. The first theme of the course should be completed individually. The last theme of the course consists of individual work and an interview with one person.
3. Degree of student emotional involvement	High	Throughout the course, sensitive issues are discussed. Students are encouraged to observe and analyse their emotional responses.
4. Degree of inter-/trans-disciplinarity	High	The tasks in the course require building solutions by combining insights from several disciplines, such as human resource management, (strategic) international management, psychology, and communication.
5. Degree of student (self-) reflection	High	Students are requested to reflect on their thinking, feelings, or abilities in every assignment in the course.
6. Degree of experience of real-life situations	Medium	All the tasks represent real-life situations. In some of the tasks, students work on the real-life situations described or recorded in cases. In several other tasks, students work in diverse teams or interact with stakeholders from real life.
7. Degree of nature-related experiences	(None)	There are no nature-related activities as the course focuses on economic and social dimensions of sustainability.
8. Degree of stakeholder integration	Medium	Real-life interaction with the stakeholders is integrated into one out of six tasks. In the other five tasks, stakeholders are considered extensively but without real-life interaction with them. Solutions designed in all the tasks must address the needs of various stakeholders.
9. Degree of integration between theory and practice	High	All the activities on the course require the application of theory to practice. The tasks on the course support the learning objectives at the higher end of Bloom's taxonomy.

9.2. COURSE INTRODUCTION

This chapter introduces an asynchronous online course, *"Diversity Management in Organisations*". The course is designed based upon the teaching strategy "*Diversity as a learning journey"*, which the author has created over more than five years of practice when teaching the topic. Diversity as a learning journey (DALJ) is a teaching strategy grounded in the principles of experiential learning (Kolb, 2014) and the Confucian perspective on self-directed learning (Tan,

2017). Through various encounters and reflections, learners[13] develop an ability to recognise the limitations of individual cognitions and realise their impact on others. The learning journey strategy addresses diverse learning styles, abilities, and cultural preferences. Therefore, the DALJ strategy allows the creation of an intimate, safe, learner-centred environment for personal growth. The DALJ strategy supports the development of an inclusive mindset and behaviours required to nurture social responsibility in organisations and sheds light on various aspects within the social and economic spheres of sustainability.

The DALJ begins with learners exploring the individual level of diversity management through reflections on human thinking and feelings and their impact on organisational and social life. Then, learners continue by practising diversity management in large and small teams. Reflections and vision-building exercises support diversity encounters in teams. In these exercises, learners prepare for the encounter or reflect on it by analysing individual takeaways and their transferability to similar situations in the future. The chain of activities exposes learners to the complexity of diversity and its management. Thus, through this journey, learners realise that diversity management is an ongoing process that will and should continue beyond the course assignments.

The course comprises three themes and six diverse tasks to be completed (see subchapter "Course Outline"). The tasks within the themes should follow the suggested order because the tasks are interrelated and build on one another. The tasks can be completed over 12 weeks or an extended period of six months if needed. The learning outcomes are achieved at the highest level when implementing a complete journey; however, separate tasks can also be utilised as standalone activities. Adopting this DALJ strategy allows the learning objectives at the higher end of Bloom's taxonomy to be achieved (Shabatura, 2013). Learners actively apply course material, analyse the situations and their own cognitions, evaluate their impact, and create individual and organisational solutions to foster inclusion.

The teacher designs the journey and assesses learner development but acts as a coach who trusts learners' commitment to learning (Tan, 2017). The teacher encourages, engages, organises work (via course communication), challenges, directs, and supports personal learner development (via individual formative assessment). The learners accumulate a final grade for the course by completing six tasks, each evaluated by several criteria (summative assessment). The accumulative grading reinforced by the teacher's feedback reduces the fear of failure. Learners can receive the highest final evaluation even when

13 The term 'learner' (instead of 'student') is used to emphasise the continuity of DALJ. Students are encouraged to continue DALJ beyond the course activities that end by the time students finish their formal education.

some of the criteria are evaluated as low. Moreover, learners receive advice for further improvements. Consequently, learners can dive into explorations and practise diversity management without stress.

9.3. LEARNING OBJECTIVES

Table 9–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Rieckmann, 2018)**
Cognitive	The learner *understands*: • SDG 3: "the negative impacts of behaviours such as xenophobia, discrimination" (p. 16) • SDG 5: "the concept of gender, gender equality and gender discrimination and knows about all forms of gender discrimination, violence and inequality" (p. 20) • SDG 8: "the concepts of … productive employment, and decent work, including the advancement of gender parity and equality" (p. 26) • SDG 10: "ethical principles concerning equality and is aware of psychological processes that foster discriminative behaviour and decision-making" (p. 30)	Systems thinking & Self-awareness competencies
Socio-emotional	The learner is *able to*: • SDG 3: "create a holistic understanding of …well-being and to clarify related values, beliefs and attitudes" (p. 16) • SDG 5: "identify and speak up against all forms of gender discrimination and debate the benefits of full empowerment of all genders" (p. 20) • SDG 8: "identify their individual rights and clarify their needs and values related to work" (p. 26) • SDG 10: "feel empathy for and show solidarity with people who are discriminated against" (p. 30)	Normative & Critical thinking competencies
Behavioural	The learner is *able to*: • SDG 3: "publicly demand and support the development of policies promoting … well-being" (p. 16) • SDG 5: "plan, implement, support and evaluate strategies for gender equality" (p. 20) • SDG 8: "facilitate improvements related to unfair wages and unequal pay for equal work" (p. 26) • SDG 10: "identify and analyse different types of causes and reasons for inequalities; plan, implement and evaluate strategies to reduce inequalities" (p. 30)	Anticipatory, Strategic, & Integrated problem-solving competencies

9.4. COURSE OUTLINE

Table 9–4

Theme	The focus of the theme	Assignments
Theme I (week 1–3): "My Biases, Prejudice & Stereotypes" *Completed by*: - Watching two recorded video lectures (each approx. 40 min). - Reading obligatory and optional study materials. - Watching a set of short, publicly available videos and video cases. - Participating in one real-time (via Zoom) Questions & Answer session with the teacher. - Applying study material in and completing Tasks 1 a & b. - Receiving individual feedback on the tasks' deliverables.	Topics addressed in Theme I: • What is diversity? • What dimensions does diversity have? • What is diversity management, and why is it important? • Why is it essential to have a life-long learning approach to diversity and its management? • Why are we all biased, and why do we need to accept and address this? • How can we deal with our biases, stereotypes, and prejudgment? Learning goals in Theme I: • Learn to recognise what visible and invisible diversity dimensions are, what they are likely to affect, and why they are essential to us in management or teamwork contexts; • Challenge individual thinking and trigger some unexpected reactions in learners; • Plan personal development towards being more inclusive; • Learn to understand that being inclusive is NOT about accepting or agreeing with everything.	Task 1a: "Reflect on my biases & plan for developing empathy and inclusive mindset" *Type*: individual assignment. *The goal of task 1a:* motivate learners to develop self-management and decision-making skills by practising deep, qualitative reflection and self-analysis. Learners practise noticing patterns of their thinking and behaviours and strategise the development of new behavioural patterns. Task 1b: Quantitative self-assessment on diversity skills and attitudes *Type*: individual assignment. *The goal of task 1b:* to enhance learner self-management and self-assessment skills. Learners are encouraged to evaluate their attitudes numerically and set measurable quantitative self-development goals.

Theme	The focus of the theme	Assignments
Theme II (week 4–9): "Diversity Management in Organisations". *Completed by*: - Watching two recorded video lectures (each approx. 40 min). - Reading obligatory and optional study materials. - Watching a set of short, publicly available videos and video cases. - Signing up to the diverse teams and finding a pair to work with via an online platform, such as Wiki. - Participating in one real-time (via Zoom) Questions & Answer session with the teacher. - Applying study material in and completing Tasks 2, 3, & 4. - Receiving feedback on individual and group tasks' deliverables.	Topics addressed in Theme II: • What are organisational choices while managing diversity? • What guides organisational decisions and understanding of diversity? • How can we know that an organisation is inclusive? • Do's and Do not's in diversity management within the organisation; • How diversity management is similar and different within indigenous firms and multinational corporations; • What are the challenges while implementing diversity management in an organisation? • How to facilitate the diversity management implementation process in organisations? • What I, as a manager, or team member, could do to support inclusion in organisations? Learning goals in Theme II: • Learn to make informed decisions about what kind of diversity management is the best for a particular organisation; • Practise designing organisational systems for diversity management in multinational corporations; • Learn to 'sell' diversity management decisions to the management team of an organisation; • Practise detecting and fixing flaws in the diversity management implementation process; • Practise designing diversity management solutions that fit a particular context; • Practise working with and making decisions in diverse teams.	Task 2: Diversity Management Policy for the Company *Type*: group assignment. *The goal of task 2:* practise making organisational decisions about diversity management when working in a diverse team. Practise designing systems that would support diversity management in organisations; practise leading organisational change towards diversity and inclusion by persuasive communication about the need for diversity management and necessary steps. Task 3: Reflection on the teamwork in diverse virtual teams *Type*: individual assignment. *The goal of task 3:* learning to re-assess conflicts and problems faced in a diverse team; translating past experiences into strategies for future work in diverse teams. Task 4: Solving company challenges in the implementation of Diversity & Inclusion (D&I) initiatives *Type*: assignment in pairs. *The goal of task 4:* practising analysing multiple perspectives within the same situation and finding diversity management solutions in the conflicting situations that satisfy all parties involved.

Theme	The focus of the theme	Assignments
Theme III (week 9–12 (-27)): "Managing Diversity as a Team Leader/Member" *Completed by*: - Interactions via the online platform, in which learners select their topic for explorations. - Studying guidelines on The General Data Protection Regulation 2016/679 (GDPR) and good practices for conducting an interview. - Searching for and studying materials on the selected problem. - Participating in one real-time (via Zoom) Questions & Answer session with the teacher. - Applying researched material in and completing tasks 5 & 6. - Receiving individual feedback on tasks' deliverables.	Topics addressed in Theme III: • Learners choose what they wish to learn. In this way, learners strengthen their self-management, decision-making, and problem-solving skills. Learners can revise themes studied earlier, reflect on questions that piqued their interest, or explore the least discussed questions that they consider essential. This theme provides learners with the opportunity to explore one topic in depth from academic and practical angles. Learning goals in Theme III: • Learn to search for diversity management solutions in academic literature; • Learn to test theoretical insights in practice; • Learn to design comprehensive diversity management solutions and strategise about needed individual behaviours to support the implementation of that solution.	Task 5: Academic essay on how to solve the chosen problem & designing questions for the interview *Type*: individual assignment. *The goal of task 5:* practise analysing and providing a polite but many-sided evaluation about the chosen question; support diverse arguments presented in the relevant academic material and high-quality business press. Learn to design interview questions that would help to observe the chosen problem from various angles. Task 6: Video interview & reflection with the solution *Type*: individual assignment. *The goal of task 6:* investigate diversity problems in practice by understanding the experiences of people who represent specific diversity dimensions; consider diverse perspectives when designing diversity management solutions; create solutions and individual behaviours that would support the solution of the problem explored.

9.5. TEACHING APPROACHES AND METHODS

Diversity as a learning journey (DALJ) has been created based on the principles of experiential learning (Kolb, 2014) and the Confucian perspective on self-directed learning (SDL) (Tan, 2017). This subchapter elaborates on the principles and how and why these principles have been utilised when designing this teaching strategy.

The diversity of race, age, gender, religion, sexual orientation, etc., is a subject that comprises values, attitudes, behaviours, all of which cannot be judged as merely being "right or wrong". For example, cultural diversity alone alters individual evaluations and behaviour at work (Martin, 2014) and organisational actions to embrace cultural diversity (Nishii & Özbilgin, 2007).

Therefore, in our evaluation of ourselves and others, the differences and similarities of others change or can be changed by training or similar interventions (O'Donovan, 2018). Consequently, the strategy of learning diversity management must embrace this transformation. When developing the DALJ strategy, Kolb's theory of experiential learning was applied. The theory suggests that learning is a continuous process that must be supported by various encounters, reflections, and explorations (Kolb, 2014). In every new cycle of explorations, the learner must involve themselves genuinely in new experiences, setting their preconceptions aside (Kolb, 2014). Thus, in DALJ, learning occurs through observing, experiencing, reflecting, and making sense of the experience.

Diversity refers to differences among individuals (O'Donovan, 2018). Thus, diversity management should be preferably explored via social interactions in which these differences are comprehended and placed in context (Thomas, Tran, & Dawson, 2010). Consequently, collaborative learning (Strijbos, 2016) and creating knowledge together (Kolb, 2014) are two crucial principles of learning included in DALJ. As a result, despite suggesting an asynchronous delivery mode, out of six tasks in the course, three tasks are completed together with others. The other three tasks are meant to prepare for or reflect on social interaction. Social interactions on the course are designed so that participants do not need to be familiar with each other in advance but can create knowledge together. Digital tools, such as Wiki in Moodle or any other platform where participants can 'sign in' for the activity with others, simulate work environments in which colleagues do not always know each other before the job.

Diversity should be evaluated in a context (Thomas et al., 2010; O'Donovan, 2018). Kolb (2014) suggests that learning should be holistic and should integrate thinking, feeling, perceiving, and behaving. Learning should encourage understanding of the relationship between the individual and the environment (Kolb, 2014). Therefore, applying Kolb's suggestions to DALJ, learners are encouraged to consider these elements in self-reflection tasks, vision-building exercises, roleplays, and interviews completed over the learning journey. To further support learner explorations, learning in the course is evaluated as a process rather than an outcome (Kolb, 2014). Consequently, learners develop a positive attitude towards lifelong learning about diversity management instead of focusing on scoring high in a single course.

The application of Confucian SDL further strengthens the course design and intentions to encourage individuals' responsibility in the continuous learning of diversity management. According to Confucian SDL theory, "the process of learning involves knowing the Way" (Tan, 2017, p. 254). The ultimate goal of self-cultivation is to reach an equilibrium between the individual and the environment (Tan, 2017). Hence, learners are encouraged to challenge

themselves, explore perspectives around them, and take responsibility for self-development, building on their present competencies.

The teacher's role in planning, implementing, and assessing the learner's journey according to Confucian principles is central (Tan, 2017). That is why the DALJ is a structured path designed and followed by the teacher, who helps learners in their endeavours towards fostering inclusion. The process when learners study the assigned materials individually and then engage in applied exercises and interactions with others creates conditions for individuals to realise the importance of commitment to improvement.

Diversity management relates to the re-evaluation of one's own identity, self, and personal relations with others (Thomas et al., 2010). It is well documented that individuals have a strong motivation to defend rather than question their own beliefs, even when educational messages have high personal relevance (Sherman & Cohen, 2006). "Self-threatening feedback can exacerbate outgroup derogation and the use of stereotypes" (Sherman & Cohen, 2006, p. 203). In addition, maintaining 'face' in some cultures is crucial (Heine, 2004); people with more introverted personalities value individual rather than group reflections (Cain et al., 2016). Thus, in the DALJ, the course design is asynchronous. All assignments intended to challenge individual assumptions are completed privately and submitted only to the teacher. All task-focused assignments in which learners solve organisational challenges are completed in groups or pairs and discussed in open forums. There is a time gap between consuming provocative materials and engaging in activities in which materials are applied. Such a timetable provides space for emotions to calm down. Once emotions are put aside, learners can evaluate the situation with a higher degree of criticality and challenge their thinking patterns.

The DALJ strategy opposes the traditional (Western-origin) diversity training structure, in which public discussions on sensitive topics (disregarding the level of inclusion competencies, culture, or personality of each individual) are widely practised (e.g., Von Bergen, Soper, & Foster, 2002; Paluck, 2006). Traditional diversity training promotes essentialism and resistance and neglects complexities (Thomas et al., 2010). The innovativeness of the DALJ strategy lies in allowing learners to engage in SDL with a Confucian perspective, in which the focus is on individualised moral striving (Tan, 2017). SDL structured in themes and focused on intersectionality aligns with the recommendations for overcoming the shortcomings of traditional diversity training (cf. Thomas et al., 2010).

DALJ, grounded in the Confucian SDL approach, is considerably more internally oriented than the Western approach to diversity management training. DALJ illustrates the statement, "*If you want to change the world, start with you...*" (M. Gandhi). Learners frequently reflect that they initially feel weird

when engaging in course activities that are different from standard teaching practices. However, they soon begin to recognise their personal growth. For example, one participant stated: "*Reflecting on this assignment, I feel I was educated as a person more than I have been educated during my entire university studies. There is so much that everyone should learn to become more understanding of and educated about diversity*". Furthermore, learners appreciate the developed ability to focus on the task while utilising the diversity of team members, the structured approach to the journey, and the intimate space to reflect on new ideas.

9.6. EXERCISES

In this subchapter, six tasks suggested to fulfil the DALJ strategy are described. All the tasks are executed as self-directed learning without the teacher's presence. However, the teacher coordinates the activities, provides detailed instructions, and extensively discusses the outcomes, helping learners make sense of their experiences. Although tasks are listed according to the assignment type, it would be recommended to implement them in a specific sequence (see Table 9–4 above).

Self-Reflection Exercises

Task one (individual): Self-reflection on critical incidents (1a) and self-assessment of inclusion competences (1b). In Task 1a, learners are invited to watch and read a set of materials. When watching the videos (see the list of resources in subchapter "Recommended Resources"), learners should think about the following: What are their feelings towards people representing different diversity dimensions? Is their thinking biased towards them? In which situations and why? Learners write and submit two to three pages of personal reflection, which consists of discussion of their personal biases, prejudice, and stereotypes and suggestions for actions that would help them develop empathy and a more inclusive mindset. Task 1b is a brief survey designed upon the *Inclusion Competencies Inventory.* Completing the survey helps learners establish numerical goals for their personal development.

Task three (individual): Self-reflection on virtual group work. In this one to three page assignment, the learner can open up about the group work, reflect upon good and bad moments, and strategise how this experience can be transferred to the other contexts. For the teacher, this assignment provides an understanding of how well the group and the individual have managed diversity, how member inputs have been distributed, and how individual attitudes

towards diversity have developed over the earlier exercises. Learners reflect upon the following question: How did team member diversity affect teamwork? What has the learner personally done to manage diversity during group work? What has the learner learned from working in a diverse team and while trying to manage (or ignore!) diversity?

Vision-Building Exercises

Task two (group of four to five members, diverse at least in terms of nationality/ethnicity and gender identification): Vision-building exercise – creating a diversity policy for a multinational corporation (MNC). In this assignment, learners should work preferably on a real case of an MNC headquartered in the country or the region in which the course is provided. In this way, learners can best understand the local–global dilemma of an MNC in a diversity management context. Direct contact with the company is not needed. Materials about the company available online should be sufficient to complete the task. Learner teams work on designing a two-page business-style diversity management policy that covers principles and steps to integrate diversity into the MNC's operations, followed by a five-point executive summary. Then, each team records a video presentation addressed to the company's top management team (TMT). In this 10-minute presentation, teams must persuade the TMT about the policy's suitability for the company and its benefits for business and explain how the policy should be implemented. Together with the policy, learners submit a *jointly* written paragraph on how they worked as a team. The policy and the presentation are submitted to a virtual forum. The teacher will give feedback on the submitted work as a comment under the team's post in the virtual forum; other learners may also comment. This format allows in-class presentations to be simulated virtually.

Task five (individual): Vision-building exercise – designing an academic solution for a selected problem. Learners select a specific problem they wish to solve, for instance, "How can linguistic diversity be managed at work?" Then, learners write and submit a 3-page academic essay on the topic. Based on the essay, learners design interview questions that could help test assumptions behind the academic solution designed.

Task six (individual): Vision-building exercise – exploring an alternative practical solution. In this task, the learner conducts and records a short four to eight minute video interview with a person who could help them explore their selected problem in practice (e.g., a person who represents the chosen diversity dimension or who experienced the issue). Learners submit a two-page document that includes a) reasons for the selection of this particular interviewee, b) a URL link to the video interview, c) their reflection on how practical insights

obtained via the interview (mis-)align with the theoretical solution designed in Task 5, and d) how they as individuals will behave to solve the selected problem relating to both theoretical and practical insights on the matter.

Roleplay Exercise

Task four (in pairs): Roleplay with script writing. The teacher should select a case representing a diversity management implementation challenge in the country or the region in which the course is provided. The case should feature at least two diverse persons in conflict. Roleplay is conducted face to face or virtually at a time convenient to each pair of learners. Each pair of learners should first debate, defending their position, and then try to reconcile through negotiations. The enacted 'argument' results in a two-page drama script submitted to the teacher. When transcribing the debate (1st page) and negotiations (2nd page), learners are encouraged to convey the participants' emotions and ground their arguments in the course study materials. On the third page, learners write a paragraph describing how they completed the roleplay and how their diversity dimensions helped them (or not) analyse the case.

9.7. ASSESSMENT

The course is asynchronous, and therefore, teaching occurs through assessment. Given the topic's sensitivity, it is essential to consider not only *what* should be assessed but also *how* the assessment should be performed. For this reason, both summative and formative assessments (Crossouard & Pryor, 2012) are widely practised in the course.

When designing evaluation criteria, the teacher should focus on minor enhancements over SDL. The latter ensures that biases in the teacher's evaluations are reduced, and learners can realise the diversity of their abilities. See the example evaluation rubics designed in Table 9–5 below.

Table 9–5

Task 1a&1b: reflection on biases (15 % of the final grade)	**Scale**	**Task 2: DM policy, executive summary and presentation (25 % of the final grade)**	**Scale**
Ability to evaluate critically own patterns of thinking and feeling while reflecting on personal characteristics, individual diversity-related experiences, and reactions to obligatory video material (self-management skills).	1–5	Policy: Ability to make clear and reasoned decisions based on the case company, provided study material, and selected sources of information (decision-making and problem-solving skills).	1–5
		Policy: Ability to synthesize and integrate theoretical material with the "best practices" and practical examples obtained from the live cases (videos on company cases, policies of other companies, etc.) (decision-making and problem-solving skills).	1–5
Ability to choose appropriate methods for individual development of more inclusive mindset (self-management skills).	1–5	Policy: Creativity in designing the Diversity Management Policy for the case company (decision-making and problem-solving skills).	1–5
		Executive summary: Ability to summarize decisions made and provide key arguments for the decisions in the executive summary (decision-making and problem-solving skills).	1–5
Ability to apply and relate to the material provided in the video lectures, videos in this task and the obligatory readings (decision making and problem solving skills).	1–5	Video presentation: Respect for others by listening when others are speaking, responding effectively to others' comments during the conversation or presentation, and showing support to the efforts of others (collaborating in diverse teams skills).	1–5
		Video presentation: Ability to support and explain decisions made while making the Policy (to convince top management team to enact the Policy) (collaborating in diverse teams skills).	1–5
Was task 1b completed (yes/no)?	Pass/ fail	Video presentation: Ability to explain how case company could facilitate policy enactment (collaborating in diverse teams skills).	1–5
		Video presentation: Creativity in presenting Diversity Management Policy (to convince case company top management) (collaborating in diverse teams skills).	1–5
The final evaluation of task 1 – an average of the assessments above		**The final evaluation of task 2 – an average of the assessments above**	

The evaluation criteria have equal weight in task evaluation, but each of the six tasks has varying weight in the final grade depending on their scope. Task one represents 15 % of the grade, Task two represents 25 %, Task three represents 5 %, Task four represents 20 %, Task five represents 20 %, and Task

six represents 15 % of the final grade. Learners can be assigned a number individually, so teacher can share the evaluation rubics with everyone in the course after evaluating each task without compromising the anonymity of the learners. Openly sharing grades ensures trust in the transparency of assessment.

Formative assessment (feedback and support for further development) is performed in two ways: via the course announcements and individual comments on the submitted deliverables. In the course announcements, in addition to sharing a summary of the content-related general takeaways, the teacher should share words of encouragement and appreciation for the entire class. The teacher could issue a video or text with a personal self-reflection similar to the one learners were asked to perform. Such communication creates bonds and trust in a virtual asynchronous course environment. Feedback on the teamwork is publicly shared in the forum. Thus, the teacher should be very constructive and specific about the team's output, start with several positive observations, and move to the issues “for improvement” rather than pointing to “mistakes”.

When conducting formative assessment individually, the teacher should write at least a few lines of text for every learner about every individual task. This assessment should be personalised, demonstrating that the teacher is willing to engage with the learner. Using semiautomated evaluation rubrics does not create the needed atmosphere and relationships. The teacher could pick up on doubts or challenges that the learner has expressed and offer personalised advice, recommend materials for further studies, or share a personal story about a similar situation. If needed, critique should be provided by pointing learners to some overlooked facts rather than sharing moral teachings. For instance, sharing a reference to the rates of discrimination recorded in the country, which learners have ignored but should consider, offering to watch a movie that illustrates the situation that learners have overlooked, and similar suggestions would be recommended. Providing the 'right guidance' is less critical, as it is crucial to motivate learners to engage in further exploration through this personal coaching. If these assessment practices are followed, learners can deeply engage in reflections committing to DALJ.

9.8. PREREQUISITES

Requirements for learners:

- Open attitude and respect for others;
- Commitment to work virtually in individual and group assignments;
- Timely online response to virtual team members and the course teacher (maximum within 48 hours);
- Prior knowledge in management, human resource management, and cultural studies and strong IT literacy are advantages.

Requirements for the teacher:

- Open attitude and respect for others;
- Use of inclusive language (e.g., avoiding gender pronouns);
- The ability to express ideas clearly and concisely and to challenge and encourage students in written and video forms of communication;
- Genuine interest in diversity management and personal development and the ability to learn together with the students;
- Skills in coaching and knowledge in psychology are advantages.

Required tools:

- An online platform for continuous interaction (e.g., Moodle or Canva), which can provide the capacity for online forums, collaborative wikis, sharing contact information safely, and submitting assignments.
- Zoom or a similar tool to conduct real-time online Q&A sessions and to record video interviews and group presentations.
- Optional: Video editing tools if students plan to conduct an interview in another language than the official course language.

9.9. RECOMMENDED RESOURCES

Theme I

Obligatory reading:

- O'Donovan, D. (2018). Chapter 4: Diversity and Inclusion in the Workplace. In Machado & Davim (Ed.) Organizational Behaviour and Human Resource Management (pp. 73–108). Springer, Cham.

- Zhang, R., Wang, M. S., Toubiana, M., & Greenwood, R. (2021). Stigma Beyond Levels: Advancing Research on Stigmatization. Academy of Management Annals, 15(1), 188–222.

Videos lectures:

- Šilenskytė, A. (2022, May). Lecture: Introduction to diversity concept. [Video]. YouTube https://www.youtube.com/watch?v=NGcwSsw8A9w&t=13s
- Šilenskytė, A. (2022, May). Lecture: Introduction to Diversity Management. [Video]. YouTube https://www.youtube.com/watch?v=kqLCGNQjvhc&t=6s

Videos and video cases for Task 1a:

- TED (2009, October) Chimamanda Ngozi Adichie: The danger of a single story | TED [Video]. YouTube. https://www.youtube.com/watch?v=D9Ihs241zeg&t=1s
- Ministry for Ethnic Communities (2012, September). Diversity in the workplace: how race and ethnicity impacts on employment [Video]. YouTube https://www.youtube.com/watch?v=SGNkZY03Hjk
- Divided States of Women (2018, February). Divided States of Jobs ("Pink jobs") [Video]. Facebook https://www.facebook.com/watch/?v=155089325209216
- Participant (2018, November). The Empathy Gap: The Science of Empathy [Video]. YouTube https://www.youtube.com/watch?v=bdLOkqMfRJk
- TEDxTalks (2014, April). Disability and employment struggle- personal lessons: Paul Anomah-Kordieh at TEDxLabone [Video]. YouTube https://www.youtube.com/watch?v=UCxdtD25mVg
- What Would You Do? (2015, August). Same Sex Couple Discrimination + Lesbian Couple's Baby Registry | What Would You Do? | WWYD [Video]. YouTube https://www.youtube.com/watch?v=ve-VNv2wOzg
- Church Newsroom (2016, December). Everyday Example: Religion in the Workplace [Video]. YouTube. https://www.youtube.com/watch?v=xW8lQb0wJZY
- TED (2012, March). The power of introverts | Susan Cain [Video]. YouTube https://www.youtube.com/watch?v=c0KYU2j0TM4&list=PLVxMnLVb7n7jeD1MxosvPWPW5uxYIvmDm&index=3

Material that will help educator to design quantitative assessment for Task 1b:

- Georgia State University CIBER (2021, March). The Inclusion Competencies Inventory: A Skill-based Approach to Inclusion [Video]. YouTube https://www.youtube.com/watch?v=_g2XnM3hLF8&t=2s

Other thought-provoking videos and video cases that can be used in the class, online discussion forums, or assigned to the students for individual studies:

- TEDxTalks (2017, December). I've lived as a man & a woman -- here's what I learned | Paula Stone Williams | TEDxMileHigh [Video]. YouTube https://www.youtube.com/watch?v=lrYx7HaUlMY&t=7s
- TEDxTalks (2015, May). Practical diversity: taking inclusion from theory to practice | Dawn Bennett-Alexander | TEDxUGA [Video]. YouTube https://www.youtube.com/watch?v=ExcDNly1DbI
- Pourriat, E. (2014, February). "Oppressed Majority" (Majorité Opprimée) by Eleonore Pourriat [Video]. YouTube https://www.youtube.com/watch?v=V4UWxlVvT1A
- MTV (2015, July). White People | Official Full Documentary | MTV [Video]. YouTube https://www.youtube.com/watch?v=_zjj1PmJcRM

Theme II

Obligatory reading and video material:

- Nishii, L. H., & Özbilgin, M. F. (2007). Global diversity management: towards a conceptual framework. The International Journal of Human Resource Management, 18(11), 1883–1894.
- Riccò, R., & Guerci, M. (2014). Diversity challenge: An integrated process to bridge the 'implementation gap'. Business Horizons, 57(2), 235–245.
- Friday, E., & Friday, S. S. (2003). Managing diversity using a strategic planned change approach. Journal of Management Development, 22(10), 863–880.
- Kossek, E. E., Lobel, S. A., & Brown, J. (2006). Human resource strategies to manage workforce diversity. In A. M. Konrad P. Prasad (Eds.), book of Workplace Diversity (pp. 53–74). Sage. (Students can read and use only tables in the chapter)
- Liu, C. (2021). Why Do Firms Fail to Engage Diversity? A Behavioral Strategy Perspective. Organization Science, 32(5), 1193–1209.

- Gardner, S.K. (2019, August). Equity and Equality. [Video]. YouTube https://www.youtube.com/watch?v=nCS7Rus4_-Y
- HBR Video (2016). Why the Most Common Diversity Programs Don't Work. [Video]. Harvard Business Review https://hbr.org/video/5108682441001/why-the-most-common-diversity-programs-dont-work
- INSEAD (2008). Diversity is not diversity is not diversity. [Video]. YouTube https://www.youtube.com/watch?v=nqayUpQPZJM

Videos lectures:

- Šilenskytė, A. (2022, May). Lecture: Diversity Management in Organizations. [Video]. YouTube https://www.youtube.com/watch?v=yc9axBVCWlY&t=4s
- Šilenskytė, A. (2022, May). Lecture: Implementing Diversity Management [Video]. YouTube https://www.youtube.com/watch?v=GreCQmMgQHY&t=17s

Some of the optional readings:

- Swan, E. (2010). Commodity diversity: Smiling faces as a strategy of containment. *Organisation*, 17(1), 77–100.
- Sippola, A. (2007). Developing culturally diverse organisations: a participative and empowerment-based method. *Women in Management Review*, 22(4), 253–273.
- Shen, J., Chanda, A., D'netto, B., & Monga, M. (2009). Managing diversity through human resource management: An international perspective and conceptual framework. *The International Journal of Human Resource Management*, 20(2), 235–251.
- Boxenbaum, E. (2006). Lost in translation: The making of Danish diversity management. *American Behavioral Scientist*, 49(7), 939–948.
- Toll, E. (2021). "What is 'Workplace Microaggressions'?" Retrieved from: https://www.diversityresources.com/workplace-microaggressions-training/

Theme III

Material:

- The student selects study material according to their topic.
- It is recommended that the teacher creates one interview on a less openly discussed topic, e.g., sexual orientation, and provides the video as an example to the students.

- Guiding summary on how to conduct the interview ethically and keep GDPR rules could be designed upon: Finnish Social Science Data Archive (n.d.) Data Management Guidelines. https://www.fsd.tuni.fi/aineistonhallinta/en/anonymisation-and-identifiers.html

9.10. GENERAL TIPS FOR TEACHERS

The teacher's ability to demonstrate personal shortcomings without losing authority and commitment to learners' growth enhances the safe atmosphere in the course. The teacher must be an inclusive role model and show equal attention to every learner in the course. This is challenging with large groups of learners but achievable through sincere, continuous communication. The teacher must be respectful of learner objections. When handling objections, the teacher must lead the discussion focusing on facts rather than feelings or personal opinions, demonstrating that everyone's (even those who object to diversity or a particular diversity dimension) point of view is respected. Finally, the teacher should openly share their own biases and personal efforts to overcome them in general and in personal communication with the learners. The latter reinforces the message about continuous personal development towards inclusion and creates shared social identity even if the teacher might be more advanced in the diversity journey.

REFERENCES

Cain, S., Mone, G., & Moroz, E. (2016). *Quiet Power: The Secret Strengths of Introverts*. Penguin.

Crossouard, B., & Pryor, J. (2012). How theory matters: Formative assessment theory and practices and their different relations to education. *Studies in Philosophy and Education*, *31*(3), 251–263.

Heine, S. J. (2004). Positive self-views: Understanding universals and variability across cultures. *Journal of Cultural and Evolutionary Psychology*, *2*(1–2), 109–122.

Kolb, D. A. (2014). *Experiential Learning: Experience as the Source of Learning and Development*. FT Press.

Martin, G. C. (2014). The effects of cultural diversity in the workplace. *Journal of Diversity Management (JDM)*, *9*(2), 89–92.

Nishii, L. H., & Özbilgin, M. F. (2007). Global diversity management: towards a conceptual framework. *The International Journal of Human Resource Management*, 18(11), 1883–1894.

O'Donovan, D. (2018). Diversity and Inclusion in the Workplace. In C. Machado & J. P. Davim (Eds.), *Organizational Behaviour and Human Resource Management* (pp. 73–108). Springer, Cham.

Paluck, E. L. (2006). Diversity training and intergroup contact: A call to action research. *Journal of Social Issues*, *62*(3), 577–595.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–60). UNESCO Publishing.

Shabatura, J. (2013). *Using Bloom's Taxonomy to Write Effective Learning Objectives*. Assignments & Measuring Student Learning. University of Arkansas. https://tips.uark.edu/using-blooms-taxonomy/

Sherman, D. K., & Cohen, G. L. (2006). The psychology of self-defense: Self-affirmation theory. *Advances in Experimental Social Psychology*, *38*, 183–242.

Strijbos, J. W. (2016). Assessment of Collaborative Learning. In G. T. L. Brown & L. R. Harris (Eds.), *book of Human and Social Conditions in Assessment* (pp. 318–334). Routledge.

Tan, C. (2017). A Confucian perspective of self-cultivation in learning: Its implications for self-directed learning. *Journal of Adult and Continuing Education*, *23*(2), 250–262.

Thomas, K. M., Tran, N. M., & Dawson, B. L. (2010). An inclusive strategy of teaching diversity. *Advances in Developing Human Resources*, *12*(3), 295–311.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Von Bergen, C. W., Soper, B., & Foster, T. (2002). Unintended negative effects of diversity management. *Public Personnel Management*, *31*(2), 239–251.

Pilar Acosta

Chapter 10. Solving Sustainability-Related Problems Using Self-Directed Learning

10.1. COURSE SUMMARY

Table 10–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	16 weeks	
Credits	3 ECTS	
Workload	Presence: 48h Self-study: 72h	Total: 120h
Contents/primary topics	• Sustainable development • Organisational strategies for sustainability	
Main course objectives	• Explain the concept of sustainable development and sustainable development goals (SDGs) • Analyse organisational strategies for achieving SDGs • Create a proposal for overcoming sustainability problems facing a specific organisation	
Main teaching approaches	• Experiential learning • Self-directed learning • Active learning	
Main teaching methods	• Sustainability-related consulting project • Lecture • Field trip	
Learning environment	Classroom (face-to-face learning) Beyond classroom (organisational visits)	
Link to Sustainable Development Goals	SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns	

Table 10–2

Impact assessment:	**(None) Low/Medium/High**	**Explanation**
1. Degree of student participation / activeness	High	Students are working on their own sustainability-related consulting project. They are responsible for directing their individual knowledge acquisition process. The teacher offers guidance by providing the necessary resources, but students should demonstrate initiative and curiosity when developing the projects.
2. Degree of student collaboration / group work	High	Students work in groups throughout the entire course.
3. Degree of student emotional involvement	Medium	Students reflect on their learning process in a self-assessment assignment. However, emotions are not explicitly explored.
4. Degree of inter-/transdisciplinarity	High	Students work in groups organised by the teacher to combine different disciplines to encourage critical thinking.
5. Degree of student (self-) reflection	Medium	Students reflect on their individual learning processes through a self-assessment exercise.
6. Degree of experience of real-life situations	High	Students provide solutions to real-life problems faced by a specific organisation. They also conduct a field trip to the organisation.
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Low	Students learn through lectures and readings about how to map stakeholders and understand materiality as defined and used in the Global Reporting Initiative (GRI).
9. Degree of integration between theory and practice	High	Students work in groups using problem-based learning (PBL). This self-directed learning approach involves an integration of theory and practice.

10.2. COURSE INTRODUCTION

This course offers students the opportunity to create organisational strategies for achieving SDGs by using active learning pedagogies. The SDGs have been conceived recognizing the importance that multiple actors, including for-profit organisations, have in achieving them. In this course we seek to contribute to

the participation of organisations of different nature to reach the goals of this global agenda.

Throughout the semester, students work on a project using problem-based learning (PBL). In this experiential learning approach (Kolb, 1984), students tackle real-world problems in small interdisciplinary groups. PBL is based on the principle that students are responsible for their own learning process, and it can be considered a self-directed learning approach (de Graaf & Kolmos, 2003).

Using PBL, students develop a proposal for solving a sustainability-related problem faced by a given organisation. Students must first define the problems at hand and then devise corresponding solutions. The teacher identifies organisations facing environmental and social issues in the context of local debates about sustainability (e.g. water access, biodiversity loss, poverty, lack of environmental education). For instance, in one semester, students dealt with problems faced by a social business in the industry of sustainable tourism; in another semester, students dealt with a distribution company's problem of how to reduce the impact of transportation. The course also includes a field trip that allows students to assess the sustainability situation of the target organisation.

At the end of the course, students present their proposed course of action to the organisation. They conduct a self-reflection exercise to assess their learning processes and the work they performed in groups.

10.3. LEARNING OBJECTIVES

The learning outcomes and competencies of this course are aligned with the competencies described in the educational institutional plan of Universidad Icesi (Universidad Icesi, n.d.). As required by the university, each course must contribute to the core abilities and competencies of the university. The course also contributes to the specific competencies of the business school which offers this course. It is also worth mentioning that this course seeks to develop higher-order competencies, i.e. analysis, synthesis, and evaluation (Bloom, 1956; St. Edward´s University, n.d.).

Table 10–3

Learning objective dimension (UNESCO, 2017)	Learning objective	Competency referred to framework of Universidad Icesi (n.d.)
Cognitive	Ability to explain the concept of sustainable development and the SDGs	Multiperspectivism
	Understand the historical evolution of sustainable development and related concepts	Local–global thinking
	Understand the principles of systems thinking	Multiperspectivism
	Ability to analyse organisational strategies for achieving SDGs	Strategic thinking
	Ability to understand different tools for the design, implementation and monitoring of strategies in terms of sustainable development	Innovation
Socio-emotional	Ability to critically reflect on the impacts of the sustainability practices of different organisations, particularly companies	Critical thinking
	Ability to critically reflect on the citizens' role in achieving the SDGs	Critical thinking
	Ability to associate everyday actions with the SDGs	Critical thinking
Behavioural	Ability to apply the socio-ecological system's framework	Multiperspectivism
	Ability to create a proposal to solve the sustainability problems identified in an organisation	Strategic thinking
	Ability to communicate the developed proposal to various audiences	Expression
	Ability to link organisational practices to the SDGs	Strategic thinking

10.4. COURSE OUTLINE

Table 10–4

Structure		Session focus	Homework
Week 1	Introduction (3 hours)	• Climate Fresk	• Read an excerpt from "The Limits to Growth" (Meadows et al., 1972) • Watch videos developed by the professor on the concept of sustainable development, as well as the course description and methodology of the course (PBL)
Week 2	The concept of sustainable development (3 hours)	• Lecture on the concept of sustainable development • Group exercise on sustainability in the food industry (see subchapter "Exercises")	• Read an excerpt from "Collapse" (Diamond, 2005) • Form groups for the semester

Structure		Session focus	Homework
Week 3	The concept of sustainable development (3 hours)	• Video and discussion on "Collapse" (TED, 2003) • Guest: biodiversity and conservation	• Read website about SDGs (UN, n.d.)
Week 4	SDGs (3 hours)	• Group exercise for SDGs: Prepare a newspaper article (see subchapter "Exercises") • Lecture on SDGs	• Read articles on socio-ecological systems (McGinnis & Ostrom, 2014; Ostrom, 2009)
Week 5	Systems thinking (3 hours)	• Group exercise: Understand socio-ecological systems • Guest: Systems thinking	• Gather secondary information about the organisation and sustainability-related problems in the relevant industry
Week 6	Field trip (3 hours)	• Field trip: Visit the organisation of the consulting project	• Evaluation 1 (first six weeks)
Week 7	PBL (3 hours)	• Discussion about the evaluation of the first six weeks • Understanding the problem • PBL: Design thinking	• Understand the problem using complementary resources (secondary data)
Week 8	PBL (3 hours)	• Discussion and mentoring with the professor for each group	• Prepare the first deliverable
Week 9	PBL (3 hours)	• Presentation of each group: Identified problems • Feedback for each group	• Read about examples of sustainability-related practices
Week 10	Sustainability-related practices (3 hours)	• PBL: Analysing sustainability-related practices for different organisations	• Watch videos developed by the professor on circular economy as well as the group self-assessment and peer assessment procedures
Week 11	Circular economy (3 hours)	• Lecture: Circular economy • Guest: Lifecycle analysis	• PBL
Week 12	Developing ideas (3 hours)	• Lecture: Developing ideas • PBL: Developing ideas	• PBL: Developing ideas
Week 13	Indicators for sustainability (3 hours)	• Lecture: Indicators for sustainability • Discussion and mentoring with the professor for each group	• PBL: Defining indicators • Prepare for the exam
Week 14	Exam (3 hours)	• Individual exam	• PBL
Week 15	Mentoring (3 hours)	• Discussion and mentoring with the professor for each group	• PBL
Week 16	Final presentation (3 hours)	• Final presentation with the organisation	

10.5. TEACHING APPROACHES AND METHODS

Active learning is emphasised in this course. Active pedagogies are rooted in constructivism, an approach that yields deeper understandings, particularly when teaching about sustainability (Armstrong, 2011). The teaching process for this course focuses on PBL, a self-directed learning approach that is guided by a tutor, which, in this case, is the teacher (de Graaf & Kolmos, 2003). PBL implicitly includes experiential learning, which is considered a pedagogical approach whereby learning occurs through experience (Lewis & Williams, 1994). PBL is suitable for teaching about sustainability issues because PBL is connected to problematisation, problem solving and critical reflection (MacVaugh & Norton, 2012).

In this course, students address real problems in small groups under the supervision of the teacher, who facilitates the learning process. The teacher serves as a guide and accompanies the students, who are each responsible for their individual learning process. Working in small groups is central to this type of methodology because small groups enable students to actively contribute not only to the learning process but also to the development of group activities by utilising their attitudes and soft skills.

Students work in multidisciplinary groups (the teacher defines the groups to ensure multidisciplinarity) to propose solutions and create a proposal for solving one sustainability-related problem faced by a specific organisation (McPherson et al., 2016). Working in groups composed of students from various disciplines (in this case, biology, engineering, design, economy and business students) fosters critical and reflective thinking (Howlett et al., 2016). In the face of the so-called grand challenges such as climate change, inequality and biodiversity loss, there has been an increased interest in interdisciplinarity. This is particularly true in the context of natural resource management, which requires collaboration across multiple disciplines and different stakeholders (Roy et al., 2020).

The objective of the course is not to focus on actions already developed by the organisation, but to propose methods for solving sustainability issues. The teacher's guidance helps students understand the context, define the problem and develop solutions. Students must present their proposals to the organisation at the end of the semester.

The course lessons combine lectures with guest visits. Guests are invited to speak further about certain topics (e.g. biodiversity) that might be useful for the development of the projects. During the development of the projects, the teacher provides tools to help students assess, understand and solve the problem. Examples of tools are iceberg analysis (Ellis & Black, 2018) and materiality analysis (GRI, n.d.).

Before each class, students read assigned texts or watch assigned videos. During class time, students must actively participate in discussions and exercises to understand the methodological tools proposed while reflecting on sustainability issues. Some lectures given by the professor or guests will help strengthen students' understanding of key concepts. These lectures are useful because students come from different backgrounds and have not necessarily taken sustainability-related courses previously. During the class, the teacher mentors students on their project development. After class, students mainly work on their projects and complete the necessary work to advance the development of their sustainability proposal.

10.6. EXERCISES

Exercise 1: Sustainability in the food industry

Students are given a question that they must research using different sources. They must identify problems that make the agri-food industry unsustainable. They must present their results using a conceptual map. The map clarifies the relationships between different variables by identifying causes and effects. For instance, a conceptual map can link the use of fossil fuels with the rise of food prices or dependency between countries. Students must also identify the different effects of the intensive use of natural resources or explain how the marketing of certain products and the idealisation of certain lifestyles impacts health and obesity rates. With this activity, students get an introduction to the PBL methodology.

Exercise 2: Newspaper article

In this activity, students must choose a SDG and write a short newspaper article. This exercise is carried out in partnership with a local newspaper. Students can choose to write an opinion column for the newspaper or research a topic related to a SDG. Articles are short (around 800 words). The teacher and the newspaper editor provide feedback before accepting the final versions.

Exercise 3: PBL

The main exercise of the course is the consultancy project using PBL (see subchapter "Teaching Approaches and Methods"). Once a tool, such as iceberg analysis, is explained, students are given time during the lesson to use the tool in their analysis of the organisation.

10.7. ASSESSMENT

Table 10–5

Evaluation type	Percentage (%)
Newspaper article (see subchapter "Exercises")	10
Evaluation 1	10
Individual exam	30
PBL project (group evaluation and individual evaluation)	50
Total	**100**

Evaluation 1 covers the first six weeks of the course. It evaluates the first objective of the course (i.e. explaining the concept of sustainable development and SDGs). This evaluation is conceptual and includes multiple choice questions.

The *individual exam* covers the entire course. Students should be able to analyse a problem using the reflections and tools of the course. The exam presents a situation that involves different organisations and relates to different SDGs. Students are asked to understand the main problems and reflect on the causes.

The *PBL* assessment includes two deliverables. The first deliverable is a written report describing the situation and the identified problems. This report is not graded, but it is used to provide feedback to students. The second deliverable is an oral presentation where students briefly summarise the problems identified and present their solutions for solving these problems. It is evaluated in terms of the quality of the analysis, the creativity of the solutions proposed and the form of the presentation. Instead of a presentation, students can also produce a video. An assessment rubric is created and distributed to students. Students evaluate their peers in terms of both the quality of the analysis and their contribution to the group. The peer evaluation is done in weeks 10 and 16. Students also complete a self-assessment on their contribution to the project.

10.8. PREREQUISITES

- Required prior knowledge from students: basics of organisational management
- Required core competencies for teachers:
  - Sustainability and design thinking
  - Understanding the principles of PBL

- Required tools:
  - Online collaboration platforms (e.g. Zoom, Miro, Mural and Padlet)
  - Video and presentation development tools (e.g. Canva, Filmora, Adobe Pro and PowerPoint)

10.9. RECOMMENDED RESOURCES

Bessant, S., Dawson Bailey, P., Robinson, Z. P., & Tomkinson, C. B. (2013). *Problem-based learning: A case study of sustainability education*. Keele University: Newcastle, UK.

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review*, *16*(3), 235–266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3

Diamond, J. (2005). *Collapse: How societies choose to fail or succeed*. New York, Penguin.

Esposito, M., Tse, T., & Soufani, K. (2018). Introducing a circular economy: New thinking with new managerial and policy implications. *California Management Review*, *60*(3), 5–19. https://doi.org/10.1177/0008125618764691

McGinnis, M. D., & Ostrom, E. (2014). Social-ecological system framework: Initial changes and continuing challenges. *Ecology and Society*, *19*(2). https://doi.org/10.5751/ES-06387-190230

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth. A report for the club of Rome's project on the predicament of mankind*. Universe Books.

Meadows, D. H. (2008). *Thinking in systems. A primer*. Earthscan Publications.

Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419–422. https://doi.org/10.1126/science.1172133

Partelow, S. (2018). A review of the social-ecological systems framework: Applications, methods, modifications, and challenges. *Ecology and Society*, *23*(4). https://doi.org/10.5751/ES-10594-230436

10.10. GENERAL TIPS FOR TEACHERS

Using PBL with undergraduate students who are accustomed to being passive recipients of a teacher's knowledge is challenging. Therefore, it is important to explain to students the differences between PBL and traditional, lecture-based classes. Students often forget the principles of PBL; therefore, it is recommended to remind them of these principles throughout the course.

REFERENCES

Armstrong, C. M. (2011). Implementing education for sustainable development: The potential use of time-honored pedagogical practice from the progressive era of education. *Journal of Sustainability Education, 2*(2), 1–22.

Bloom, B. S. (1956). *Taxonomy of educational objectives book: The cognitive domain*. David McKay.

De Graaf, E., & Kolmos, A. (2003). Characteristics of problem-based learning. *International Journal of Engineering Education*, *19*(5), 657–662.

Diamond, J. (2005). *Collapse: How societies choose to fail or succeed*. Penguin.

Ellis, D. C., & Black, C. N. (2018). *Complexity, organizational blinders, and the SOCOM design way*. Joint Special Operations University (U.S.). JSOU Press.

Gravity Research Institute. (n.d.). *Global reporting initiative*. https://www.globalreporting.org/

Howlett, C., Ferreira, J. A., & Blomfield, J. (2016). Teaching sustainable development in higher education: Building critical, reflective thinkers through an interdisciplinary approach. *International Journal of Sustainability in Higher Education*, *17*(3), 305–321. https://doi.org/10.1108/IJSHE-07-2014-0102

Kolb, D. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.

Lewis, L. H., & Williams, C. J. (1994). Experiential learning: Past and present. *New Directions for Adult and Continuing Education*, *1994*(62), 5–16. https://doi.org/10.1002/ace.36719946203

McGinnis, M. D., & Ostrom, E. (2014). Social-ecological system framework: Initial changes and continuing challenges. *Ecology and Society*, *19*(2). https://doi.org/10.5751/ES-06387-190230

MacVaugh, J., & Norton, M. (2012). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education*, *13*(1), 72–87. https://doi.org/10.1108/14676371211190326

McPherson, S., Anid, N. M., Ashton, W. S., Hurtado-Martín, M., Khalili, N., & Panero, M. (2016). Pathways to cleaner production in the Americas II: Application of a competency model to experiential learning for sustainability education. *Journal of Cleaner Production*, *135*, 907–918. https://doi.org/10.1016/j.jclepro.2016.06.138

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth. A report for the club of Rome's project on the predicament of mankind*. Universe Books.

UN (n.d.). *The 17 Goals*. https://sdgs.un.org/es/goals

Universidad ICESI. (n.d.). *Universidad ICESI proyecto educativo Institucional*. https://www.icesi.edu.co/launiversidad/proyecto-educativo-institucional-pei.

Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419–422. https://doi.org/10.1126/science.1172133

Roy, S. G., de Souza, S. P., McGreavy, B., Druschke, C. G., Hart, D. D., & Gardner, K. (2020). Evaluating core competencies and learning outcomes for training the next generation of sustainability researchers. *Sustainability Science, 15*(2), 619–631. https://doi.org/10.1007/s11625-019-00707-7

St. Edward's University. (n.d.). *Center for teaching excellence*. https://www.stedwards.edu/academics/centers-institutes/center-teaching-excellence.

TED (2003). *Why do societies collapse? – Jared Diamond* [Video]. TED. https://www.ted.com/talks/jared_diamond_why_do_societies_collapse

UNESCO (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Anna Young-Ferris & Chuan Yu[14]

Chapter 11. Advancing a Responsible Business Mindset

11.1. COURSE SUMMARY

Table 11–1

Audience and level of studies	Students (Master)	
Group size	Overall >100 Workshop group size: 51–75	
Course duration	13 weeks	
Credits	3 ECTS	
Workload	Presence: 52h Self-study: 39h	Total: 91h
Contents/primary topics	• Responsible Business Mindset explored from four multidisciplinary and interdisciplinary perspectives: Business Regulation and Marketing ("The *regulation* perspective"); Work and Organisational Studies ("The *workplace* perspective"); Financial Accountability ("The *numbers* perspective"); Climate Change and Sustainability Impact ("The *impact* perspective").	
Main course objectives	• Apply conceptual, theoretical, and multidisciplinary understanding to and critically reflect on approaches to responsible business practice that are both profitable and sustainable. • Work collaboratively and effectively as a team and as an individual to examine and develop solutions through a Responsible Business Mindset. • Integrate Sustainable Development Goals (SDGs) and other relevant frameworks with organisational objectives as part of a Responsible Business Mindset.	

14 **Acknowledgments:** *We acknowledge and pay our deep gratitude to everyone in the BUSS5220 teaching team that contribute to the design and delivery of this unit and its ongoing improvement. We thank our Perspective/Topic owners including David Chaikin, Cary DiLernia, Mesepa Paul and Louise Luff; our Topic owners including Teresa Davis, Christian Chamorro Courtland, Angela Hecimovic, Max Baker, Matthew Egan, Arunima Malik, Tanya Fieldler, Ranjit Voola; and our senior facilitators including Gigi Wongwaiwetch and Ali Zaheer; and all our amazing Workshop Facilitators and Subject Matter Experts. For the selected activities outlined in the '11.6. Exercises' subchapter of this chapter, we acknowledge the key design input contributions of Cary DiLernia (Topic 4), Matthew Egan (Topic 11), Tanya Fieldler (Topic 12) and also Louise Luff for her contributions to the SDG Skill Checker. We thank the members of the MCom Core Working Group for their initial vision and leadership. We would also like to thank the Business Co-Design Team for their supporting work.*

Main teaching approaches	• Multidisciplinary and interdisciplinary learning • Active learning • Collaborative learning
Main teaching methods	• Debate • In-class role play • Case studies
Learning environment	Hybrid classroom (face-to-face and online learning) or virtual classroom (online learning)
Link to Sustainable Development Goals (SDGs)	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 11–2

Impact assessment	**(None) Low/ Medium/ High**	**Explanation**
1. Degree of student participation / activeness	High	Students take lead in weekly workshops and are required to conduct their own research in various assessment tasks.
2. Degree of student collaboration / group work	High	All assessments in this unit require students to engage in group work in addition to an individual component.
3. Degree of student emotional involvement	Medium	Students are given opportunities to articulate their own emotional stands.
4. Degree of inter-/transdisciplinarity	High	This unit builds on four perspectives including business law, marketing, work and organization studies, and accounting disciplines to develop and co-create the idea of a Responsible Business Mindset. We also draw on the expertise of our science colleagues for the climate science topic. The final case study requires students to apply knowledge of these different disciplines to critically analyse a business dilemma and suggest a new and holistic solution.
5. Degree of student (self-) reflection	High	Complete two Reflective ePortfolios (vlogs) where students need to choose a key reflection idea each from the first two perspectives of this unit (regulation and workplace perspectives of a Responsible Business Mindset) and critically reflect on it incorporating students' own learnings, additional research, multiple viewpoints, and challenges encountered.
6. Degree of experience of real-life situations	Low	Students discuss and critically reflect on various real-life examples in workshop activities.
7. Degree of nature-related experiences	None	Classroom teaching.
8. Degree of stakeholder integration	High	Each perspective integrates a different set of stakeholders depending on the topic such as firm leaders, employees, investors, and the broad community.
9. Degree of integration between theory and practice	High	For each topic, students are provided with lecture recordings covering the theoretical foundation for the topic from the specific perspective and then get opportunities to apply their theoretical understanding obtained throughout the course to practical cases in various activities and assessments.

11.2. COURSE INTRODUCTION

The grand challenges of sustainability, climate change, social inequality, health and wellbeing, and corporate misconduct have revealed a critical need to transform business beyond the singular mindset of shareholder primacy (Friedman, 1970; Smith, 1997; Smith & Rönnegard, 2016). Coupled with these challenges, a business faces several dilemmas and must be proactive in establishing and maintaining its social license to operate, with increasing risk and uncertainty exposing a loss of trust in business. In response, this unit centres on co-creating a responsible business mindset with students based on the understanding that a business is deeply inter-connected with the society and environment in which it operates (Rimanoczy, 2020).

This unit examines the practices of business where organisational and personal considerations for ethical, sustainable, environmental and community objectives are embedded within, and not in conflict with, the desire to be profitable (Porter & Kramer, 2019). It takes an interdisciplinary approach through garnering insights from the legal, workplace, marketing, accounting, and science disciplines to provide context and texture for students. This approach allows students to consider and understand the evolving market, legal and institutional structures for corporate and regulatory governance, and the role of business in the context of a broader set of stakeholders. The understanding is further enriched by considering how a Responsible Business Mindset can be shaped by the Sustainable Development Goals (SDGs), ethical, indigenous-based stewardship (Beckford et al., 2010) and other relevant frameworks. Students draw on these approaches, theories, and frameworks to develop responses to practical market realities and case studies.

An innovative pedagogy based on the principles of active learning (Bonwell & Eison, 1991), student-led learning (Biggs, 1996) and collaborative learning (Smith & MacGregor, 1992) is adopted where each workshop is comprised of two facilitators:

- A Workshop Facilitator (WF) for the whole period who handles the myriad of innovative online learning tools (see subchapter 11.8) utilised for the workshop activities to ensure the largely remote cohort have maximum student engagement.
- A Subject Matter Expert (SME) who is an expert in the topic and changes each week allowing students to have deeper insight into the specific topic and the complexities.

Students are given a 'voice' using icebreakers, case studies and role-play methods that encourage learning by contribution and input, rather than declarative knowledge of the teaching team. Through the lecture content, interactive work-

shops, and unique assessment design, the unit aims to develop future leaders who are not only mindful of the outcomes of responsible business actions but can also bring critical reflection to such theories and practices, and much needed skills in collaboration and teamwork.

11.3. LEARNING OBJECTIVES

Table 11–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Apply conceptual, theoretical and multidisciplinary understanding to approaches to responsible business practice.	Systems thinking and integrated problem-solving competency
	Analyse and critically reflect upon business dilemmas through a Responsible Business Mindset.	Critical thinking, self-awareness, and anticipatory competency
	Critically evaluate innovative solutions to business dilemmas that are both profitable and sustainable.	Anticipatory, strategic, and integrated problem-solving competency
Socio-emotional	Work collaboratively and effectively as a team and as an individual to examine and develop solutions through a Responsible Business Mindset.	Anticipatory, collaboration, and self-awareness competency
Behavioural	Integrate Sustainable Development Goals (SDGs) and other relevant frameworks with organisational objectives as part of a Responsible Business Mindset.	Anticipatory, normative, and strategic competency

11.4. COURSE OUTLINE

Table 11–4

Structure		Session focus	Homework
Week 1 Introduction – Topic 1: What is a Responsible Business Mindset?	Lecture recordings (45 minutes)	• Introduction to the course. • Explore what a Responsible Business Mindset is and how it differs from the traditional shareholder primacy mindset	• Get familiar with the course site on Canvas • Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Acknowledgment of Country[15] • Introductory workshop to help students understand what a Responsible Business Mindset is and how it is distinct from shareholder primacy mindset • Two workshop activities: – Economic man vs humanity: a puppet rap battle (Doughnut Economics) – Become a responsible business inspector	Complete the 'check your understanding' and 'test your knowledge' components in the course site.
Week 2 Perspective 1: The Regulation – Topic 2: Financial Crime and Justice	Lecture recordings (45 minutes)	Lectures explore the impact of financial crime and evaluate both financial crime risks and anti-financial crime strategies; consider how to take a more Responsible Business Mindset approach to regulatory regimes	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 2 workshop on financial crime, justice and SDGs • Two workshop activities: – Debate skills activity to help students prepare for the debates starting from week 3 – Apply SDGs to the setting of financial crime and money laundering	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Complete the 'SDG Target Skill Checker' (refer to page 17 for more details) • Group 3 prepare for Workshop Presentation Debate

15 *"We acknowledge the tradition of custodianship and law of the Country on which the University campuses stand. We pay our respects to those who have cared and continue to care for Country."* At the very start of each lecture and workshop, we take time as educators to perform an Acknowledgment of Country. This is an Australian specific custom where we acknowledge the traditional custodians of the land upon which our teaching takes place. Our teaching team meaningfully recite the set of words and make the explicit link that our indigenous/First Nations people knew how to live in harmony with nature and each other. This is an important feature of the new mindset for business we are exploring that can be referred to as Indigenous-based stewardship.

Structure		Session focus	Homework
Week 3 Perspective 1: The Regulation – Topic 3: Regulation and Disclosure in Responsible Business	Lecture recordings (45 minutes)	Lectures explore a range of Responsible Business Mindset issues and regulatory implications including the protection of vulnerable consumers, big data and privacy, and the role of whistle-blowers in making business activity more transparent	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 3 workshop on protecting vulnerable consumers and whistle-blower policy • Group 3 Workshop Presentation Debate on responsible use personal data of individuals • Two workshop activities: – Become a vulnerable consumer protector – Draft a whistle blower policy	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 4 prepare for Workshop Presentation Debate
Week 4 Perspective 1: The Regulation – Topic 4: Corporate Governance, Anti-Slavery and Climate Change Regulation	Lecture recordings (45 minutes)	Lectures explore the core concept of corporate governance and the regulatory responses at both the global and domestic levels for addressing modern slavery and the economic impact of climate change on business	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 4 workshop on anti-slavery and climate change focusing on the Paris Agreement • Group 4 Workshop Presentation Debate on degrowth as a Responsible Business Mindset • Two workshop activities: – The anti-slavery inspector – The Paris Agreement and business response	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 5 prepare for Workshop Presentation Debate • Prepare for the first Reflective ePortfolio (vlog 1)
Week 5 Perspective 2: The Workplace – Topic 5: Organisational level: Reimagining Responsible Workplaces	Lecture recordings (45 minutes)	Lectures explore the role of corporate boards as a governance mechanism and how business purpose and culture are connected to organisation performance and innovation in the workplace	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 5 workshop on understanding corporate boards and company value, culture, and purpose • Group 5 Workshop Presentation Debate on corporate board diversity • Two workshop activities: – Case study: board leadership and wage theft scandal – Re-imagining purpose	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 6 prepare for Workshop Presentation Debate

Structure		Session focus	Homework
Week 6 Perspective 2: The Workplace – Topic 6: Team level: Working Together Responsibly	Lecture recordings (45 minutes)	Lectures explore various topics on developing a responsible mindset to work in teams such as team effectiveness and challenges, leadership humility, team diversity and cultural competence	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 6 workshop on responsible teamwork • Group 6 Workshop Presentation Debate on team conflict • Two workshop activities: – Team effectiveness – how does your team measure up? – Team processes – how can we improve our team processes?	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 7 prepare for Workshop Presentation Debate
Week 7 Perspective 2: The Workplace – Topic 7: Individual level: Creating Sustainable Work	Lecture recordings (45 minutes)	Lectures explore the idea of creating sustainable work through job design, job crafting, aligning personal values with those of the organizations, and managing stress and well-being	• Review the lecture recordings, required readings and additional resources • Complete workshop pre-work on career and motivation • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 7 workshop on building a sustainable career • Group 7 Workshop Presentation Debate on money, career and happiness • Two workshop activities: – Meaningful career and motivation – Finding meaning: personal values and career choice	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 8 prepare for Workshop Presentation Debate • Prepare for the second Reflective ePortfolio (vlog 2)
Week 8 Perspective 3: The Numbers – Topic 8: Refocusing Financial Reporting Information	Lecture recordings (45 minutes)	Lectures explore how financial information can be used and its limitations when reporting complex issues like exposure to climate change risk and detailed information about responsible business transactions	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 8 workshop on responsible disclosure of financial statement information • Group 8 Workshop Presentation Debate on the usefulness of financial statements • Two workshop activities: – Financial statements and climate change risk – Additional financial reporting information on Green Bond	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 9 prepare for Workshop Presentation Debate

Structure		Session focus	Homework
Week 9 Perspective 3: The Numbers – Topic 9: Rethinking Auditing in Responsible Business	Lecture recordings (45 minutes)	Lectures explore the role and relevance of audit and assurance in meeting the evolving needs and changing expectations of business, capital markets and society	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 9 workshop on building the idea of a Responsible Business Mindset into the audit and assurance process. • Group 9 Workshop Presentation Debate on "The Big 4" audit firms • Two workshop activities: – Updating the auditor's report with a Responsible Business Mindset – The responsible business "sustainable and technology driver auditor"	• Complete the 'check your understanding' and 'test your knowledge' components in the course site. • Group 10 prepare for Workshop Presentation Debate • Get started on the final Case Study Report and Presentation
Week 10 Perspective 3: The Numbers – Topic 10: Reframing the Management Accounting Approach	Lecture recordings (45 minutes)	Lectures explore basic concepts of management accounting for decision making and control, the importance of the internal focus of information and the sustainability balanced scorecard	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 10 workshop on incorporating a Responsible Business Mindset in management accounting. • Group 10 Workshop Presentation Debate on management accounting and a Responsible Business Mindset. • Two workshop activities: – Understand the traditional balanced scorecard and a sustainability balanced scorecard. – Design a sustainability balanced scorecard.	• Complete the 'check your understanding' and 'test your knowledge' components in the course site. • Group 11 prepare for Workshop Presentation Debate.
Week 11 Perspective 4: The Impact – Topic 11: Organisational Sustainability, Reporting and Stewardship	Lecture recordings (45 minutes)	Lectures explore different facets of organisational sustainability reporting, and concepts such as greenwashing and Indigenous-based stewardship, and future directions of reporting	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 11 workshop on sustainability reporting and strategy • Group 11 Workshop Presentation Debate on sustainability reporting and organisational practice • Two workshop activities: – Exploring sustainability disclosures: the Juukan Gorge incident – A critical reflection of the University of Sydney's sustainability strategy	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 1 prepare for Workshop Presentation Debate • Continue working on the Case Study Report and Presentation

Structure		Session focus	Homework
Week 12 Perspective 4: The Impact – Topic 12: Climate Risk and Business Opportunity	Lecture recordings (45 minutes)	Lectures explore current climate science and the Paris Agreement, advances in climate risk reporting, and the grand challenge of climate change, framed in terms of business risk and opportunity	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 12 workshop on climate change risk and opportunity • Group 1 Workshop Presentation Debate on climate change as a responsible business opportunity or a super wicked problem • One workshop activity: – Boardroom roleplay scenario where students roleplay senior executives, employees and consultants aiming to convince a CEO to move out of thermal coal towards being a more responsible business	• Complete the 'check your understanding' and 'test your knowledge' components in the course site • Group 2 prepare for Workshop Presentation Debate • Continue working on the Case Study Report and Presentation
Week 13 Perspective 4: The Impact – Topic 13: Reimagining Business, Reimagining Capitalism	Lecture recordings (45 minutes)	Lectures explore how integrating the SDGs into business strategy can have a positive social and economic impact, how poverty and profitability do not have to be mutually exclusive, and a final lecture about reimagining business and reimagining capitalism that draws the unit to a close	• Review the lecture recordings, required readings and additional resources • Prepare for workshop and attend consultation with unit coordinators
	Interactive workshop (2 hours 15 minutes)	• Topic 13 workshop on the social impact of adopting a Responsible Business Mindset • Group 2 Workshop Presentation Debate on alleviating social issues and making profit • Two workshop activities: – Creating social impact at Stina Foods – Take a stand (Doughnut Economics, Raworth 2017)	Continue working on the Case Study Report and Presentation and submit

11.5. TEACHING APPROACHES AND METHODS

Responsible Business Mindset challenges shareholder primacy as the dominant mindset of business by exploring an emerging Responsible Business Mindset and how students can advance a new understanding of business as deeply interconnected to humanity and nature. It aims to transform traditional mainstream management curricula based in the neo-classical economic thinking and moti-

vate students to co-create what this new mindset might mean theoretically and practically. Students are taught to be cognisant of the complexities, considering both the role of business and the students' own personal role. The focus is on developing conceptual understanding and critical refection skills, whilst being able to draw on and critique frameworks such as SDGs, indigenous-based stewardship, and circular economy as potential pathways to advancing more responsible businesses.

As briefly explained in the course summary, this unit combines different types of teaching approaches and methods. The distinctiveness of the unit begins by following an inter-disciplinary learning approach where Responsible Business Mindset is framed as an umbrella term that students explore from four perspectives (outlined in subchapter 11.1) drawing on a range of Business School and other experts across and within different disciplines (including Business Law, Marketing, Work and Organisation Studies, Accounting and Science).

The design of this unit is underpinned by the theory of constructive alignment (Biggs, 1996) where we start with the level of understanding and set specific learning outcomes, we intend our students to achieve, and then our teaching and assessments are designed to align with them. For example, we build the requirement to apply an understanding of the SDG targets that underlie each of the 17 goals – and the ways in which they can be translated for business – into one of our unit Learning Outcomes and into specific assessment criteria for two assessment tasks (i.e. Workshop Presentation Debate and Case Study).

The principles of active learning and self-directed learning are consistently built into the design and delivery of the course content (Bonwell & Eison, 1991). Students attend an interactive workshop designed to consolidate understanding of the topic lectures and materials that are pedagogically designed for maximum student engagement and encourage student 'voice'. One of the novel contributions is that each workshop is comprised of two facilitators including the same Workshop Facilitator (WF) for 13 weeks who handles the online learning tools (see subchapter 11.8) to facilitate student engagement, as well as a Subject Matter Expert (SME) who helps students to gain deeper insight into the specific topic and the complexities. For the workshop activities, students work in small groups then have a facilitated discussion in the main session where the focus is on student's participation, contribution, and inputs rather than declarative knowledge of the teaching team (Biggs, 1996). Other channels for students to engage with the teaching team include a dedicated 15-minute Q&A consultation at the end of each workshop, as well as a weekly consultation with the unit coordinators, an active discussion with specific topic and assessment task threads, and a dedicated email for personal queries.

Active learning is also reflected through various assessments where students need to reflect on their ideas actively and critically, from their own perspectives (Bean, 1996). To ensure students feel supported on their learning journey and help them prepare for the unit and the unique assessments, we created a set of four short Student Experience Videos with our prior student cohort. These videos cover: the two assessments (Workshop Presentation Debate and Reflective ePortfolio), critical thinking and how to succeed by working in teams.

Collaborative learning is another key principle underlying this unit (Smith & MacGregor, 1992). In the workshops and for the assessments students are required to work in groups that are pre-assigned by the teaching team. This is an important skill to develop for their future careers where it is common to work in teams with people you have not chosen to work with. But more importantly we suggest the issues of sustainability that the unit deals with are complex, multidisciplinary challenges that cannot be solved in silos by individuals and need teams working together in collaboration, even if there are conflicting views.

11.6. EXERCISES

Economic Man (Shareholder Primacy Mindset) vs Humanity (Responsible Business Mindset): A Puppet Rap Battle (Doughnut Economics)

Topic 1.1 What is a Responsible Business Mindset?

One of the most dangerous stories at the heart of 20th century economics is the depiction of humanity as a rational economic man that epitomises shareholder primacy mindset. He is standing alone, with money in his hand, ego in his heart, a calculator in his head and nature at his feet, he hates work, he loves luxury, and he knows the price of everything (Raworth, 2017). "Economic Man vs Humanity: a puppet rap battle" is an entertaining video clip with strong lyrics that invites students to critique the old and create a new mindset. After watching the video clip, students are provided the lyrics and respond to a set of questions about the themes explored in the rap song including Models (mindsets) and reflexivity; Self-interest vs. altruism; Motivation and incentives; Rationality and information; Humanity and nature.

Become an Anti-Slavery Inspector

Topic 4.2 Australian Anti-Slavery Regulation

Modern slavery is the severe exploitation of humans for personal or commercial gain, and it occurs closer to home than many of us think. For this activity, students watch a video clip on the Rana Plaza incident in Bangladesh in 2013, then each student is asked to become an anti-slavery inspector. In that capacity, they carefully examine an object they have in their home or in their bag from a responsible business perspective and examine if it is making a negative footprint, whether socially, health-wise, or environmentally, paying particular attention to the potential of slave labour being embodied in the making of the product.

Team Processes – how can we improve our team processes? (Part B)

Topic 6.2 Leader-Follower Dynamics: the role of leader humility and team performance

Based on the 'Team Effectiveness' results from a previous activity, students work with their team and reflect on the positive aspects, challenges, the role of humility (Owens & Hekman, 2016) and develop two strategies to improve team effectiveness to carry into the remaining group tasks for the unit. Teams can then drill down to the level of evaluating their own team processes as they work through reflection questions. The aim is to get to the final question where teams get to define an 'action plan' to improve their team effectiveness and performance expectations for the rest of the course.

The Responsible Business "Sustainable and Technology Auditor"

Topic 9.1 The Social Impact of Audits

Students explore how the role of the auditor may be enhanced with the increased use of technology in audit engagements. Artificial Intelligence (AI) can make more and deeper sense of colossal amounts of data and help humans create meaningful indicators. AI can assist in determining how the work is undertaken, how communication is facilitated, and if there is any misconduct that can be identified earlier. AI can also monitor external data sources like social media, television, and other video and audio sources for additional information that may expand the comprehensiveness of the audit. AI can overcome sampling issues. Students start by watching a video about KPMG's 'Clara'

and the future of audit. After that, each group is assigned an impact area and explore a set of questions.

Exploring Sustainability Disclosures: The Juukan Gorge Incident

Topic 11 Introduction to Organisational Sustainability, Reporting and Stewardship

The recent Juukan Gorge disaster where mining giant Rio Tinto destroyed 46,000-year-old sacred Aboriginal shelters provides a pertinent case to examine criticisms of companies using sustainability reporting as an avenue for 'greenwashing' and only telling the 'good' news stories. As well, it links nicely with one of our core conceptual frameworks, indigenous-based Stewardship, which we critically explore as a potential way to achieve and advance Responsible Business Mindset. In this activity, students examine Rio Tinto's response to the Juukan Gorge Incident by watching a video explaining the Incident and then work in groups to examine key documents and reports about the incident.

Coal Company Boardroom Roleplay

Topic 12 Climate Risk and Business Opportunity

Students participate in a roleplay as senior executives, employees and consultants aiming to convince the CEO of a fictious coal company (XCore) to move out of thermal coal and become a more responsible business. Several meetings and activities have occurred as background preparation to this landmark decision for the company. The CEO has been resistant to the change and has called for a strategic boardroom meeting to be presented with the facts and be finally convinced. Students start by reviewing a video clip about 'just transition' and a way forward for coal communities. Each group is assigned a role and provided with documents and a set of questions. One spokesperson from each group then presents in a Boardroom style meeting to the CEO followed by a Q&A session with Subject Matter Expert acting as the meeting convener.

11.7. ASSESSMENT

Table 11–5

Assessment Item	Weight	Component
Workshop Presentation Debate	30 %	Group: 20 % Individual: 10 %
Reflective ePortfolio (vlogs)	30 %	Group: 10 % Individual: 20 %
Final Case Study – Report	20 %	Group: 20 %
Final Case Study – Presentation	20 %	Individual: 20 %
TOTAL	*100 %*	*Group: 50 %* *Individual: 50 %*

Workshop Presentation Debate

A Workshop Presentation Debate is held in each workshop (weeks 3–13) where students perform a pre-prepared debate as a group on two sides of an assigned debate topic. This is distinct from traditional debates that are performed live and debate sides are from different groups, because responsible business issues require an understanding of both/multiple sides to appreciate the challenges. This design enhances skills in critical thinking, and the art of conviction and negotiation.

Reflective ePortfolio (vlogs)

Students are required to create a Reflective ePortfolio by submitting a three-minute video log (vlog), for Perspective 1 (the regulation) and for Perspective 2 (the workplace). In the vlog, students use one key reflection idea as the context to answer a question about the perspective. Given the short timeframe, students need to communicate and deliver in a clear and concise manner, demonstrating conceptual understanding and critical reflection.

Final Case Study Report and Presentation

The final major assessment draws together and consolidate all the learnings from the topic materials and workshops across the four perspectives, with the focus on Perspective 3 (the numbers) and Perspective 4 (the impact), as well as the skills acquired in the other assessment tasks. In their groups, students are asked to become the board members of a fictitious case company who wants to reposition itself as a responsible business following a significant incident. A report and submitted presentation are prepared demonstrating multidisciplinary

understanding, critical reflection and considerations of solutions that are both sustainable and profitable.

SDG Skill Checker

Students are required to complete an SDG Skill Checker, which is an exercise we developed and built into our Canvas course page. This exercise allows students to consider various SDGs and more significantly, the underlying SDG targets in various assessments including the Workshop Presentation Debate and the final Case Study and reflect on how these targets can be translated and achieved in the business context.

11.8. PREREQUISITES

No prior knowledge from students is needed to enrol in this unit. Required instructors and their core competencies are as follows.

Table 11–6

Instructor Type	Main Roles	Core Competencies
Perspective owners	Provide overall direction to the Perspective and ensure cohesion of the topics with the broader aims of the unit	Technical knowledge; content development; team collaboration technology, innovative and creative
Topic owners	Develop course content and prepare lecture recordings	Technical knowledge; content development; team collaboration technology, innovative and creative
Subject matter expert (SME)	Guide students with technical content and this person will change from topic to topic	Subject matter expertise and real-life business expertise
Workshop facilitators (WF)	Support the SME in a more administrative capacity (e.g., handling technology, supporting breakout room activities, marking the roll etc.) and this person will be the same person each week for the whole course	Technology especially online teaching tools; teaching experience; time management; interpersonal skills; collaboration skills

Required online learning tools:

- *Canvas*: Canvas is an online learning management system. We use Canvas as the central hub for learning and communicating in this unit. It hosts all our class materials for both students and staff.
- *Google doc*: Google doc is an online word processor. We designed a survey using Google doc to conduct a mid-course group health check for students where the entire group can meet with the teaching team in the bid to resolve any remaining group issues so they can work together effectively and cohesively for the rest of the course.
- *Jamboard*: Jamboard is an online interactive whiteboard. We use Jamboard in various workshop activities, so students have the freedom to put their ideas into a visualised poster.
- *Menti*: Menti is an interactive presentation tool what allows users to engage with audiences in real time. We use Menti for various workshop activities, such as voting for their favorite topics, word cloud to describe a concept, multiple choice, etc.
- *Microsoft SharePoint*: SharePoint is an online secure place to store, organise and share files. We use SharePoint to organise and share files among the teaching team.
- *Padlet*: Padlet is a virtual bulletin board which allows users to how real-time collaborative activities to upload, organise and share content. We use Padlet in various workshop activities for students to facilitate group discussion and share ideas with other students.
- *Qualtrics*: Qualtrics is an online platform for creating and distributing web-based surveys. For example, we use Qualtrics to build a survey in one of the activities for Topic 6 for students to assess their team effectiveness.
- *Zoom*: Zoom is a cloud-based video conference service to virtually meet with others. We use Zoom to deliver our weekly workshops for students and conduct staff meetings.

11.9. RECOMMENDED RESOURCES

Table 11–7

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 1 Introduction – Topic 1: What is a Responsible Business Mindset?	• Friedman, M. (1970). A Friedman Doctrine: The Social Responsibility of Business Is to Increase Its Profits. *New York Times Magazine*, *13*, 32–33. • Harrison, J.S., Phillips, R.A. and Freeman, R.E. (2020). On the 2019 Business Roundtable "Statement on the Purpose of a Corporation". *Journal of Management*, *46*(7), 1223–1237. • Rimanoczy, I. (2020). *The Sustainability* Mindset Principles: A Guide to Developing a Mindset for a Better World*. Routledge, Chapter 1.	• TED (2018, June). A healthy economy should be designed to thrive, not grow | Kate Raworth [Video]. *YouTube* https://www.youtube.com/watch?v=Rhcrbcg8HBw&ab_channel=TED • Meadows, D., & Randers, J. (2012). *The Limits to Growth: The 30-Year Update*. Routledge. • Schumacher, E. F. (1973). *Small Is Beautiful: Economics As If People Mattered.* London: Blond & Briggs. • Business Roundtable (2019, August 19). *Business Roundtable Redefines the Purpose of A Corporation to Promote 'An Economy That Serves All Americans'.* Business Roundtable. https://www.businessroundtable.org/business-roundtable-redefines-the-purpose-of-a-corporation-to-promote-an-economy-that-serves-all-americans
Week 2 Perspective 1: The Regulation – Topic 2: Financial Crime and Justice	• Ferreira Rubio, D., & Andvig, E. (2019). Serious about sustainability? Get serious about corruption. World Economic Forum. https://www.weforum.org/agenda/2019/09/serious-about-sustainability-get-serious-about-corruption/ • Chaikin, D. A. (2009). Risk-Based Approaches to Combating Financial Crime. *Journal of Law and Financial Management*, 8(2), 20–27.	• Transparency International (2020, May 14). *How Does Corruption Affect You? [video]. YouTube.* https://www.youtube.com/watch?v=FYorzlkCWYo&ab_channel=TransparencyInternational • UNU-WIDER (2020, May) Miroslav Palansky – Tax evasion and the Government Revenue Dataset [Video]. *YouTube*. https://www.youtube.com/watch?v=Q7xWWFAYjCM • Global Witness (2016, February) Undercover in New York [video]. *YouTube*. https://www.youtube.com/watch?v=kC2DDNLvFg8 • World Bank (2015, December). Here Are 10 Ways to Fight Corruption [Video]. *YouTube*. https://www.youtube.com/watch?v=vx2773eSbec • Transparency Internationa (2020, January) Corruption Perceptions Index 2019 [Video]. *YouTube*. https://www.youtube.com/watch?v=xBYLnMCWqiA

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 3 Perspective 1: The Regulation – Topic 3: Regulation and Disclosure in Responsible Business	• Confos, N., & Davis, T. (2016). Young Consumer-Brand Relationship Building Potential Using Digital Marketing. *European Journal of Marketing*, *50*(11), 1993–2017. • Isaak, J., & Hanna, M. J. (2018). User Data Privacy: Facebook, Cambridge Analytica, and Privacy Protection. *Computer*, *51*(8), 56–59. • Paterson, M., & McDonagh, M. (2018). Data Protection In an Era of Big Data: The Challenges Posed by Big Personal Data. *Monash UL Rev.*, *44*(1), 2–9, 10–15. • Kafteranis, D. (2019). Reporting to the Boss or the Authorities: The Ongoing Dilemma of the Whistle-Blower. *International Journal of Business and Social Science*, *186*, 187–192.	• Davis, T. (2017). Four Ways Junk Food Brands Befriend Kids Online. *The Conversation*. • Alruwaily, A., Mangold, C., Greene, T., Arshonsky, J., Cassidy, O., Pomeranz, J. L., & Bragg, M. (2020). Child Social Media Influencers and Unhealthy Food Product Placement. *Pediatrics*, *146*(5). • The Guardian (2018, March). What Is the Cambridge Analytica Scandal? [Video]. *YouTube*. https://www.youtube.com/watch?v=Q91nvbJSmS4 • Nightly Business Report (2015, May) The Man Who Took on UBS. [Video]. *YouTube*. https://www.youtube.com/watch?v=AKnqle0DRUc • Nightly Business Report (2015, May) The UBS Whistleblower Post Prison. [Video]. Youtube. https://www.youtube.com/watch?v=0FmMJC4sA3Q
Week 4 Perspective 1: The Regulation – Topic 4: Corporate Governance, Anti-Slavery and Climate Change Regulation	• Nolan, J. and Frishling, N. (2019). Australia's Modern Slavery Act: Towards Meaningful Compliance. *Company and Securities Law Journal*. *37*(2), 104–127. • Kallis, G. (2017). For A Radical Environmentalism. In Vansintjan, A. (Ed.). *In defense of Degrowth, Ppinions and Minifestos*, 10–18. • Greenfield, K. (2008). Reclaiming Corporate Law in a New Gilded Age. *Harvard Law & Policy Review*, *2*(1), 1–32. • Di Lernia, C. (2018). Strange Bedfellows? Climate Change, Carbon Risk, and the Regulation of Corporate Disclosure. *Company and Securities Law Journal*, *36*(3), 221–244.	• Sorkin, A (2018).BlackRock's Message: Contribute to Society, or Risk Losing Our Support. *The New York Times*. https://www.nytimes.com/2018/01/15/business/dealbook/blackrock-laurence-fink-letter.html • ASX Corporate Governance Council (2019). Corporate governance principles and recommendations. 4th Edition. https://www.asx.com.au/documents/asx-compliance/cgc-principles-and-recommendations-fourth-edn.pdf • *ABC Radio Perth* (2018, July). There Are More Slaves in the World Today Than Ever Before in Human History [podcast]. https://www.abc.net.au/perth/programs/focus/modern-slavery/9944644 • Amnesty (n.d.) Slavery Aus History Amnesty Australia Quiz. https://jalt445200.typeform.com/to/ToPpC7WY?gclid=EAIaIQobChMIr9in97rj7AIV1UsrCh2u8gPTEAEYASAAEgI_1_D_BwE&typeform-source=canvas.sydney.edu.au • Cooper, H. (2013). Factory Collapse a 'Wake-Up Call' for Fashion Industry. *ABC News*. https://www.abc.net.au/news/2013-04-30/bangladesh-building-collapse-fashion-industry/4661162?nw=0

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 5 Perspective 2: The Workplace – Topic 5: Organisational level: Reimagining Responsible Workplaces	• Groutsis, D., Cooper, R., & Whitwell, G. (2018). Beyond the pale: Cultural diversity on ASX100 Boards. University of Sydney. • Quinn, RE, & Thakor, AV (2018). Creating a purpose-driven organization. *Harvard Business Review*, *96* (4), 78–85. • Huse, M. (2007). The Human Side of Corporate Governance. *Boards, Governance and Value Creation: The human Side of Corporate Governance*. Cambridge University Press, 294–315. • Berson, Y., Oreg, S., & Dvir, T. (2008). CEO values, Organizational Culture and Firm Outcomes. *Journal of Organizational Behavior: the International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *29*(5), 615–633.	• Baird, M. & Clibborn, S. (2021). Wage Theft Crisis Opens Gate for Graduates Who Can Navigate IR Waters. *The Sydney Morning Herald*. https://www.smh.com.au/business/workplace/wage-theft-crisis-opens-gate-for-graduates-who-can-navigate-ir-waters-20210127-p56x5b.html • TEDx Talks (2014, January). Business is about purpose: R. Edward Freeman at TEDxCharlottesville 2013 [Video]. *YouTube*. https://www.youtube.com/watch?v=7dugfwJthBY • Corporate ethics (2011, January). What is the Purpose of Business? – John Mackey of Whole Foods Market [Video]. *YouTube*. https://www.youtube.com/watch?v=6ncsJGxkZdQ • B Corp: Australia & Aotearoa New Zealand (2010, July). Better Business for a Better World [Video]. *YouTube*. https://www.youtube.com/watch?v=mQT1GRwuITA • Bertelsmann Stiftung (2010, November). Creating Corporate Cultures – Prof. Edgar Schein: Key note speech part 2 [Video]. *YouTube*. https://www.youtube.com/watch?v=03GcjrIKRrs • Raising the Bar Sydney (n.d.) Dimitria Groutsis – Minority Report [podcast]. Soundcloud. https://soundcloud.com/raising-the-bar-sydney/dimitria-groutsis-minority-report • TED (2017, November). How diversity makes teams more innovative | Rocío Lorenzo [Video]. *YouTube*. https://www.youtube.com/watch?v=lPtPG2lAmm4

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 6 Perspective 2: The Workplace – Topic 6: Team level: Working Together Responsibly	• Haas, M., & Mortensen, M. (2016). The Secrets of Great Teamwork. *Harvard business review*, *94*(6), 70–76. • Owens, B. P., & Hekman, D. R. (2016). How Does Leader Humility Influence Team Performance? Exploring the Mechanisms of Contagion and Collective Promotion Focus. *Academy of Management Journal*, *59*(3), 1088–1111. • Johnson, A., Nguyen, H., Groth, M., & White, L. (2018). Reaping the Rewards of Functional Diversity in Healthcare Teams: Why Team Processes Improve Performance. *Group & Organization Management*, *43*(3), 440–474. • Van Knippenberg, D., & Mell, J. N. (2016). Past, Present, and Potential Future of Team Diversity Research: From Compositional Diversity to Emergent Diversity. *Organizational Behavior and Human Decision Processes*, *136*, 135–145.	• The Moral Science Podcast (2020, August). Episode 37: The Best Leaders are Humble with Bradley Owens. [Video]. *YouTube*. https://www.youtube.com/watch?v=-WTJwdC3Hp8 • Lee, K. and Ashton, M. (n.d.) Take the HEXACO-PI-R. http://hexaco.org/hexaco-online • National Centre for Cultural Competence (2017, July). Cultural Competence: Role of Leadership [Video]. *YouTube*. https://www.youtube.com/watch?v=iSvMV3Jn7e0

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 7 Perspective 2: The Workplace – Topic 7: Individual level: Creating Sustainable Work	• Loehr, J., & Schwartz, T. (2001). The Making of a Corporate Athlete. *Harvard business review*, *79*(1), 120–129. • Smith, E. E. (2017). How to Find Meaning in a Job That Isn't Your True Calling. *Harvard Business Review*, 4. Rey, C., Almandoz, • Wrzesniewski, A., & Dutton, J. E. (2001). Crafting a Job: Revisioning Employees as Active Crafters of Their Work. *Academy of Management Review*, *26* (2), 179–201. • Gati, I., & Levin, N. (2015). Making Better Career Decisions. In *APA book of Career Intervention,* (2), 193–207. American Psychological Association.	• TED (2009, August). The puzzle of motivation | Dan Pink [Video]. *YouTube*. https://www.youtube.com/watch?v=rrkrvAUbU9Y • TEDx Talks (2012, February). What makes you come alive? | Sean Aiken | TEDxVancouver [Video]. *YouTube*. https://www.youtube.com/watch?v=VcMyX5R4dzs • The School of Life (2015, January). How to Find Fulfilling Work [Video]. *YouTube*. https://www.youtube.com/watch?v=veriqDHLXsw • Loffredo, S. (2017). Do Your Career and Work Value Align? *Inside Higher Ed*. https://www.insidehighered.com/advice/2017/11/13/importance-aligning-your-career-your-core-values-essay • TED (2013, September). How to make stress your friend | Kelly McGonigal [Video]. *YouTube*. https://www.youtube.com/watch?v=RcGyVTAoXEU • TEDx Talks (2019, December). How mindfulness changes the emotional life of our brains | Richard J. Davidson | TEDxSanFrancisco [Video]. *YouTube*. https://www.youtube.com/watch?v=7CBfCW67xT8 • TEDx Talks (2017, March). The Power of Mindfulness: What You Practice Grows Stronger | Shauna Shapiro [Video]. *YouTube*. https://www.youtube.com/watch?v=IeblJdB2-Vo

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 8 Perspective 3: The Numbers – Topic 8: Refocusing Financial Reporting Information	• Ivan, I. (2016). The Importance of Professional Judgement Applied in the Context of the International Financial Reporting Standards. *The Audit Financiar Journal*, *14*(142), 1127–1127. • Li, A., Michaelides, M., Rose, M., & Garg, M. (2019). Climate-related Risk and Financial Statements: Implications for Regulators, Preparers, Auditors and Users. *Australian Accounting Review*, *29*(3), 599–605. • Woolworths Group (2020). Annual Report. https://www.woolworthsgroup.com.au/icms_docs/195794_annual-report-2020.pdf • Woolworths Group (2019, April). Green Bond Framework. https://www.woolworthsgroup.com.au/content/Document/190401%20Green%20Bond%20Framework%20(final).pdf • Woolworths Group (2020, September). Green Bond Impact and Use of Proceeds Report. https://www.woolworthsgroup.com.au/content/Document/Debt%20investor/200914%20WOW%20Green%20Bond%20Impact%20%26%20UOP%20report%202020%20(final).pdf • Australian Accounting Standards Board and Auditing and Assurance Standards Board (April 2019). Climate-Related and Other Emerging Risks Disclosures: Assessing Financial Statement Materiality Using AASB/IASB Practice Statement, 2, 1–5. https://www.aasb.gov.au/admin/file/content102/c3/AASB_AUASB_Joint_Bulletin_Finished.pdf	• Deloitte (2019, July). Perspectives from drivers of climate action: Hans Hoogervorst [Video]. *YouTube*. https://www.youtube.com/watch?v=fTse-39CeoA

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 9 Perspective 3: The Numbers – Topic 9: Rethinking Auditing in Responsible Business	• Jewers, C. (2019, October 25). The Social Impact of Losing Trust in Audit. *Accountancy Age*. https://www.accountancyage.com/2019/10/25/comment-social-impact-of-losing-trust-in-audit/ • Kahn, J. (2020, June, 26). Wirecard Shows Auditing Is Broken. Here's Why—and How to Fix It. *Fortune*. https://fortune.com/2020/06/25/wirecard-auditing-is-broken-fintech-ey-ernst-and-young/ • KPMG (2017). *Audit, 2025: The Future Is Now*. https://assets.kpmg/content/dam/kpmg/us/pdf/2017/03/us-audit-2025-final-report.pdf	• CNBC International (2020, October).The accounting oligopoly: What's next for the Big Four? | CNBC Explains [Video]. *YouTube*. https://www.youtube.com/watch?v=_2lek28Mw3k • Accountancy Age (2019, October). Prof Christopher Humphrey – Social impact of audit [Video]. *YouTube*. https://www.youtube.com/watch?v=YM8e57-Kxvw • PwC (2019, June). PwC's Global Community Commitment Video. [Video]. *YouTube*.. https://www.youtube.com/watch?v=5A-80kwqGMg • Boillet, J. and Larkin C. (2020). How Artificial Intelligence Can Help to Measure Long-Term Value. EY. https://www.ey.com/en_gl/assurance/how-artificial-intelligence-can-help-to-measure-long-term-value
Week 10 Perspective 3: The Numbers – Topic 10: Reframing the Management Accounting Approach	• Bhimani, A., Horngren, C. T., & Datar, S. M. (2019). The Manager and Management Accounting. In A. Bhimani, S. M. Datar, C. T. Horngren, & M. V. Rajan (Eds.), *Management And Cost Accounting* (7th ed.) (pp. 8–16). Pearson. • Figge, F., Hahn, T., Schaltegger, S., & Wagner, M. (2002). The Sustainability Balanced Scorecard – Linking Sustainability Management to Business Strategy. *Business Strategy and the Environment, 11*(5), 269. • Jasch, C. (2003). The Use of Environmental Management Accounting (EMA) for Identifying Environmental Costs. *Journal of Cleaner Production*, *11*(6), 667–676.	• TEDx Talks (2011, July). TEDxOverlake – Susan Scott – The Case for Radical Transparency [Video]. *YouTube*. https://www.youtube.com/watch?v=oVKaXUB4EFg • Reich R. (2018, December). How to Hold Corporations Accountable | Robert Reich [Video]. *YouTube*. https://www.youtube.com/watch?v=SxWWoGO1Y4A • VLEARNorg (2013, May). Balanced Scorecard Animation. [Video]. *YouTube*. https://www.youtube.com/watch?v=6AwStmfS2HY

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 11 Perspective 4: The Impact – Topic 11: Organisational Sustainability, Reporting and Stewardship	• Burritt, R.L. & Schaltegger, S. (2010). Sustainability Accounting and Reporting: Fad or Trend?. *Accounting, Auditing & Accountability Journal*, *23*(7), 829–846. • Gray, R. (2010). Is Accounting for Sustainability Actually Accounting for Sustainability… and How Would We Know? An Exploration of Narratives of Organisations and the Planet. *Accounting, Organizations and Society*, *35*(1), 47–62. • CDP, CDSB, GRI, IIRC, SASB (2020). Statement of Intent to Work Together Towards Comprehensive Corporate Reporting. https://www.integratedreporting.org/resource/statement-of-intent-to-work-together-towards-comprehensive-corporate-reporting/	• Global Reporting Initiative (GRI) (n.d.). Getting Started with the GRI Standards. https://www.globalreporting.org/how-to-use-the-gri-standards/ • GRI Secretariat (2017, May). Sustainability Reporting with the GRI Standards. [Video]. *YouTube*. https://www.youtube.com/watch?v=6LkrhalWIMc • Young, A. (2011). Sustainability Accounting and Reporting: Fad or Trend? *Social and Environmental Accountability Journal*, *31*(2), 168–169. • Deloitte Nederland (2016, April). Deloitte Integrated Reporting in 2 Minutes. [Video]. *YouTube*. https://www.youtube.com/watch?v=Hx4dvrlunpw • Integrated Reporting (2016, November). Introducing Integrated Reporting. [Video]. *YouTube*. https://www.youtube.com/watch?v=EFm0sKeBLh0 • The International Integrated Reporting Council (IIRC) (2021). International IR Framework (2021). https://www.integratedreporting.org/wp-content/uploads/2021/01/InternationalIntegratedReportingFramework.pdf • Guardian News (2020, October). Juukan Gorge traditional owners show destruction from Rio Tinto blast of Aboriginal site [Video]. *YouTube*. https://www.youtube.com/watch?v=s3tVznXBkUs&t=1s
Week 12 Perspective 4: The Impact – Topic 12: Climate Risk and Business Opportunity	• *Figueres, C. (2016, February). The Inside Story of the Paris Climate Agreement [Video]. YouTube.* https://www.ted.com/talks/christiana_figueres_the_inside_story_of_the_paris_climate_agreement • United Nations Environment Program. (2019). *Emissions Gap Report: Executive summary*. https://www.unep.org/resources/emissions-gap-report-2019 • Force on Climate-Related Financial Disclosures. (2017). Final Report Recommendations of the Task Force on Climate-related Financial Disclosures Executive Summary, (ii-v). https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf	• UNDP Climate (2020, April). Explained: The Paris Agreement. [Video]. *YouTube*. https://www.youtube.com/watch?v=dN0Np6Vh5L8 • UN Climate Change (2015, December). Two Weeks of COP 21 in 10 Minutes. [Video]. *YouTube*. https://www.youtube.com/watch?v=gOgTxo_4Tgo • United Nations (UN) (n.d.) UNFCCC – 25 Years of Effort and Achievement: Key MileStones in the Evolution of International Climate Policy. https://unfccc.int/timeline/ • WWF International (2019, September). Christiana Figueres is passionate about working together for our planet's future [Video]. *YouTube*. https://www.youtube.com/watch?v=9zHz79AWKUc

Topic	Required/Recommended Reading and Resources	Supplementary Resources
Week 13 Perspective 4: The Impact – Topic 13: Reimagining Business, Reimagining Capitalism	• Karnani, A. (2007). The Mirage of Marketing to the Bottom of the Pyramid: How the Private Sector Can Help Alleviate Poverty. *California Management Review*, *49* (4), 90–111. • Simanis, E. & Duke, D. (2014). Profits at the Bottom of the Pyramid. *Harvard Business Review*, *92* (10), 86–93. • Henderson, R. M. (2020). Reimagining Capitalism in the Shadow of the Pandemic. *Harvard Business Review*, *98*(4), 2–6. • van der Waal, J.W., Thijssens, T. & Maas, K. (2021). The Innovative Contribution of Multinational Enterprises to the Sustainable Development Goals. *Journal of Cleaner Production*, *285*, 125–319. • Sydney Business Insights (2017, March). *Is Business the Answer to Poverty Alleviation?* [podcast]. Soundcloud. https://soundcloud.com/sydneybusinessinsights/7-is-business-the-answer-to-poverty-alleviation	• CEMS Global Alliance (2021, April). CEMS APAC Virtual Panel Discussion: Sustainable Development post-Covid [Video]. *YouTube*. https://www.youtube.com/watch?v=65L4YK117cc • PwC (n.d.). Sustainability Development Goals (SDG) – Impact on Business. https://www.pwc.com/gx/en/services/sustainability/sustainable-development-goals.html • Nobre, F. S., & Morais-da-Silva, R. L. (2021). Capabilities of Bottom of the Pyramid Organizations. *Business & Society*. • Raising the Bar Sydney (n.d.). Ranjit Voola – Profit with purpose [podcast]. Soundcloud. https://soundcloud.com/raising-the-bar-sydney/ranjit-voola-profit-with-purpose • Stanford Alumni (2014, October). Developing a Growth Mindset with Carol Dweck [Video]. *YouTube*. https://www.youtube.com/watch?v=hiiEeMN7vbQ&t=5s

11.10. GENERAL TIPS FOR TEACHERS

Traditional management education curricula are based on outdated modes of thinking and theorising, and they are losing relevance. We encourage you to see your role as one that inspires action by teaching students to challenge assumptions and critically reflect on the extent (or not) to which business practices can be transformed and contribute to a more sustainable and conscious capitalism, and to the achievement of the SDGs. Our students are the future leaders who inherit the state of the earth and humanity as we leave it; so, giving them a voice and seeking to co-create solutions with them is vital. It is your duty as an educator to help students transform the outdated business narrative from the stronghold of Shareholder Primacy Mindset by executing innovative pedagogy so students can take these learnings into their future studies and most importantly into their future careers. Be brave!

REFERENCES

Bean, J. (1996). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. Josey-Bass Publishers: San Francisco.

Beckford, C. L., Jacobs, C., Williams, N., & Nahdee, R. (2010). Aboriginal environmental wisdom, stewardship, and sustainability: lessons from the Walpole Island First Nations, Ontario, Canada. *The Journal of Environmental Education*, *41*(4), 239–248.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher Education*, *32*(3), 347–364.

Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom*. 1991 ASHE-ERIC Higher Education Reports. ERIC Clearinghouse on Higher Education, The George Washington University, One Dupont Circle, Suite 630, Washington, DC 20036–1183.

Friedman, M. (1970). A Friedman doctrine: The social responsibility of business is to increase its profits. *New York Times Magazine*, *13*, 32–33.

Haas, M., & Mortensen, M. (2016). The secrets of great teamwork. *Harvard Business Review*, *94*(6), 70–76.

Owens, B. P., & Hekman, D. R. (2016). How does leader humility influence team performance? Exploring the mechanisms of contagion and collective promotion focus. *Academy of Management Journal*, *59*(3), 1088–1111.

Porter, M. E., & Kramer, M. R. (2019). Creating shared value. In Lenssen G., Smith N. (Eds). *Managing Sustainable Business* (pp. 323–346). Springer, Dordrecht.

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st-century economist*. Chelsea Green Publishing.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Rimanoczy, I. (2020). *The Sustainability Mindset Principles: A Guide to Develop a Mindset for a Better World*. Routledge.

Smith, D. G. (1997). The shareholder primacy norm. *Journal of Corporation Law*, *23*, 277.

Smith, B. L., & MacGregor, J. T. (1992). What is collaborative learning. *Towards the Virtual University: International Online Learning Perspectives*, 217–232.

Smith, N. C., & Rönnegard, D. (2016). Shareholder primacy, corporate social responsibility, and the role of business schools. *Journal of Business Ethics*, *134*(3), 463–478.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Andrea Pelzeter

Chapter 12. Sustainability in Building and Operating Real Estate

12.1. COURSE SUMMARY

Table 12–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	12 weeks	
Credits	5 ECTS	
Workload	Presence: 70h Self-study: 80h	Total: 150h
Contents/primary topics	• Sustainability in building and operating real estate	
Main course objectives	• Create an increased understanding over the complexities of sustainability in building and operating real estate • Application in projects	
Main teaching approaches	• Lecture-based learning • Experiential learning • Collaborative learning	
Main teaching methods	• Lecture • Sustainability-related research project • Group discussion	
Learning environment	Classroom (face-to-face learning) Beyond classroom (field trip to a sustainable building)	
Link to Sustainable Development Goals	SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts	

Table 12–2

Impact assessment:	(None) Low/Medium/High	Explanation
1. Degree of student participation / activeness	High	Students are practicing exercises, participating in discussions, and working on an own project.
2. Degree of student collaboration / group work	High	Students are participating in a team project throughout the module.
3. Degree of student emotional involvement	Medium	In class, students get the opportunity to articulate their emotional stands on sustainability-related issues.
4. Degree of inter-/transdisciplinarity	Medium	The operation of a building is an interdisciplinary task (in the sense of facility management). Furthermore, guest lectures are integrated.
5. Degree of student (self-) reflection	Medium	Students are reflecting on personal experiences relating to sustainability and on a scientific paper on the topic of sustainability in real estate.
6. Degree of experience of real-life situations	Medium	Students conduct a field trip.
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Medium	Students represent different stakeholders as they are members of companies that own buildings or provide facility services, they are also users of buildings in their professional and private roles.
9. Degree of integration between theory and practice	Low	Case studies and practical examples are included throughout the course.

12.2. COURSE INTRODUCTION

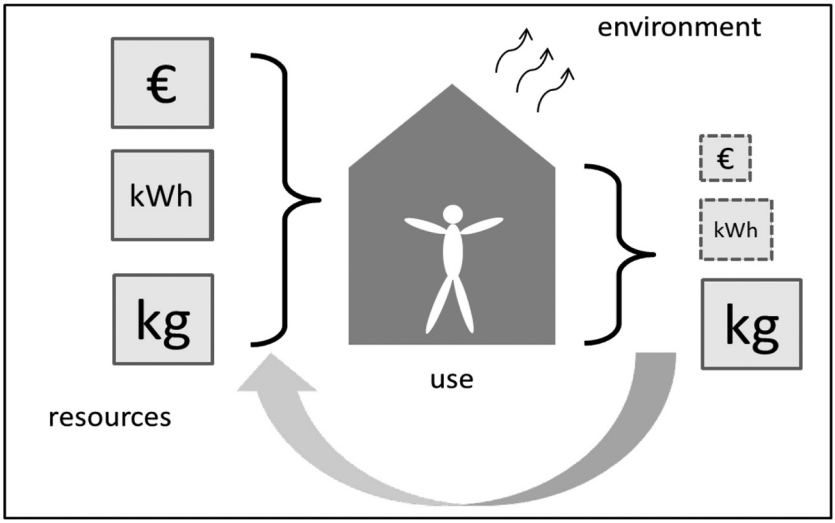
This module is offered within the study programme "Technical Facility Management" and is aimed at students who are employed in companies in the real estate industry and who deal with building operations there. In all modules of this degree programme, resource conservation is addressed as a key issue. In particular, the modules on construction and energy technology prepare students for the implementation of ecological sustainability.

Sustainability is introduced in the context of the Sustainable Development Goals (SDGs) and its applicability is then considered in detail in the fields of building construction and operation. The aim is to get to know the possible target and evaluation systems for sustainability in a respective country. The German Sustainable Building Certification DGNB (DGNB GmbH, 2021) and

SustainFM according to the guideline from GEFMA German Facility Management Association, GEFMA 160 – "Sustainability in Facility Management" (Pelzeter et al., 2020) are used as examples in Germany. These topics are framed by questions of how sustainability can be implemented in mobility, in urban development, in companies and in the private environment. By elaborating and discussing potentials and future developments, a "critical reflection on goals and values" is encouraged (Balsiger et al., 2017, p. 378).

Life cycle management and circular economy are fundamental principles for the sustainable construction and operation of buildings. As shown in Figure 12–1, the cycle of materials (in kg), energy (in kWh) and financing (in €) serve as inputs for the construction and use of a building. This ideally becomes recycled material (right, in kg) and a financial residual value (e.g., for the reuse of building elements, in €) at the end of the use phase. The further use of thermal energy (in kWh) is technically challenging, hence the dotted representation.

Figure 12–1



(Pelzeter, 2016, p. 6)

Because combatting climate change is currently a pressing SDG (Edenhofer, 2014), special emphasis is placed on creating awareness of the emissions of climate-impacting gases. For this purpose, the basics of life cycle assessment (Finkbeiner, 2014; Frischknecht, 2020) are taught, key figures are researched

(e.g. CO_2 emissions for the production of one ton of steel-reinforced concrete or for one passenger kilometre in public transport), as well as determined by means of eLCA tools (Bundesinstitut für Bau-. Stadt- und Raumfoschung, 2021) and carbonFM (German Facility Management Association e.V., 2021; Krämer et al., 2021).

12.3. LEARNING OBJECTIVES

After completing the module, students should be able to develop concepts of sustainable construction and operation and implement them in their professional areas of activity in Facility Management (FM). In doing so, they can use the methods and benchmarks utilised in the module and further develop them according to the situation.

The learning objectives of the module can be assigned to the learning objectives and their categories as formulated by the UNESCO (2017) (see first and second column of Table 12–3 below). In the third column of the table, these learning objectives are assigned to competences that Wei et al. (2020) have identified as target-oriented for teaching in socio-environmental problem-solving.

Table 12–3

Learning objective dimension (UNESCO, 2017)	**Learning objective according to UNESCO (2017)**	**Competency referred to framework of Wei et al. (2020)**
Cognitive	"The learner understands the concept of 'virtual water'." (SDG 6) (p. 22)	systems thinking, integrative research
	"The learner understands the concept of energy efficiency and sufficiency and knows socio-technical strategies and policies to achieve efficiency and sufficiency." (SDG 7) (p. 24)	
	"The learner knows the basic principles of sustainable planning and building, and can identify opportunities for making their own area more sustainable and inclusive." (SDG 11) (p. 32)	
	"The learner knows about strategies and practices of sustainable production and consumption." (SDG 12) (p. 34)	
	"The learner knows which human activities – on a global, national, local and individual level – contribute most to climate change." (SDG 13) (p. 36)	

Learning objective dimension (UNESCO, 2017)	Learning objective according to UNESCO (2017)	Competency referred to framework of Wei et al. (2020)
Socio-emotional	"The learner is able to feel responsible for their water use." (SDG 6) (p. 22)	sociocultural awareness
	"The learner is able to clarify personal norms and values related to energy production and usage as well as to reflect and evaluate their own energy usage in terms of efficiency and sufficiency." (SDG 7) (p. 24)	
	"The learner is able to contextualize their needs within the needs of the greater surrounding ecosystems, both locally and globally, for more sustainable human settlements." (SDG 11) (p. 32)	
	"The learner is able to feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer." (SDG 12) (p. 34)	
	"The learner is able to recognize that the protection of the global climate is an essential task for everyone and that we all need to completely re-evaluate our worldview and everyday behaviours in light of this." (SDG 13) (p. 36)	
Behavioural	"The learner is able to reduce their individual water footprint and to save water practicing their daily habits." (SDG 6) (p. 22)	boundary crossing, sociocultural awareness
	"The learner is able to apply basic principles to determine the most appropriate renewable energy strategy in a given situation." (SDG 7) (p. 24)	
	"The learner is able to promote low carbon approaches at the local level." (SDG 11) (p. 32)	
	"The learner is able take on critically on their role as an active stakeholder in the market." (SDG 12) (p. 34)	
	"The learner is able to evaluate whether their private and job activities are climate friendly and – where not – to revise [or amend] them." (SDG 13) (p. 36)	

12.4. COURSE OUTLINE

Table 12–4

Structure		Session focus	Activity in presence
Session	**Subject**		
The module described is taught over a period of 12 weeks. Each session lasts 180 minutes.			
1	Introduction, Projects	SDGs, political goals in the target country, status quo	Brainstorm on SDGs and FM; discussion

Structure		Session focus	Activity in presence
Session	**Subject**		
2	Concepts for optimising sustainability in the construction and operation of buildings	Substitution, efficiency, sufficiency; Life Cycle Management: usability, energy, costs, material, environment, information	Match, find examples
3	Assessment systems 1 - Sustainable construction	BNB, DGNB, LEED, BREEAM	Apply to building example (case study)
4	Assessment systems 2 - Sustainable operation	GEFMA 160, criteria procurement, water management, catering	Exercise on GEFMA 160
5	Key figures 1 - CO_2	Carbon footprint, GEFMA 162, evaluation concept, examples, optimisation, innovations	Apply carbonFM, research innovations on low carbon facility services
6	Questions about the project, support		
7	Key figures 2 - LCA	Procedure, impact categories, eLCA	Apply and evaluate different building materials in case study
8	Guest speaker from the business sector	Key figures on the life cycle of real estate	Hold a discussion round
9	Key figures 3 - Maintenance	Lifetimes, maintenance strategies, guidelines, calculation concept, optimisation of maintenance	Research and group lifetimes, calculate costs for case study
10	Key figures 4 - LCC	Life Cycle Costs, GEFMA 220, calculation concept, case study	Apply GEFMA 220 to case study
11	Evaluation systems 3 - Sustainability report	GRI Global Reporting Initiative, guest with his company´s sustainability report	Compare reports from facility management service providers
12	Innovative building materials, C2C	Demountable constructions, wood plastics, etc.	Discuss provocative questions on innovations
13	Questions about the project, support		
14	City of the future	Smart Grid, reintegration of production processes, case study	Draft own vision
15	Mobility	Visions of the mobility of the future	Read from a book on mobility stories from the future
16	Private consumption	Carbon calculations, water footprint, social sustainability in the supply chain	Use calculation tools, discuss findings and consequences
17	CO_2-optimised services	Presentation of the students' projects	Give feedback to fellow students
18	Conclusion	Review and feedback	Reflect on what has been learned

Abbreviations:

BNB – Bewertungssystem Nachhaltiges Bauen des Bundes (Sustainable Building Rating System of the Federal Government in Germany)

BREEAM – Building Research Establishment Environmental Assessment Method

C2C – Cradle to Cradle

DGNB – Deutsches Gütesiegel Nachhaltiges Bauen (German Sustainable Building Certification)

eLCA – electronic Life Cycle Assessment

GEFMA 160 – German Facility Management Association, Guideline 160 – SustainFM: Sustainability in Facility Management

GEFMA 162 – Guideline: Carbon Management for Facility Services

GEFMA 220 – Guideline: Life Cycle Costs in Facility Management

LCC – Life Cycle Costs

LEED – Leadership in Energy and Environmental Design

12.5. TEACHING APPROACHES AND METHODS

This course is embedded within the framework of a company-linked (dual) study programme, in which students work for three months each semester in a company that cooperates with the institution throughout the period of study. In this study programme, a seminar-based teaching concept is applied, by combining lecture-based, experiential and collaborative learning.

The lecturer gives a broad overview of the diverse topics of sustainability in the construction and operation of real estate in short lectures. Lectures are well suited to present broad knowledge in a compact way so that later case studies can be well classified (Schneider & Mustafić, 2015) (Ulrich, 2020). The active construction of the overview knowledge is guided by a variety of transfer exercises (Pinheiro & Simões, 2012). These exercises support active learning and consist of various tasks, such as researching application examples (inquiry-based learning) (Felder, 2016), discussing implementation concepts or applying assessment tools to a given building example. The practical application of the attained knowledge on sustainability can materialise in future projects carried out by the cooperating company to improve the sustainability of the building operations.

The assessment systems for sustainable building from DGNB (DGNB GmbH, 2021) and for sustainable operation from German Facility Management Association (German Facility Management Association e.V., 2015) are applied by the students (excerpt-wise) to the building example already used several times during the course. A consistent application example supports multidisciplinary learning throughout a study programme, but especially in the interdis-

ciplinary field of sustainability. The analysis tools eLCA (Bundesinstitut für Bau-. Stadt- und Raumfoschung, 2021) and carbonFM (Krämer et al., 2021) are tested under the teacher's guidance. In the process, the students learn about possible data sources for environmental key figures of products. In Germany, key figures by Ökobaudat (Bundesministerium des Innern, für Bau und Heimat, 2021) and Probas (Umweltbundesamt, 2021) are freely available. Other methods such as group discussions on questions arising from the lecturers' presentations or from current events also come into play. A field trip to a particularly sustainable building provides the opportunity to talk to experts on site. Further, the opportunity to listen to a guest speaker from the industry highlights the practical significance of the presented indicators, in different disciplines (Pech et al., 2021). The application of a tool on CO_2 in everyday life then leads to self-reflection on personal CO_2 drivers and acceptable concepts for reducing them in personal lifestyles.

Overall, this teaching concept relies on the ability to analyse and derive conclusions in professional as well as private practice. The background to this is the fact that while individuals know the price of everything, they usually do not know the potential environmental impact of using a product (Lin & Huang, 2012). In the same way as the price has been used to classify and assess alternative courses of action, the environmental impact should also be considered in the future.

The students' self-learning is enhanced by preparing and presenting revisions of the contents of the previous session (Lou, 2021). Furthermore, they prepare a summary of the contents of a research paper they have researched themselves (Schneider & Mustafić, 2015). For these presentations, the topics and dates are coordinated in advance so that the student contributions fit the thematic sequence of the sessions. However, the main task of the students in this module is project work carried out in small groups (two to three persons), around the topic of innovations in facility management for the reduction of CO_2 emissions. Project-based learning leads to a particularly intensive acquisition of knowledge and methods (Pech et al., 2021; Yazici, 2020). After researching innovative devices or processes under development, calculations are carried out using carbonFM, among other tools. The results of the completed project work are presented at the end of the module. The topics are also coordinated for the alignment of the projects so that no duplications in the presentations occur.

The approaches and methods listed here are a mix of already tried and tested ones and are therefore not fundamentally new. However, innovation is at the centre of the module: Innovative building concepts are shown or researched and innovative concepts for the provision of facility services are the subject of the students' project work.

12.6. EXERCISES

Assessment of Sustainable Building

Time:
After the introduction to the system for assessing sustainable building.

Task, objectives:
A comparison of two pre-set construction or design alternatives on the example building based on two (self-selected) criteria from DGNB. The aim is to recognise which criteria are used to measure sustainable building. A secondary objective is to become familiar with the different criteria in DGNB and to understand the assessment procedure.

After an introduction to the task, the teacher serves as a contact person for individual queries, assists in closing information gaps on the building example for carrying out the assessment, if necessary, etc. Finally, the results of some of the groups are presented and compared with those of the others. A discussion on possibly unexpected measurement criteria in DGNB can ensue and contribute to a critical reflection of assessment systems.

Duration:
Approximately 90 minutes

Group work:
Teams of two persons

Design of a Low-CO2 Facility Service

Time:
After introduction of the Carbon Footprint

Task, objectives:
Comparison of a given standard service with a to be designed low-CO_2 service using carbonFM according to GEFMA 162. The aim is to recognise CO_2 drivers in the service and to identify possible alternatives in the service design. A secondary objective is to learn about / learn to use the carbonFM tool and the principles that GEFMA 162 recommends for CO_2 assessment.

After an introduction to the task, the teacher is the contact person for individual queries and provides support, if necessary, in estimating missing data for the newly designed service and possible devices/products that are used for it, etc. Finally, the groups present their results and compare the possible

differences. A discussion on the identified CO_2 drivers deepens the problem awareness for climate protection in facility services.

Duration:
90 minutes, depending on the complexity of the standard service also longer

Group work:
Teams of two to three persons

Life Cycle Costing

Time:
After introduction to life cycle costing

Task, objectives:
Manipulation of a given life cycle cost calculation for the example building on Excel with regard to energy prices, calculation interest rate, etc.

After an introduction to the task, the teacher is the contact person for individual queries. The aim is to recognise influencing factors in life cycle costing. By working with the table, the participants get to know the procedure of a life cycle cost calculation. A final comparison of the results provides another opportunity to clarify questions about the correct procedure.

Duration:
30 minutes

Group work:
No

12.7. ASSESSMENT

For each student a portfolio is assessed, which can be awarded with a maximum of 100 points and consists of three parts:

- *Summary of a teaching unit (individual work), max. 10 points*:
  Students are asked to describe the essential contents of one session (1–2 pages). They should include a visualisation that can be used as a reminder in the following course. For example, the visualisation can be a short video film, diagram or graph not previously used in the course.

- *Summary of a technical essay (individual work), max. 10 points*:
  Students have to summarise the contents of an essay (minimum four pages long) in own words and conclude with a short statement (one to two pages).
- *Project work on the topic "Innovations to optimise CO_2 emissions in facility services in hospitals" (group task), max. 80 points:*
  Although the providers of facility services do not produce any products themselves, they do use products for their processes, which are associated with specific CO_2 emissions. A first approach to reducing CO_2 emissions is to choose the lowest-emission operating resources possible (e.g., vacuum cleaner). However, this project is about identifying and assessing innovative products or methods for service delivery. The project work includes a calculation, which is carried out according to GEFMA Guideline 162 Carbon Management in FM or with the tool carbonFM. The tool also provides benchmarks for various operating resources and materials — if already available. However, the challenge is primarily to identify suitable key figures or comparative values and define a scenario for the comparison between conventional and innovative service provision. Students have to submit a written documentation of the project (six to ten pages in length) and give a verbal presentation to the class (20 minutes duration).

12.8. PREREQUISITES

- Required prior knowledge from students: This course requires prior knowledge in the field of construction, facility management and energy technology.
- Required instructors and their core competencies: Teachers should have prior knowledge and methodological skills in the field of sustainable construction and operation of real estate. In particular, they should know the assessment concepts of sustainability of buildings, services and. companies.
- Other requirements:
  - Internet access and a PC, laptop, tablet, or smartphone are required so that students can conduct their own research and use online digital tools.
  - With eLCA, the teacher can be given access for the entire course in advance.
  - A building example with a floor plan, floor area figures and information on the building construction is the basis for testing the evaluation systems for sustainable construction and operation of real estate. Ideally, the students already know this example. A building at the university would be well suited for this.

12.9. RECOMMENDED RESOURCES

Recommended course literature:

- Sustainability in building construction and operation:

DGNB GmbH (2021). *The DGNB System*. https://www.dgnb-system.de/en/system/

- Life Cycle Assessment:

Jolliet, O., Shaked, S., Jolliet, A., Crettaz, P., & Saadé-Sbeih, M. (2016). *Environmental life cycle assessment*. CRC Press. https://openresearchlibrary.org/content/f4a6383f-2809-4d8c-abbd-9e206568513c

- Climate Change:

Rockström, J., & Gaffney, O. (2021). *Breaking Boundaries*. Dorling Kindersley UK.

- Individual carbon footprint:

World Wildlife Fund (2022). *Footprint Calculator*. https://footprint.wwf.org.uk/#/

- Virtual water:

Water Footprint Network (2022). *Resources.* https://www.waterfootprint.org/en/resources/

12.10. GENERAL TIPS FOR TEACHERS

- An important success factor lies in making the students' existing knowledge and experience on the topic of sustainability tangible. Therefore, classroom teaching that is spontaneously transformed into a group discussion can be advantageous.
- In the case of group work, self-selected groups of about three people have proven successful. These are usually homogeneous in terms of performance, so that friction losses due to free-riding are not to be expected.
- To ensure that the students' projects have a quality that enriches the module, it is worth investing some time in supervising the projects. The supervision appointments are obligatory for the students. In this way, it is possible to reach those who are particularly in need of assistance.

REFERENCES

Balsiger, J., Förster, R., Mader, C., Nagel, U., Sironi, H., Wilhelm, S., & Zimmermann, A. B. (2017). Transformative Learning and Education for Sustainable Development. *GAIA – Ecological Perspectives for Science and Society*, *26*(4), 357–359. https://doi.org/10.14512/gaia.26.4.15

Bundesinstitut für Bau-. Stadt- und Raumfoschung (Ed.). (2021). *eLCA*. https://www.bauteileditor.de/

Bundesministerium des Innern, für Bau und Heimat (Ed.). (2021). *Ökobaudat*. https://www.oekobaudat.de/

DGNB GmbH (Ed.). (2021). *DGNB System*. https://www.dgnb-system.de/en/system/

Edenhofer, O. (Ed.). (2014). *Climate change 2014: contribution… to the fifth assessment report of the intergovernmental panel on climate change; Working group 3. Climate change 2014: Mitigation of climate change; Working Group III contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge Univ. Press. http://www.loc.gov/catdir/enhancements/fy1606/2014451899-d.html

Felder, R. M. (2016). *Teaching and learning STEM: A practical guide* (First edition). Jossey-Bass a Wiley Brand. http://lib.myilibrary.com/detail.asp?id=897694

Finkbeiner, M. (2014). The International Standards as the Constitution of Life Cycle Assessment: The ISO 14040 Series and its Offspring. In W. Klöpffer (Ed.), *LCA Compendium – The Complete World of Life Cycle Assessment. Background and Future Prospects in Life Cycle Assessment* (pp. 85–106). Springer Netherlands. https://doi.org/10.1007/978-94-017-8697-3_3

Frischknecht, R. (2020). *Lehrbuch der Ökobilanzierung* (1st ed. 2020). Springer Berlin Heidelberg; Imprint: Springer Spektrum. https://doi.org/10.1007/978-3-662-54763-2

German Facility Management Association e.V. (2015). *GEFMA 160e: Sustainability in Facility Management; Fundamentals and Concept.*

German Facility Management Association e.V. (2021). *GEFMA 162–1 Carbon Management von Facility Services.*

Krämer, M., May, M., & Pelzeter, A. (2021). *CarbonFM: Carbon Management in Faciltiy Services*. https://carbonfm.de/

Lin, P.-C., & Huang, Y.-H. (2012). The influence factors on choice behavior regarding green products based on the theory of consumption values. *Journal of Cleaner Production*, *22*(1), 11–18. https://doi.org/10.1016/j.jclepro.2011.10.002

Lou, L. (2021). Cultivation of Students' Autonomous Learning Ability in Application-oriented Universities. *Theory and Practice in Language Studies*, *11*(4), 422–429. https://doi.org/10.17507/tpls.1104.12

Pech, M., Řehoř, P., & Slabová, M. (2021). Students Preferences in Teaching Methods of Entrepreneurship Education. *Journal on Efficiency and Responsibility in Education and Science*, *14*(2), 66–78. https://doi.org/10.7160/eriesj.2021.140201

Pelzeter, A. (2016). *Lebenszyklus-Management von Immobilien: Ressourcen- und Umweltschonung in Gebäudekonzeption und -betrieb* (1st ed.). *Beuth Praxis*. Beuth Verlag GmbH. https://ebookcentral.proquest.com/lib/gbv/detail.action?docID=4772791

Pelzeter, A., May, M., Herrmann, T., Ihle, F., & Salzmann, P. (2020). Decarbonisation of Facility Services Supported by IT. *Corporate Real Estate Journal* 9(4), 361–374.

Pinheiro, M. M., & Simões, D. (2012). Constructing Knowledge: An Experience of Active and Collaborative Learning in ICT Classrooms. *Procedia – Social and Behavioral Sciences*, *64*, 392–401. https://doi.org/10.1016/j.sbspro.2012.11.046

Schneider, M., & Mustafić, M. (2015). *Gute Hochschullehre: Eine evidenzbasierte Orientierungshilfe*. Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-662-45062-8

Ulrich, I. (2020). *Gute Lehre in der Hochschule*. Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-31070-7

Umweltbundesamt (Ed.). (2021). *Probas: Prozessorientierte Basisdaten für Umweltmanagementsysteme*. https://www.probas.umweltbundesamt.de/php/index.php

UNESCO (2017). *Education for Sustainable Development Goals: Learning Objectives.* UNESCO publishing.

Wei, C. A., Deaton, M. L., Shume, T. J., Berardo, R., & Burnside, W. R. (2020). A framework for teaching socio-environmental problem-solving. *Journal of Environmental Studies and Sciences*, *10*(4), 467–477. https://doi.org/10.1007/s13412-020-00603-y

Yazici, H. J. (2020). Project-Based Learning for Teaching Business Analytics in the Undergraduate Curriculum *Decision Sciences Journal of Innovative Education*, *18* (4), 589–611. https://doi.org/10.1111/dsji.12219

Tetiana Kravchenko

Chapter 13. Innovative Entrepreneurship and Startup Management

13.1. COURSE SUMMARY

Table 13–1

Audience and level of studies	Students (Master)	
Group size	≤ 25	
Course duration	8 weeks	
Credits	7 ECTS	
Workload	Presence: 30h (lectures and seminars) Self-study: 168 h Individual consultation: 12h	Total: 210h
Contents/primary topics	• Design thinking; problem identification, empathy, idea creation and selection • Solution generation and Sustainable Business Model creation • Innovative Products Promotion to the Market	
Main course objectives	• To create a system of knowledge and practical skills in Sustainable startups creation and management at the initial stage • To prepare students for participation in the incubation, acceleration and grant programs to startups support • To explore the theory and practice of attracting investments for promotion innovation products to the market	
Main teaching approaches	• Collaborative learning • Active learning	
Main teaching methods	• Group discussion • Case study • In-class role-play	
Learning environment	Classroom (face-to-face learning)	
Link to Sustainable Development Goals (SDGs)	SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development	

Table 13–2

Impact assessment	(None) Low/ Medium /High	Explanation
1. Degree of student participation / activeness	Medium /High	Engaging in role-play directed by a teacher (in-class); Conducting own research / working on their own project (at home)
2. Degree of student collaboration / group work	High	Participating in a team project over a whole semester (in-class) None: working individually on assignments (at home) Medium: working in groups on assignments if startups are created (at home)
3. Degree of student emotional involvement	Medium	Being able to articulate own emotional stands inrespect to selected sustainability-related issues
4. Degree of inter-/transdisciplinarity	High	Working on a group project (in-class) and on an individual project (at home) where knowledge of different disciplines need to be considered and combined in order to find a new and holistic solution
5. Degree of student (self-) reflection	Medium	Reflecting on one's own experiences related to sustainability issues in class (in-class) High: integrating first-hand sustainability experience into Building Sustainable Businesses (startup project) (at home)
6. Degree of experience of real-life situations	Medium	Internship
7. Degree of nature-related experiences	(None)	Classroom teaching
8. Degree of stakeholder integration	Medium	Conducting interviews with the representatives of one stakeholder group in a research project
9. Degree of integration between theory and practice	High	A module consisting of a lecture series providing theory and a practical project that requires direct application of that theory

13.2. COURSE INTRODUCTION

University is the best environment for creating first time entrepreneurs. During their studies, students can practice their scientific and engineering achievements, as well as potentially develop their ideas into real business projects (e.g., Online Platform "Diia.Business", n.d.; Network of Academic Business-Incubators "YEP", n.d.; Tech Ukraine, n.d.). Acquiring the needed skills for working on their own projects significantly not only expands the students' professional development opportunities but also gives them the option of creating their own company.

This course aims to deliver the theory and practical knowledge for sustainable startup creation and development. By applying the right approach and methodology to startup development, including the Lean Approach and the "Fail Fast" principle (Ries, 2011), students can quickly try new ideas, technical solutions, business models and, in case of a failed decision, quickly change the model and start testing new strategies. Additionally, success in entrepreneurship requires effective communication skills and collaboration.

After successfully completing this course, the students will be able to:

1. Integrate into the student startup ccosystem.
2. Come up with an idea of a sustainable startup.
3. Create a startup team and distribute roles in it.
4. Create a Sustainable Business Model of their own innovative project.
5. Create a Minimum Viable Product (MVP) & Customer Journey Map with Creative Thinking and Design Thinking Methods.
6. Prepare a pitch deck and present the idea to investors.
7. Interact with mentors and partners across different areas of activity.

After completing the course, the students will be able to continue developing their projects under different incubation or pre-acceleration programs. The students will be able to easily and without risk try themselves in business, feel part of the startup ecosystem, and prepare their startup for the stage of entering the market or finding the first investments.

13.3. LEARNING OBJECTIVES

Table 13–3

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Rieckmann, 2018)
Cognitive	Identify and seek the information needed to evaluate a market, customers, competitors, etc. which contributes to the understanding of a startup ecosystem (Diagnostic Information Gathering)	Systems thinking competency
	Analyse the startup's competitive position by considering market and industry trends, existing and potential customers, strengths and weaknesses when compared to competitors (Strategic Thinking)	Critical thinking competency
	Understand and evaluate the desired, probable, and possible results (Results Orientation)	Anticipatory competency

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Rieckmann, 2018)
Socio-emotional	Plan and deliver oral and written communications that make an impact and persuade one's intended audiences through highlighting the collective action steps (Persuasive Communication)	Strategic competency
	Gain others' support for ideas, proposals, projects, and solutions to collectively develop actions that further sustainability (Influencing Others)	Strategic competency
	Develop, maintain, and strengthen partnerships with others (Building Collaborative Relationships)	Collaboration competency
	Demonstrate concern for satisfying one's external and/or internal customers' needs, values, and norms (Customer Orientation)	Normative competency
	Believe in one's own ideas and critically reflect on one's own contribution to society (Healthy Self Confidence)	Self-awareness competency
	Be open to different and new ways of doing things (Flexibility)	Anticipatory competency
Behavioural	Work cooperatively with others on a team; as a team leader & to demonstrate interest, skill, and success in getting groups to learn to work together (Fostering Teamwork)	Collaboration competency

13.4. COURSE OUTLINE

Table 13–4

Structure		Session focus	Homework
Week 1	Session 1 (4 h)	Topic 1. Startup ecosystem Topic 2. Basic principles of Team Creation, roles in the Startup Team Topic 3. Design thinking. Problem identification, empathy Topic 4. Design Thinking. Ideas Creation and Selection	Example Tasks for Topics 1, 2, 3, 4: • Write a 1-page essay (up to 1,800 characters) about a Sustainable Startup you like and its interaction with the various elements of the ecosystem. • Describe the team members (Name, Skills, Role in the Team, Preliminary Task) • Write a list of questions for empathy and interviews or research (at least 15)
	Session 2 (2 h)	Consultation	

Structure		Session focus	Homework
Week 2	Session 3 (4 h)	Topic 5. Startup Idea Validation Topic 6. Lean Canvas. Sustainable Business Model Canvas. Problem and Solution Topic 7. Business Model Canvas. Client Profile. Value Proposition	Example Tasks for Topics 5, 6, 7: • Describe how each of these ideas solves your chosen problem • Fill in the Sustainable Business Model Canvas • Create a client profile (B2C)
	Session 4 (2 h)	Consultation	
Week 3	Session 5 (2 h)	Topic 8. Customer Research and Development. Preliminary market research. Validation of key hypotheses. Creative Traction Methodology	Example Tasks for Topic 8: • Formulate a hypothesis for a new sales channel with the HADI method (Platform NTILE, 2019)
	Session 6 (2 h)	Consultation	
Week 4	Session 7 (2 h)	Business Model Presentations	Pitch Deck
Week 5	Session 8 (3 h)	Topic 9. Team Dynamics Topic 10. Minimum Viable Product (MVP)	Example Tasks for Topics 9, 10: • Develop a work plan for the project team for the week • Fill in the template of MVP Creation and describe all stages (Kromer, n.d.)
	Session 9 (2 h)	Consultation	
Week 6	Session 10 (3 h)	Topic 11. Innovative Products Promotion to the Market Topic 12. Financial block in the general puzzle of business model. Project Success Indicators	Example Tasks for Topics 11, 12: • Create a competitive landscape of your project • Create Marketing Budget
	Session 11 (2 h)	Consultation	
Week 7	Session 12 (4 h)	Topic 13. Top Tips on How to Impress Investors Topic 14. Pitching Essentials: How to Pitch an Idea to Investors 14.1. The "Elevator Pitch": Easy Steps to a Perfect Pitch 14.2. The LivePlan Pitch, The Executive Summary, The Business Plan: What is the Difference? 14.3. The Business Pitch or The Things That Take a Pitch Deck from Good to Great	Example Tasks for Topics 13, 14: • Write a letter to a potential investor • Create the Elevator Pitch
	Session 13 (2 h)	Consultation	

Structure		Session focus	Homework
Week 8	Session 14 (2 h)	Exam	Pitch Deck

13.5. TEACHING APPROACHES AND METHODS

The course combines different types of teaching approaches and methods. The content materials for the course are delivered following the principles of the active learning approach and collaborative learning avoiding one-way type of communication and aiming to engage students in the learning process (Bonwell & Eison, 1991). The course work is organized to utilise different active learning techniques, such as case studies, in-class role-plays, gamification and group discussion.

Case studies using the Design Thinking Method (Müller-Roterberg, 2018) are based on resolving real-life cases through group analysis, brainstorming, innovation and creative ideas. This method prepares students for real business situations and arouse their curiosity, analytical skills and creativity.

In-class role-play exercises give students the opportunity to assume the role of a person or act out a given situation. These roles can be performed by individual students or in groups of two or more students, playing out a more complex scenario (Bonwell & Eison, 1991). For example, one student performs his project with the Pitch Deck, while the other students play different roles (of investors, clients, partners, suppliers and others) this time (they ask questions, comment on the slides). Incorporating role-play into the classroom adds variety, a change of pace and opportunities to consolidate the studied material, and also a lot of fun! The joy of role-play is that students can "become" anyone they like for a short time (Rao & Stupans, 2012) with no limitation of choices, such as a manufacturer of wooden bicycles or smart gadgets, an investor, an employee of a laboratory developing drugs against the coronavirus, etc. Role-playing can be effectively used in the classroom to (Center for Innovative Teaching and Learning, Northern Illinois University, n.d.):

- Motivate and engage students.
- Enhance current teaching strategies.
- Provide real-world scenarios to help students learn.
- Learn skills used in real-world situations (negotiation, debate, teamwork, cooperation, persuasion).
- Provide opportunities for the critical observation of peers.

Gamification lessens the students' fear of failure. It encourages the students to fail and reattempt the learning tasks without embarrassment (Huang & Soman,

2013). It is a very effective and useful technique to keep students motivated: the players want to excel and demonstrate mastery over the challenges of the game; the players are motivated by the relationships and team building involved in the games and to discover new aspects of the game and create personal experiences through role-play and exploration. One necessary feature of the games is the delivery of feedback, whether positive or negative. Educational games allow learners to progress, not by chance, but by having the right knowledge or correct response to a question or scenario. Similarly, the lack of knowledge or an incorrect response does not allow learners to move forward (Stewart, 2021). Gamification makes learning visible (points earned, progress bars, journey map). With this visibility, students can easily assess the next steps required and take stock of how far they've progressed in their learning – at any given time. By using games, students learn without even realizing. Besides, it makes learning fun and interactive.

Group discussion is important to learning because it helps students process information rather than simply receive it. The goal of a discussion is to get the students thinking about the course material in practice, and the teacher designs and facilitates the discussion rather than conveys information (Cashin, 2011). Group discussion is utilized in one way or another throughout the course as the students work in groups on startup creation; debate about different case studies related to sustainable startup creation; and engage in various group discussions to reflect on and make sense of the topics covered in the lectures. As a consequence, they are able to develop a deeper understanding of those topics (Keeton et al., 2002).

13.6. EXERCISES

Startup Ecosystem

- Write a one page essay about a Sustainable Startup you like and its interaction with the various elements of the ecosystem.
- Prepare a presentation for one minute:
- What is the idea for your startup?
- What problem does this idea solve?
- For whom the problem is solved?
- How to monetize the idea?
- What resources are needed to start the project?
- Who should be in the team?

- What skills, experience do you have for a startup (personal competencies:): leadership, IT, marketing, design, finance, project management, etc.?
- What role do you want to play in the team?

Design Thinking – Problem identification and Empathy

- Write a list of open-ended questions (at least 15) for an empathy interview[16] to elicit stories about specific experiences that help uncover the unacknowledged needs of customers.
- Formulate questions to generate elaborative answers "Tell me about a time when…" or "Show me how…")
- Describe the problem you will solve.
- Write answers (at least 15) to the question " How might we..." that connects to your problem.
- Fill in the Empathy Card[17]

Design Thinking – Ideas Creation, Selection and Validation

- Write down the three best ideas you could generate.
- Describe how each of these ideas solves your chosen problem.
- Select the best idea and prepare a presentation about it for two minutes.

Lean and Sustainable Business Model Canvas – Problem and Solution

- Analyze what alternatives exist to solving your problem? What are their advantages and disadvantages?
- Fill in the Sustainable Business Model Canvas[18]

Business Model Canvas – Client Profile and Value Proposition

- Identify your target customers by asking who your business is for: Business-to-business (B2B), Business-to-consumer (B2C), Business-to-government (B2G)?
- Create a client profile.
- Fill out a Value Proposition Canvas[19].

16 More information for instructors: see e.g. Nelsestuen and Smith (2021).
17 More information for instructors: see e.g. Barber (2020); Visual Paradigm Online (n.d.).
18 More information for instructors: see e.g. CASE (n.d.); Osterwalder and Pigneur (2010).
19 More information for instructors: see e.g. Strategyzer (n.d.); Sukalyan (2020).

Customer and Market Research – Validation of Key Hypotheses

- Formulate a hypothesis about the target audience:
  - Customer segment (hypothesis)
  - When are customers faced with the problem? How often?
  - How do they now solve this problem while your product is not on the market?
  - How can you test your hypothesis? By what experiment?
- Describe which hypotheses about your startup you want to validate (at least five).
- Describe the insights you received from each hypothesis after the interview (at least five).
- Formulate a hypothesis for a new sales channel with the HADI method[20].

Team Dynamics

- Write an essay up to 1,800 characters on your feelings about the stages of team development during the creation of airplanes in the audience. What problems did you need to solve? How did you interact at each stage of the team's development?
- Develop a work plan for the project team for the week. Identify the responsible team members for each task (add the course instructor as a mentor). Define deadlines.

Minimum Viable Product (MVP)

- Fill in the template of MVP Creation[21] and describe all stages.

Innovative Products Promotion to the Market

- Discuss in a group and write down what information you need to know about the market before promoting a business idea / innovative product to it. Then check the checklist.
- Find a suitable market for exporting locally produced chocolate:
  - Create two groups. Open the chocolate and taste. You must find a suitable market for this chocolate (in two minutes).
  - After listening to the comments of the business instructor, discuss again and make the final choice of the most suitable market for the local

20 Mo More information for instructors: see e.g Samoilenko (2019).

21 More information for instructors: see e.g Kromer, T. (n.d.).

chocolate (in two minutes). If you changed your previous solution, please explain why.

- Identify and compare your competitors:
  - Who are your competitors and what do they do?
  - Why is your service/product different than that of your competitors?
- Create a competitive landscape of your project.
- Create positioning statements for the different customer segments.
- Create a positioning: today vs. future product positioning.

Financial Block in the General Puzzle of Business Model – Project Success Indicators

- Determine the sources of incoming and outgoing financial flows (financial, investment, operating).
- Create a marketing budget.

Top Tips on How to Impress Investors

- Create a portrait of a potential investor:
  - Sphere and type of activity
  - Environment and values
  - Expectations; What emotions do you expect from him/her? Whom does he/she trust?
  - Communication channel and marketing message
- Write a letter to a potential investor.

Pitching Essentials

- Create an elevator pitch.
- Create an executive summary[22]
- Create a 12 slide pitch deck: introduction, team, problem, competitive advantages, solution, product, traction and validation/roadmap, market, competition, business model, investing, and contact.

22 More information for instructors: see e.g Cremades (2018); Eby (2018).

13.7. ASSESSMENT

Table 13–5

Activity	Weight
Class Discussion and Participation (Group discussion, Debate, Individual speeches)	20 %
Self Study (Self-reflection task/exercise)	15 %
Group Work (Case studies, In-class role-play, Gamification)	25 %
Individual Assignments (Vision-building exercises: Storytelling & Forecasting)	20 %
Final Assignment (Pitching & Pitch Deck)	20 %

Active participation in the discussion, demonstration of a high level of knowledge; fully disclosing the topic; and designing tasks in compliance with the established requirements bring the students the maximum score. When the students participate in the discussion without supporting arguments, or address the topic superficially, do not know how to connect their answer with other knowledge of the discipline nor use them to solve practical problems, do not perform a practical task, or present the tasks as a copy of the theoretical provisions of the textbooks, then the current and final scores will be reduced.

13.8. PREREQUISITES

Required prior knowledge from students:

- Basic understanding of marketing, innovation management, sustainable development, as well as business planning and processes

Required instructors and their core competencies:

- Lecturer (competencies: technology, sustainability, innovation management, business model modelling competency)
- Industry expert (competencies: real-life business expertise)

Required tools:

- Online collaboration platforms (e.g., Google docs)
- Online video conferencing platform (e.g., Zoom)
- Online educational platform (e.g., Moodle)
- Online video sharing platform (e.g., YouTube)
- Online video editing tool (e.g., Filmora)

13.9. RECOMMENDED RESOURCES

Topic 1.

- Beekman, B & Nieuwenhuis, R. (2017). The Startup City Book – the role of local government in entrepreneurial ecosystems. Colophon.
- Senor, D. & Singer, S. (2011). Start-up nation: The story of Israel's economic miracle. Grand Central Publishing.

Topic 2.

- Horowitz, B. (2014, March, 4). The Hard Thing About Hard Things. Harper Business.

Topic 3.

- Nelsestuen, K. & Smith, J. (2020, October). Empathy interviews. The Learning Professional, 41(5), 59–62. https://learningforward.org/wp-content/uploads/2020/10/tool-empathy-interviews.pdf
- IDEO.org (n.d.). How Might We. https://www.designkit.org/methods/3
- Shah, M. (2018, September, 17). How to Solve Problems the "Design Thinking" Way? Medium. https://medium.com/nyc-design/how-to-solve-problems-the-design-thinking-way-64edc64ba242
- Visual Paradigm online. (n.d.). Online Empathy Map Template. https://online.visual-paradigm.com/diagrams/features/empathy-map-template/
- Barber, K. (2020, August, 27). Create a Customer Empathy Map in 6 Easy Steps! Conceptboard. https://conceptboard.com/blog/create-a-customer-empathy-map-in-6-easy-steps/

Topic 4.

- Müller-Roterberg, C. (2018). book of Design Thinking. Kindle Direct Publishing.

Topic 6.

- Business model Inc. (n.d.). Business model canvas. https://www.businessmodelsinc.com/about-bmi/tools/business-model-canvas/
- Osterwalder, A. & Pigneur, Y. (2010, January). Business Model Generation: A book for Visionaries, Game Changers, and Challengers. John Wiley & Sons.

- Darus, D. (2015, November). Osterwalder explaining the Business Model Canvas in 6 Minutes [Video]. YouTube. https://www.youtube.com/watch?v=RpFiL-1TVLw
- Harvard Innovation Labs. (2014, Februrary). Harvard i-lab | Startup Secrets: Business Model [Video]. YouTube. https://www.youtube.com/watch?v=K0Eu6cL0BR8
- Kawasaki, G. (2011, July). The New Business Model. Stanford University's Entrepreneurship Corner [Video]. YouTube. https://www.youtube.com/watch?v=xajtsedb9NY
- Competencies for a sustainable socio-economic development (CASE). (n.d.). Sustainable Business Model Canvas. https://www.case-ka.eu/index.html%3Fp=2174.html
- Sustainable Business Canvas. (n.d.). The Sustainable Business Canvas. https://www.sustainablebusinesscanvas.org/
- Ambros, M. (2019, May, 15–17). Sustainable Business Model Canvas. Ecological Business Teachers Training Workshop. https://www.build-solutions.org/wp-content/uploads/2019/06/Sustainable-Business-Model-Canvas.pdf

Topic 7.

- Harvard Innovation Labs (2012, October). Harvard i-lab | Startup Secrets: Value Proposition [Video]. YouTube. https://www.youtube.com/watch?v=EYJeGYboPnw
- Osterwalder, A., Pigneur, Y., Bernarda, G., & Smith, A. (2015). Value proposition design: How to create products and services customers want. John Wiley & Sons.
- Thomson, P. (n.d.). Value Proposition Canvas Template. Digital Brand Strategy. Peter J Thomson. https://www.peterjthomson.com/2013/11/value-proposition-canvas/
- Strategyzer (n.d.). The Value Proposition Canvas. https://www.strategyzer.com/canvas/value-proposition-canvas
- Chamber of Commerce of Metropolitan Montreal. (n.d.). Know your customers' needs. https://m.infoentrepreneurs.org/en/guides/know-your-customers--needs/
- Priority Metrics Group. (2016, March, 24). 6 Ways to Differentiate Your Business from the Competition. MarketResearch.com. https://blog.marketresearch.com/6-ways-to-differentiate-your-business-from-the-competition
- Sukalyan, R. (2020). A collaborative value proposition canvas for teams. Conceptboad. https://conceptboard.com/blog/value-proposition-canvas-template/

Topic 8.

- Cremades, A. (n.d.). What Is Traction For A Startup? Alejandro Cremades. https://alejandrocremades.com/what-is-traction-for-a-startup/
- Mind Tools. (n.d.). SMART Goals. https://www.mindtools.com/pages/article/smart-goals.htm.
- NTILE (2019, April, 22). HADI cycle with examples: how to generate a hypothesis and make your life easier. Medium. https://medium.com/@ntile/hadi-cycle-with-examples-how-to-generate-a-hypothesis-and-make-your-life-easier-e34a231a9c16
- Barmin, A. & Lozovyuk. A. (n.d.). What is customer development and why do we need it. Freshcode. https://freshcodeit.com/freshcode-post/what-is-customer-development-for-entrepreneurs
- Fitzpatrick, R. (2019, August). The Mom Test: How to Talk to Customers and Learn If Your Business is a Good Idea when Everyone is Lying to You. Kindle Edition.
- Samoilenko, A. (2019, April,12). How to make a hypothesis and your life easier. Ntile blog. https://ntile.app/how-to-make-a-hypothesis-and-your-life-easier-5c99e087ba1220000117f812-5cb041c0a967c00001f84e35

Topic 9.

- Egolf, D.B. & Chester, S.L. (2013). Forming Storming Norming Performing: Successful Communications in Groups and Teams. iUniverse.
- Tuckman, B. W., & Jensen, M. A. C. (1977). Stages of small-group development revisited. Group & organization studies, 2(4), 419–427.
- Sutton, R. (2010). The No Asshole Rule: Building a Civilized Workplace and Surviving One That Isn't. Business Plus.
- Tracy, B. (2010). How the Best Leaders Lead: Proven Secrets to Getting the Most Out of Yourself and Others. AMACOM. https://issuu.com/gnrsvc/docs/how_the_best_leaders_lead_proven_se

Topic 10.

- Lastovetska, A. (2021, November, 12). Minimum viable product examples. MLSDev. https://mlsdev.com/blog/minimum-viable-product-examples
- Kromer, T. (n.d.). Minimum Viable Product Template – Cheat Sheet. Kromatic. https://www.kromatic.com/blog/cheat-sheet-minimum-viable-product/
- Kanstein, B. (2020, January). The MVP Experiment Canvas Explained [Video]. YouTube. https://www.youtube.com/watch?v=HsuLNByoYVw

Topic 11.

- Kravchenko, T. (2014). Scheduling and Selecting the Methods of Innovation Products' Promotion to the Market. *International Journal of Economics, Commerce and Management*. (United Kingdom). 2(4), 1–13.

Topic 12.

- Stombaugh, H. (2019, November, 20). Important Steps to Finding Government Grants for Nonprofits. The Balance Small Business. https://www.thebalancesmb.com/nonprofits-compete-for-government-grants-2501984
- Indiegogo. (n.d.). https://www.indiegogo.com
- Kickstarter. (n.d.). https://www.kickstarter.com/

Topic 13.

- Landau, C. (n.d.). What Do Investors Really Want? Bplans. https://articles.bplans.com/5-things-investors-want/

Topic 14.

- JDcarlu. (2015, March, 17). 6 Different kinds of pitches. Medium. https://medium.com/startup-frontier/6-different-kinds-of-pitches-5d96a076b6df
- Parsons, N. (n.d.). The 7 Key Components of a Perfect Elevator Pitch. Bplans. https://articles.bplans.com/the-7-key-components-of-a-perfect-elevator-pitch/
- Cummings, C. (n.d.). 9 Things That Take a Pitch From Good to Great. Bplans. https://articles.bplans.com/9-things-that-take-a-pitch-from-good-to-great/
- Parsons, S. (n.d.). How to Respond When You Don't Know the Answer to an Investor's Question. Bplans. https://articles.bplans.com/how-to-respond-when-you-dont-know-the-answer-to-an-investors-question/
- Cummings, C. (n.d.). 5 Sure-fire Ways to Bomb Your Investor Pitch. Bplans. https://articles.bplans.com/5-sure-fire-ways-bomb-investor-pitch/
- Mind Tools content team. (n.d.). Crafting an Elevator Pitch. MindTools. https://www.mindtools.com/pages/article/elevator-pitch.htm
- Parsons, N. (n.d.). The 11 Slides You Need to Have in Your Pitch Deck. Bplans. https://articles.bplans.com/what-to-include-in-your-pitch-deck/
- Cummings, C. (n.d.). How to Pitch to Investors in 10 Minutes and Get Funded. Bplans. http://www.articles.bplans.com/how-to-pitch-to-investors-in-10-minutes-and-get-funded/

- Cremades, A. (2018, July, 31). Executive Summary Template: What To Include. Forbes. https://www.forbes.com/sites/alejandrocremades/2018/07/31/executive-summary-template-what-to-include/#7b9481a25ddf
- Eby, K. (2018, April, 02). Free Executive Summary Templates. Smartsheet. https://www.smartsheet.com/executive-summary-templates
- Cannon, D. (n.d.). Top 10 Questions on Pitching Using LivePlan. Bplans. https://articles.bplans.com/top-10-questions-on-pitching-an-idea-to-investors/

13.10. GENERAL TIPS FOR TEACHERS

During the course, the students work in teams on the ideas of startups. The teams can have a size of one to five people. The teams are formed at the beginning of the semester. It should be noted that students can change both the teams and the ideas of startups during the course. This is a normal and organic process.

In case students are required to carry out any individual (or group) tasks, it is advisable to create a workbook (e.g., a document with tables to fill in the results which can be stored/shared via any cloud service).

The exam is held in the form of pitching with a Pitch Deck (presentation) to potential investors (students play the roles of potential investors).

REFERENCES

Bonwell, C., Eison, J. (1991). *Active Learning: Creating Excitement in the Classroom*. ASHE-ERIC Higher Education Report No. 1. Washington, D.C.: The George Washington University, School of Education and Human Development. https://files.eric.ed.gov/fulltext/ED336049.pdf

Cashin, W. (2011). Effective classroom discussions. Kansas State University. IDEA Paper 49. https://docplayer.net/20977883-Effective-classroom-discussions-1-william-e-cashin-professor-emeritus-kansas-state-university.html

Center for Innovative Teaching and Learning (CITL), Northern Illinois University (n.d.). Role Playing. https://www.niu.edu/citl/resources/guides/instructional-guide/role-playing.shtml

Damodharan, V. S., Rengarajan, V. (n.d.). Innovative Methods of Teaching. https://www.math.arizona.edu/~atp-mena/conference/proceedings/Damodharan_Innovative_Methods.pdf

Grade Power Learning (2018, September, 13). The benefits of self-study (and how your child can use it). https://www.gradepowerlearning.com/what-is-self-study/

Huang, W. H. Y., & Soman, D. (2013). Gamification of education. Report Series: Behavioural Economics in Action, 29, 11–12.

Keeton, M. T., Sheckley, B. G., & Griggs, J. K. (2002). Effectiveness and efficiency in higher education for adults: A guide for fostering learning. Kendall Hunt.

Kromer, T. (n.d.). Minimum Viable Product Template – Cheat Sheet. Kromatic Platform. https://www.kromatic.com/blog/cheat-sheet-minimum-viable-product/

Müller-Roterberg, C. (2018). book of Design Thinking. Kindle Direct Publishing.

Network of Academic Business-Incubators "YEP" (n.d.). Program "Entrepreneurial University". http://www.yepworld.org/

NTILE (2019, April, 22). HADI cycle with examples: how to generate a hypothesis and make your life easier. Medium. https://medium.com/@ntile/hadi-cycle-with-examples-how-to-generate-a-hypothesis-and-make-your-life-easier-e34a231a9c16

Online Platform „Diia.Business". (n.d.). National online school for entrepreneurs. https://www.business.diia.gov.ua/

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.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Ries, E. (2011). The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses. Random House Publishing Group.

Stewart, K. (2021). What are the Advantages and Disadvantages of Gamification? https://echo360.com/what-are-the-advantages-and-disadvantages-of-gamification/

TeachThought Staff. (n.d.). 10 Innovative Learning Strategies For Modern Pedagogy. TeachThoughtUniversity. https://www.teachthought.com/the-future-of-learning/innovative-learning-strategies-for-modern-pedagogy/

Tech Ukraine. (n.d.). Ukrainian Ecosystem Map.: https://www.techukraine.org/ecosystem-map/

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.World Resources Institute (WRI). (2000). How to Conduct a "Visioning" Exercise. https://www.gdrc.org/ngo/vision-dev.html

Prashan S. M. Karunaratne

Chapter 14. Agility and Excellence in Business – A Transdisciplinary Capstone Course on Sustainability Using the Knowledge and Skills of Commerce

14.1. COURSE SUMMARY

Table 14–1

Audience and level of studies	Students (bachelor)	
Group size	Entire course: 500–1000 Seminar group: 50	
Course duration	13 weeks	
Credits	5 ECTS	
Workload	Presence: 39 h Self-study: 21 h Teamwork & assessments: 90 h	Total: 150 h
Contents/primary topics	• Sustainable and global mindset • Teamwork • Employability	
Main course objectives	• The integration of all knowledge and skills from students' entire degree in a single project (capstone course) applied in global sustainability challenges • The application of teamwork and communication in a cross-disciplinary context • The enhancement of employability skills via teamwork in a cross-disciplinary sustainability challenge	
Main teaching approaches	• Active learning • Collaborative learning • Transdisciplinary learning	
Main teaching methods	• Sustainability-related consulting project • Inter-disciplinary team teaching • Group discussion	
Learning environment	Classroom (face-to-face learning) or virtual classroom (online learning) with synchronous (interaction in real-time) learning	

Link to Sustainable Development Goals (SDGs)	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable,reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 14–2

Impact assessment	**(None) Low/ Medium /High**	**Explanation**
1. Degree of student participation / activeness	High	Students synthesize their prior knowledge and skills, and conduct their own research to apply their knowledge and skills to their own project.
2. Degree of student collaboration / group work	High	Students participate in a team project over a whole semester.
3. Degree of student emotional involvement	Medium	Students reflect on their experiences and articulate their own emotional stands with respect to selected sustainability issues.

Impact assessment	(None) Low/ Medium /High	Explanation
4. Degree of inter-/transdisciplinarity	High	Students work in mixed-major teams on a group project where knowledge of different disciplines needs to be considered and combined to find an innovative, integrative, and holistic solution to a sustainable development challenge using business principles.
5. Degree of student (self-) reflection	Medium	Students write a reflective essay at the beginning of the semester on their knowledge and skills to date in their degree. This reflective essay is written around four pillars: scholarship, engagement, ethical practice, and sustainability. At the end of the semester, students create a presentation reflecting on employability and sustainability skills gained while completing their project.
6. Degree of experience of real-life situations	Low	Discussion of a few case studies based on real-world enterprises that revolve around the SDGs, to give students context and inspiration for their own SDG projects. This is supplemented with invited guest lectures from industry professionals who work in the sphere of sustainability.
7. Degree of nature-related experiences	None	Classroom teaching.
8. Degree of stakeholder integration	Medium	Students conduct surveys and interviews with the relevant stakeholder groups of their project.
9. Degree of integration between theory and practice	High	Students go through a series of modules as pre-readings, which in conjunction with their prior knowledge, requires them to apply the theories learnt from the modules towards their project to advance a SDG.

14.2. COURSE INTRODUCTION

The course is designed to be the capstone, or any other final year course, for a degree program where students have multiple majors as choices for specialization. Such degree programs may include Bachelor of Arts, Bachelor of Science, or Bachelor of Commerce students (Karunaratne, et al., 2016), or degrees that have a variety of majors on offer. The course is designed to bring together students from different majors in a cross-disciplinary context to synthesize their knowledge and skills to solve a societal problem – collaboratively, sustainably, and profitably. Students are empowered to showcase the highest level of thinking – the creation of new knowledge (Anderson & Krathwohl, 2001).

Students work collaboratively in teams of five to seven students, in consultation with their teacher to integrate the knowledge and skills acquired within their previous studies. Students work in cross-disciplinary teams, incorporating each other's lenses of viewing the world (Meyer & Land, 2003), to complete

a semester-long project utilizing their knowledge to address a United Nations (UN) (2015) Sustainable Development Goal via a business enterprise.

Each student is required to demonstrate how their major plays a specific role in their project by applying their major's knowledge and skills. In essence, each team member takes on the role of a specific part of an organization, and all team members form the entire organization. Each student contributes one chapter about their major being applied in the overall capstone project. The course aims to prepare students for sustainable leadership in their future workplaces as team players and leaders. The course intends to achieve institutional learning outcomes and societal expectations to prepare students for the world of work – teamwork, employability, and a global mindset.

The course embodies a "guide-by-the-side" teaching philosophy, rather than a "sage-on-the-stage" teaching philosophy (Morrison, 2014). Students are guided in weekly seminars via a scaffolded activity that is constructively aligned (Biggs, 1996) and helps students activate knowledge synthesis in the context of their capstone project. Weekly pre-readings inform students with frameworks to facilitate this synthesis of knowledge.

Each three-hour seminar goes through three steps: Pre-read, Discuss, and Apply. For the first 45–60 minutes, the teacher goes through their pre-reading by facilitating a discussion so that the frameworks in the pre-reading are clear for all students. These readings revolve around frameworks for reflection, teamwork, agility, sustainability, and employability. Then, for the rest of the seminar (120–135 minutes), the students apply the pre-reading to their capstone project via scaffolded tasks. The teacher is the guide-by-the-side, assisting teams and facilitating team discussion. Students select artefacts from each assessment task to include in an e-portfolio (Boud, 2000) that students can later showcase to their networks and future employers. This translates to authentic assessments that enhance graduate employability.

Research by McKinsey & Company (2021) finds that to be successful in the world of work, graduates need not only to master their technical skills in their chosen area of specialization, but also master their transferrable skills across four categories: cognitive, interpersonal, self-leadership, and digital. Thus, this course aims to develop these transferrable skills. Students develop teamwork, employability, and global mindset by working in cross-disciplinary teams to apply business principles and advance a UN SDG.

Students gain experiences and expertise to empower them as they enter the world of work by reflecting on their prior studies and applying this knowledge in a practical way. The learning activities and assessments in the course also enhance the agility of graduates according to the Domains of Business Agility (Business Agility Institute, 2021) – preparing them for dynamic workplaces of the future.

14.3. LEARNING OBJECTIVES

The course's learning objectives are constructively aligned (Biggs, 1996) to the degree's learning objectives, which are in turn aligned to the entire school's learning goals. The school's learning goals in turn work towards the university's competency framework that has four pillars: scholar, practitioner, citizen, and professional (AMC, 2020).

Table 14–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (AMC, 2020)**
Cognitive	Integrate discipline-specific knowledge and skills and apply subject knowledge critically, analytically with appreciation of cross-disciplinary requirements.	Scholar
Socio-emotional:	Identify and analyze issues from a variety of ethical and sustainability positions as applied to the business context.	Practitioner And Citizen
Behavioural	Reflect on outcomes of working in multi-functional teams to apply teamwork knowledge and skills for effective collaboration to achieve business solutions in a range of contexts.	Professional

14.4. COURSE OUTLINE

The following course outline assumes that the course is for Bachelor of Commerce students, and in Weeks 9 and 10 these students work collaboratively with Bachelor of Science students to give each other their unique perspectives, consultation, and feedback on each other's projects. The outline below can be equally substituted for any undergraduate degree cohort that collaborates with another undergraduate degree cohort.

Table 14–4

Structure		Session focus	Pre-work[23]
Week 1	Session 1 (1h)	Introduction to the course	Pre-reading: Reflective Writing • "Reflection for Learning – The Basics " (Macquarie University, 2018)
	Session 2 (2h)	Reflecting on the journey so far in the Bachelor of Commerce	
Week 2	Session 3 (1h)	Discussion on reflective writing	Assessment: Reflective Essay and Infographic
	Session 4 (2h)	Introduction the United Nations Sustainable Development Goals	
Week 3	Session 5 (1h)	Introduction to Teamwork	Pre-reading: Introduction to Teams • "What the Flipped is Team Based Learning?" (Macquarie University, 2018)
	Session 6 (2h)	Formation of teams, sharing of infographics produced in their prior assessment task	
Week 4	Session 7 (1h)	The Theory of Teams and Teamwork	Pre-reading: The Theory of Teams and Teamwork • "Using the Stages of Team Development" (Massachusetts Institute of Technology, 2021)
	Session 8 (2h)	Storming within teams regarding the UN SDGs	
Week 5	Session 9 (1h)	Communication Skills	Pre-reading: Communication Skills • "Communication Skills" (Skills You Need, 2021a)
	Session 10 (2h)	Storyboarding projects – a stage-by-stage diagram showing their entire project and every stakeholder interaction	
Week 6	Session 11 (1h)	Collaborative Problem Solving	Pre-reading: Collaborative Problem Solving • "Decision-making and Problem-solving" (Skills You Need, 2021b)
	Session 12 (2h)	Teams collaboratively problem solving in pairs	

23 All pre-readings are bespoke modules prepared by university staff by curating resources on each of the topics.

Structure		Session focus	Pre-work[23]
Week 7	Session 13 (1h)	Conflict Resolution	Pre-reading: Conflict Resolution • "Conflict Resolution and Mediation." (Skills You Need, 2021c)
	Session 14 (2h)	Creation of an Interim Pitch	
Week 8	Session 15 (1h)	Introduction of a commercial shock	Assessment: Agility Exercise – responding to the shock
	Session 16 (2h)	Teams work on addressing the commercial shock	
Week 9	Session 17 (1h)	Introduction of Bachelor of Science (BSc) Capstone projects	Pre-reading: The Bachelor of Science Capstone projects
	Session 18 (2h)	Teams work on providing consultation to the BSc Students	
Week 10	Session 19 (1h)	Teams receive feedback from BSc Capstone students	Teams work towards their Report and Presentation
	Session 20 (2h)	Teams work on the feedback provided by the BSc students	
Week 11	Session 21 (1h)	Industry guest lecture on Employability	Teams work towards their Report and Presentation
	Session 22 (2h)	Teams incorporate the guest lecturer feedback on their project	
Week 12	Session 23 (1h)	Alumni guest lecture on Employability	Teams work towards their Report and Presentation
	Session 24 (2h)	Teams incorporate the guest lecturer feedback on their project	
Week 13	Session 25 (2h)	Team Presentations	Teams work towards their Report and Presentation
	Session 26 (1h)	Course wrap-up and Evaluation	

14.5. TEACHING APPROACHES AND METHODS

The world of work is agile. Those that can navigate times of crisis are those who are equipped with transferrable skills and those who have experiences with cross-disciplinary thinking. The teaching approaches and methods of this course reflect the learning outcomes of the course that revolve around transdisciplinary teamwork, employability, and a global mindset – to future-proof

23 All pre-readings are bespoke modules prepared by university staff by curating resources on each of the topics.

graduates in the world of work (McKinsey & Company, 2021) and develop graduates who are agile (Business Agility Institute, 2021). The teaching approach is in itself agile, and the teaching approach involves the teacher demonstrating and modelling the four categories of employability skills (McKinsey & Company, 2021): cognitive, interpersonal, self-leadership, and digital, so students gain a practical example of these skills in action and are empowered to emulate these in their own endeavours.

Students are provided frameworks for learning as well as scaffolded activities to help their projects progress each week. Students and teachers are partners and co-creators in this course. Students are encouraged and empowered to think critically and synthesise their knowledge to create new knowledge (Anderson & Krathwohl, 2001). Bloom's Taxonomy is utilised as it gives students and teachers a framework to scaffold knowledge from lower-level thinking to higher-level thinking where students demonstrate the ability to evaluate and create new knowledge.

The course embodies active learning in a team setting, where teams work through a scaffolded activity each week. Studies show that students learn more when they experience active learning in the classroom (Deslauriers, et al., 2019). Each activity is based on the application of students' pre-reading – guiding students in the application of theories and frameworks to the specific context of their chosen project.

The university's collaborative teaching spaces are fully utilised for face-to-face streams, as well as all Zoom functionalities for online streams, where the course uses a unique blend of three learning methodologies to keep students actively engaged across a three-hour seminar, which applies the broad findings of Deslauriers, et al. (2019) to maximise student learning:

- Active learning
- Problem-based learning
- Team-based learning

Students work collaboratively in cross-disciplinary teams, with peers and teachers to integrate their discipline-specific knowledge to address a societal problem Students work in self-managed, interdisciplinary teams to complete a semester-long project, preparing individual and group reports and presentations that are of showcase quality. In this teaching approach, the teacher is the guide-by-the-side rather than the sage-on-the-stage, moving the student from being a passive recipient to taking part in the teaching-learning nexus to enhance their integrative learning (Morrison, 2014). This approach empowers students' self-agency as well as their employability.

Students choose a societal problem that addresses one of the Sustainable Development Goals (UN, 2015) They use their diverse knowledge and skills to

achieve the chosen SDG collaboratively, ethically, sustainably, and profitably (Bajada & Trayler, 2013). In doing so, the course aims to prepare students for ethical and sustainable leadership in their future workplaces as team players and leaders.

Assessments are designed to assure student proficiency in course learning outcomes via a scaffolded approach – assessments are for learning and authentic, where students integrate assessment artefacts in their e-portfolio on *Portfolium* to showcase to potential employers. Evidence suggests e-portfolios increase authenticity and support productive learning (Yang, et al., 2016). This authentic assessment method makes the learning meaningful for students and bridges the gap between education and employability.

The course also integrates experiential learning (Kolb, 2014) via *Lego Serious Play* (Wade & Piccinini, 2020). *Lego Serious Play* is used at the beginning of the semester both as an icebreaker activity and to learn about reflection and reflective learning (Image 2) before students write a reflective essay (Gibbs, 1988). Students then use tools such as *Canva* and *Adobe InDesign* to summarise this essay into a single A4 infographic. These teaching methods engage the students in the transferrable skills of reflection, teamwork, and communication, as well as enhancing their digital literacy by exposing students to new applications and software packages.

Lego Serious Play is also used when teams are formed in Week 3, again as a team icebreaker, as well as to learn about Tuckman's Stages of Teamwork) – forming, storming, norming, performing, and adjourning (Tuckman, 1965). Understanding the stages of teamwork is essential for students' exploration of teamwork. This is a key learning outcome of the course, and an important pillar for students' employability. Students are placed in cross-disciplinary teams of five to seven (of the teacher's choosing to ensure that teams are sufficiently mixed) where students share their single A4 infographic. This is how students share their skills with the rest of team, providing them with experiences and opportunities in networking and showcasing – to further enhance their employability skills (Toth, 2013).

After deliberating for a week, teams choose an SDG, and they are to use the knowledge of their majors collaboratively to create a business product, plan, or process, that helps work towards this SDG. As a team, they work toward their final assessment tasks, which is a report and a presentation. The presentation is a three-minute video-recorded elevator pitch where they showcase their employability skills gained throughout the degree and this capstone course using *Portfolium* (Yang, et al., 2016).

Weekly scaffolded in-class activities are designed to help teams progress their project each week. The teacher guides students as they work through each

week's activities (Morrison, 2014), offering ideas and empowering students' creativity and critical thinking (Kolb & Kolb, 2005).

14.6. EXERCISES

The following exercises may need some adaptation for cohorts other than Bachelor of Commerce students. In Weeks nine and ten students work collaboratively with students from a different undergraduate degree cohort to provide unique perspectives, consultation, and feedback on each other's projects.

Lego Serious Play – Reflection

We use Lego Serious Play activities to assist in icebreaking, as well as help navigate through content. In the first lesson, we ask students in groups of five to seven to form a reflective artefact of their journey in the Bachelor of Commerce using Lego. This helps stimulate a creative conversation about the different student journeys during their time at university.

Reflective Essay

To further reflect on their journey in the Bachelor of Commerce, students write an individual reflective essay on the themes of: scholarship, engagement, ethics, and sustainability. Each student summarises their essay as an infographic to be shared with their new team members in Week three – to assist team formation.

Lego Serious Play – Teamwork

When teams form in Week three, we give them a Lego Serious Play activity to help teams bond and visualise Tuckman's Stages of Teamwork. Each team gets the same Lego set. They have ten minutes to plan how they will work as a team and sort out their workspace. Then the clock starts, and it is a race to the finish! Teams then reflect on their performance by working through Tuckman's Stages. To solidify their new knowledge, teams have a chance to repeat the exercise.

Weekly Lesson Plan

From the third week and onwards, students have pre-readings to complete before coming to class, and then the teacher navigates this content via an active discussion at the beginning of the lesson for about 45–60 minutes. For the rest of the three-hour seminar, we have a scaffolded team activity. The weekly accu-

mulation of these activities helps their project progress each week. As students work through their projects, their teacher is their guide-by-the-side, engaging with students, equipping them with ideas, and empowering their creativity and critical thinking.

Live Industry Guests

Each week either academic or industry guests are invited to the course to give students insights on the themes of sustainability, employability, and/or agility. These sessions are presented synchronously (whether face-to-face or online) and the sessions are recorded for later asynchronous learning support. Those students who attend the live sessions can discuss their projects with these guests and receive feedback. Students and the teaching team benefit from engaging with industry partners for real-world inspiration and insights.

Agility Exercise

The teams are presented a commercial shock in the beginning of Week eight, which is to be addressed within one working week. The teams must work together, drawing upon each other's strengths. The shock remains for the duration of the semester, thereby impacting each team's project. Examples of shocks that could be used include:

- A business ethics training module that is mandated by the government – teams have to show evidence of embedding their learning into their business model.
- A client who needs consultancy on their own project, where the consultancy report has to be produced using a new software – teams have to learn the new software and showcase their consultancy via this new platform and showcase their own project's documentation via this new platform.

Inter-team consultation

Several times during the semester, teams are paired with other teams to share progress, problem-solve, and receive feedback. Initially, teams are paired within the course itself.

Bachelor of Science Capstone consultation

The Bachelor of Science Capstone students also work in cross-disciplinary teams to address an SDG. The teams of the two degrees create project briefs and questions to share with students from the other degree. This gives business students the opportunity to engage with science students. Students produce a

formal consultation document, giving them experiences in consulting. In the following week, teams receive this feedback, and incorporate this into their projects.

Focus on Majors

Once in the semester, we re-organise seminars and teams according to their majors, where students can meet a teacher from their discipline. Students share how they have applied their major in their own team. This within-discipline sharing is designed to inspire and cross-pollinate team projects.

Consultation Advice from Industry and Alumni

In Weeks 11–12, industry and alumni guests share with students: experiences related to employability and their own expertise. Students are encouraged to engage with these industry reps and ask questions that will help them finalise their projects. Students are encouraged to share their *Porfolium* e-portfolio via professional networking platform, such as *LinkedIn*. *LinkedIn* enables students to engage externally for feedback, showcasing, and networking.

14.7. ASSESSMENT

The following assessment structure assumes that the course is for Bachelor of Commerce students, and in weeks nine and ten these students work collaboratively with Bachelor of Science students to give each other their unique perspectives, consultation, and feedback on each other's projects. The assessments below can be equally substituted for any undergraduate degree cohort that collaborates with another undergraduate degree cohort.

The assessment philosophy is that assessments are *for* learning, as much as they are assessments *of* learning. Thus, the assessment tasks assist in navigating the student from gathering their prior knowledge in their earlier studies, to synthesising that knowledge in the context of creating the capstone report and capstone presentation.

Teachers provide students with feedback on these assessments based on a rubric and individual written comments. In addition, the course is constructively aligned, thus students have opportunities to receive feedback from: other teams, students from other degree programs, industry guests, and alumni guests throughout the semester.

Table 14–5

Evaluation	Deliverable	Format	Percentage (%)
Reflective Essay	Students reflect on their entire degree's journey and write an essay under the headings of: scholarship, engagement, ethics, and sustainability.	1,000-word individual essay and a 1-page infographic.	20 %
Agility Exercise	Teams receive a commercial shock that impacts their projects which they need to respond to within a working week.	700-word individual essay and 3-page appendix.	20 %
Capstone Report	Each student writes a chapter of the team report, and the team co-creates the introduction and the conclusion. The report reads like a book, with chapters focused on different majors.	700-word individual essay and 3-page appendix.	40 %
Capstone Presentation	Each student records a video presentation showcasing their employability skills based on their e-portfolio. The video presentation is a student voice-over as they navigate the audience through aspects of their e-portfolio. Students then share their presentations on their *LinkedIn* site – where each student includes an elevator pitch for networking, showcasing, and employability.	3-minute individual presentation within a team presentation.	20 %

14.8. PREREQUISITES

The following prerequisites are designed for Bachelor of Commerce students. They can be adapted for any undergraduate degree cohort.
Required prior knowledge from students:

- Completion of all first-year courses – the foundation courses of the degree program. For example: in a Bachelor of Commerce the first-year foundation could include introductory courses in Accounting, Economics, Finance, Management, Marketing, and Statistics.
- Completion of all second-year courses – pertaining to the student's major. For example: in a Bachelor of Commerce students may complete courses in their chosen major such as: Accounting, Business Analytics, Business Information Systems, Business Statistics, Cyber Security Governance, Economics, Entrepreneurship, Finance, International Business, Human Resources, Management, or Marketing.
- Completion of some third-year courses – pertaining to the student's major in the Bachelor of Commerce

Required instructors and their core competencies:

- Lecturer (commerce, sustainability, learning and teaching, and a team player)
- Industry experts (real-life business expertise)
- Alumni (recent experiences translating employability skills)

14.9. RECOMMENDED RESOURCES

Business Agility Institute (2021). *The Domains of Business Agility*. https://businessagility.institute/domains/domains-of-business-agility-overview

Macquarie University (2018). *Reflection for Learning – The Basics*. https://teche.mq.edu.au/2018/03/reflection-learning-basics/

Macquarie University (2021). *What is Sustainability – Part 1*. https://libguides.mq.edu.au/sustainabilitylaw/home

Macquarie University (2021). *What is Sustainability – Part 2*. https://www.mq.edu.au/about/about-the-university/strategy-and-planning/other-university-initiatives/sustainability/what-is-sustainability

Macquarie University (2018). *What the Flipped is Team Based Learning?* https://teche.mq.edu.au/2018/04/wtf-is-tbl/

Massachusetts Institute of Technology (2021). *Using the Stages of Team Development.* https://hr.mit.edu/learning-topics/teams/articles/stages-development

McKinsey & Company (2021). *Defining the Skills Citizens Will Need in the Future World of Work.* https://www.mckinsey.com/industries/public-and-social-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work

Skills You Need (2021a). *Communication Skills.* https://www.skillsyouneed.com/ips/communication-skills.html

Skills You Need (2021b). *Decision-making and Problem-solving.* https://www.skillsyouneed.com/ips/decision-making-problem-solving.html

Skills You Need (2021c). *Conflict Resolution and Mediation.* https://www.skillsyouneed.com/ips/conflict-and-mediation.html

United Nations (2015) *Transforming our World: The 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1*.

The United Nations Office on Drugs and Crime (2019). *Ethics For Justice*. https://www.unodc.org/e4j/en/tertiary/integrity-ethics.html

14.10. GENERAL TIPS FOR TEACHERS

The course is certainly equal parts rewarding and equals parts challenging for a teacher. Leading or being involved in such a course is a great opportunity for

professional development in your teaching practice and content. Through the cross-disciplinary experience, you will learn about the areas that are not your expertise, via the students in the course.

As a teacher, success in teaching this course depends on openness to challenging the traditional classroom power dynamics. Teachers no longer control the knowledge; they become facilitators of knowledge creation by teams of students.

The course cohort is ideally divided into seminar groups of 50 to make groups manageable. Each seminar group should be divided into teams of five, thus you will have about ten teams to nurture throughout the course of the semester. One approach is to give detailed attention to half the teams each week, as you walk around the classroom while students apply themselves to their projects. This way, in every two-week window, you would have given detailed attention to all teams. If it is not possible to ensure that all students within a team have unique majors – mix teams as much as possible and any students in a team with the same major can focus on different aspects of their major.

Utilise *LinkedIn* as a platform to showcase your students' work and get the attention of industry – either as future guests or as future employers!

REFERENCES

AMC – Australian Medical Council Limited (2020). *Accreditation of Medical Program of the Macquarie University Faculty of Medicine and Health Sciences*. https://www.amc.org.au/wp-content/uploads/2020/08/2020-Macquarie-Report-secured.pdf

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., Wittrock, M. C. (2001). *A taxonomy for learning, teaching and assessing: A revision of Bloom's taxonomy*. New York. Longman Publishing.

Bajada, C., & Trayler, R. (2013). Interdisciplinary business education: Curriculum through collaboration. *Education + Training*, *55*(5), 385–402.

Biggs, J. (1996). Enhancing teaching through constructive alignment. *Higher education*, *32*(3), 347–364.

Boud, D. (2000). Sustainable assessment: rethinking assessment for the learning society. *Studies in Continuing Education*, *22*(2), 151–167.

Business Agility Institute (2021). *The Domains of Business Agility*. https://businessagility.institute/domains/domains-of-business-agility-overview

Deslauriers, L., McCarty, L. S., Miller, K., Callaghan, K., & Kestin, G. (2019). Measuring actual learning versus feeling of learning in response to being actively engaged in the classroom. *Proceedings of the National Academy of Sciences*, *116*(39), 19251–19257.

Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods.* London: Further Education Unit.

Karunaratne, P. S. M., Breyer, Y. A., & Wood, L. N. (2016). Transforming the economics curriculum by integrating threshold concepts. *Education + Training*, *58*(5), 492–509.

Kolb, D. A. (2014). *Experiential learning: Experience as the source of learning and development*. FT press.

Kolb, A. Y., & Kolb, D. A. (2005). Learning styles and learning spaces: Enhancing experiential learning in higher education. *Academy of management learning & education*, *4*(2), 193–212.

McKinsey & Company (2021). *Defining the skills citizens will need in the future world of work*. https://www.mckinsey.com/industries/public-and-social-sector/our-insights/defining-the-skills-citizens-will-need-in-the-future-world-of-work

Meyer, J. H. F., & Land, R. (2003). Threshold concepts and troublesome knowledge: Linkages to ways of thinking and practising within the disciplines. In *ISL10 Improving Student Learning: Theory and Practice Ten Years On* (pp. 412–424). Oxford Brookes University. Morrison, C. D. (2014). From 'sage on the stage' to 'guide on the side': A good start. *International Journal for the Scholarship of Teaching and Learning, 8*(1).

Ruskin, J., & Bilous, R. H. (2020). A tripartite framework for extending university-student co-creation to include workplace partners in the work-integrated learning context. *Higher Education Research & Development*, *39*(4), 806–820.

Toth, C. (2013). Revisiting a genre: Teaching infographics in business and professional communication courses. *Business Communication Quarterly*, *76*(4), 446–457.

Tuckman, B. W. (1965). Developmental sequence in small groups. *Psychological Bulletin*, *63*(6), 384.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wade, B., & Piccinini, T. (2020). Teaching scenario planning in sustainability courses: The creative play method. *Journal of Management Education*, *44*(6), 699–725.

Yang, M., Tai, M., & Lim, C. P. (2016). The role of e-portfolios in supporting productive learning. *British Journal of Educational Technology*, *47*(6), 1276–1286.

Manuel Quirós

Chapter 15. Education for Sustainability and Regeneration

15.1. COURSE SUMMARY

Table 15–1

Audience and level of studies	Students (Bachelor)	
Group size	20–30	
Course duration	14 weeks	
Credits	6 ECTS	
Workload	Presence: 48h (lectures) + 32h (exercises) Self-study: 70h (teamwork)	Total: 150h
Contents/primary topics	• State of the world: from globalization to SDGs, planetary boundaries and Anthropocene. • Sustainability indicators (water, ecological, carbon, social, etc.). • Global and individual transformations.	
Main course objectives	• Understanding the risks and opportunities related to sustainability and regeneration. • Increase the awareness and personal links to the topics. • Be able to design potential sustainable/regenerative solutions.	
Main teaching approaches	• Lecture-based learning. • Collaborative learning.	
Main teaching methods	• Case studies. • Flipped classroom. • Sustainability-regenerative related research project.	
Learning environment	Hybrid classroom (face-to-face and online learning).	

Link to Sustainable Development Goals (SDGs)	SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages. SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls. SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable, and clean energy for all. SDG 9 | Industry, Innovation, and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation. SDG 10 | Reduced Inequalities | Reduce inequality within and among countries. SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable. SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns. SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts. SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development. SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development.

Table 15–2

Impact assessment	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Conducting own research/ working on a personal/ individual project in single calculations such as carbon, water or ecological footprints related with its consumption.
2. Degree of student collaboration / group work	High	Most of the weekly assignments, activities and works are in the form of teaming and sharing in class, generating debates under a rich polyhedric approach being finally completed in the teacher's class.
3. Degree of student emotional involvement	High	Reading papers, news and personal approaches from their own countries' situations (flood, fires, migration, social inequalities, biocapacity, prosperity, footprints, etc.). These intense but straightforward exercises usually awaken consciousness and produce the beginning of change, from the personal to the global. The paralysing emotions by the results reach unsustainability to immediate action in the face of the urgency of solutions. The final goal is designing conceptual actions to be potentially implemented in the context selected.
4. Degree of inter-/transdisciplinarity	High	Lectures around disciplines to have a systemic perspective where everything is interconnected. Planetary boundaries, Anthropocene, SDGs, "the Great Acceleration", biodiversity index, sustainable finance (ESG), etc., can help to accomplish this issue. Again, the final objective is the application of the contents from the final project into a real context.

Impact assessment	(None) Low/ Medium/ High	Explanation
5. Degree of student (self-) reflection	High	Weekly assignments move the students "out of their comfort zones" to connect global issues with personal experiences or daily assumptions/decisions.
6. Degree of experience of real-life situations	Medium	The final project is based on an actual challenge/proposal on campus.
7. Degree of nature-related experiences	Medium	Nature-based solutions are only discussed in class; biomimicry related classes with analogies, gaming, etc., are used in any single class to evaluate how nature solves similar challenges from 3.8 billion years ago. However, when possible, outdoor activities take place.
8. Degree of stakeholder integration	Medium	Conducting interviews with representatives of one stakeholder group in a research study included in a final project (university students, staff, faculty, suppliers, etc.).
9. Degree of integration between theory and practice	High	A practical conceptual final project on an actual situation based on their observations and users' validation, requiring direct application of the theoretical classes, creativity, teaming.

15.2. COURSE INTRODUCTION

Sustainability is imperative in any discipline, becoming more strategic day by day, regardless of the business sector. Nowadays, most professional activities handle materials, energy, water, people, and waste. In addition, designers and several industries place products and services in the market which must consider the repercussions of their design decisions. The scope of sustainability and its opportunities are not always well understood from the student's perspective. This course will cover the fundamental scientific principles that operate the functioning of the operating conditions of the Earth, where we live and compare them with the way humans do. We must understand and be aware that the current linear model of thinking and design must inexorably move to another, more circular approach, as dictated by nature, i.e., being sustainable and regenerative by design. Finally, it is well documented that emerging diseases, such as COVID-19, and biodiversity loss are interlinked (Tollefson, 2020), so it is relevant to check what we can do for nature.

The planet's current state will be analysed and its connection with the design field, consumption habits, business activities, etc., will be evaluated. In the end, sustainability is a global design problem and decision-making issue. Finally, one of the main objectives of this program is to change student mindsets. This subject also seeks to reach a higher degree of consciousness to design and combine doing good (1) and doing business (2) with Environment-

Social-Governance (ESG) impact as well as Corporate Social Responsibility (CSR) approaches in mind. Design and business not only have to be good but also do good. The subject also looks for an increase of awareness since the daily decisions sometimes are not easy to split and handle. Organic markets and other local eco alternatives will be actively revisited, opening the student's eyes to enhance their responsible consumption decisions. The importance of sustainable certifications is considered. Finally, through a final project, students in teams will design green campus proposals after analysing the space where they spend part of their lives in their stages as students.

15.3. LEARNING OBJECTIVES

Table 15–3

Learning objective dimension (UNESCO, 2017)	**Operationalization**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Understanding how individual lifestyle choices influence social, economic and environmental development.	Self-awareness competency
	Understanding the production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxins, CO_2 emissions, water footprint, waste generation, health, working conditions, poverty, etc.).	Systems thinking competency
	Learning about different options and practices of sustainable design affecting the chosen production, usage and consumption strategies.	Strategic competency
	Calculating different footprints such as ecological, carbon, water or even social etc., and understanding the basic approach of Life Cycle Assessment (LCA).	Systems thinking competency
	Knowing the *status quo* of our planet, i.e., regarding its social and environmental dimensions connected with the business fields.	Systems thinking competency
	Ecosystem services understanding through small excursions nearby.	Integrated problem-solving competency
	A direct access to the new emergent economies such as bioeconomy, doughnut, regenerative, circular, etc.	Integrated problem-solving competency
Socio-emotional	Changing the personal perception and attitude being able to explain the impacts of climate change related to social and economic dimensions.	Self-awareness competency; Systems thinking competency
	Ability to encourage others to take action about different SDGs – looking for partnerships (SDG 17).	Collaboration competency
	Personal bonds directly affected by environmental or social footprints assist students in changing behaviours by recognising that joint action towards the implementation of SDGs is essential.	Collaboration competency; Systems thinking competency

Learning objective dimension (UNESCO, 2017)	Operationalization	Competency referred to (Rieckmann, 2018)
Behavioural	Ability to promote and support climate-friendly designed products and economic activities.	Self-awareness competency
	Basic understanding and research of their own country's dependence on natural resources and biodiversity.	Self-awareness competency
	To connect with local groups working towards biodiversity conservation and enhancement in their campus and nearby territory.	Collaboration competency

15.4. COURSE OUTLINE

Table 15–4

Structure		Session focus	Homework
Week 1 (Unit 1)	Session 1 (3h)	Introduction to the subject, structure, grading, etc. Getting to know each other	Design a Miro template with a personal freestyle profile
Week 2 (Unit 2)	Session 2 (3h)	Introduction to Sustainability	Watching a video about Planetary Boundaries for a debate in class
Week 3–9 (Unit 3)	Session 3 (3h)	Water Footprint	Assignment around personal freshwater consumption
	Session 4 (3h)	Carbon Footprint	Personal carbon emissions using an online calculator
	Session 5 (3h)	Ecological Footprint	Personal calculation + debating around Overshoot and Biocapacity concepts
	Session 6 (3h)	Biodiversity	Express oral presentation after reading a World Wildlife Fund Report
	Session 7 (3h)	Social SDG domain	Work developed by teams of 3–4 students to apply the selected SDGs in real cases potentially applicable in the university itself, local companies or local NGOs.
	Session 8 (3h)	Organic Market Fair	Pair/Trio Assignments on particular bio-brands
Week 10 (Unit 4)	Session 9 (3h)	Evaluation test	
	Session 10 (3h)	Certification, ecolabelling and greenwashing	Express presentation and analysis of specific labels
Week 11–14 (Unit 5)	Sessions 4–6 (3h each one)	Application from the theory to concept proposal	Teaming Final Project Presentation and Prototyping

15.5. TEACHING APPROACHES AND METHODS

Different didactic approaches are used during the course. Some are based on theoretical classes to introduce learning processes to students; others are more practical, e.g., focus on a learning by doing methodology.

During the first two weeks of the course, making students open up and question their old habits or mindsets can be triggered by watching different videos related to the state of the world linked to the planetary boundaries approach (Rockström et al.,2009), the Anthropocene concept (Crutzen and Stoermer, 2000) or the six-mass extinctions (Barnosky, 2011; Ceballos, 2015) using different open-source videos available on the internet. These specific videos open the system thinking perception, facilitating the sustainability subject's complexity under a holistic approach. Most sustainability classes cover the social and economic issues leaving environmental aspects aside. Circularity, systemic vision, nature-based solutions, biomimicry, end of use perspective or eco-design are some approaches introduced to the student to open the design solutions.

Flipped classes (Herreid and Schiller, 2013; Tucker, 2012) are the basis during the first sessions, where students share a multifaceted approach for a weekly topic announced in advance. Through selected readings and online searches, students working individually or in pairs must prepare a quick digital presentation. After sharing these presentations, debates are naturally generated via lively and participative discussions in class. This method is interesting because the student feels that they are an active part of the learning process, generating a stimulus to enhance, week by week, their digital presentations. Open debates are generated, giving a chance to mitigate basic misunderstandings and perceptions based on their own culture, behaviour, country, etc. Finally, the teacher complements what has not been covered in their student work or what is considered relevant to cover. With these types of classes, week by week, students adopt a habit and culture of introducing the current reality of the unsustainable global situation and discuss possible existing solutions. The teacher conducts the classes to reaffirm the connection of apparently isolated dots due to the linear way of thinking and lack of comprehension of the holistic and interconnected sustainability culture.

On the other hand, some assignments are based on collaborative teamwork (Bravo et al., 2019; Riebe et al., 2016) with different activities where students must participate outside the classroom. Visits to fairs or exhibitions related to organic markets; social/environmental events in town; activities promoted by NGOs, the City Council, Institutions, Foundations, corporations, etc., focused on sustainability topics. These activities are essential and represent critical opportunities for the students to meet real people working in fundamental sus-

tainability topics, whatever the sector (food, fashion, arts, biodiversity, social, etc.).

Finally, in the last part of the subject, the student can propose solutions in a context that they choose. The facilities of their university, such as the campus itself, the classrooms, the Fab Lab (3D/additive printing facilities) or design studios (open spaces for students to implement their design products/services). Specific lectures or tutorials with NGO experts, city council consultants, and professionals outside the university were essential for this project. Weekly assignments of the evolution of the project are mandatory, giving the teams a basic structure to accomplish the proposal on time. The evolution of the process itself is also evaluated since sometimes these parts are an important site of the learning rather than the final "polished" proposal. Design thinking methodologies are widely used to have a systematic approach to problem-solving design, where IDEO did not invent the term but practise and apply it to problem solving (IDEO, n.d.). Additional nature-based methodology like biomimicry, from Biomimicry Institute in the U.S.A. or Delft University in Europe, is also used for final projects where living ecosystems and organisms work as mentors, models, and measures. This final part is orally and digitally presented to an invited jury with guests from the university (teachers, director of the program, staff from the sustainability department) and stakeholders from outside. This evaluation provides a broader view to the student thanks to new assessments from different professionals and sectors. This process enriches learning beyond the tutorials of the titular professor.

15.6. EXERCISES

Calculating Footprints

Weekly quick basic individual/pair exercises around sustainability footprints with the aim to calculate personal data and countries' figures. With the results obtained from the footprints, students designed a synthesised digital image with the results complemented with their partners. This exercise is shared in class through express (two to three minutes) oral communication. After this digital presentation, the group in class starts a discussion using different perspectives, approaches, and realities.

Visit Your Local Fair/Bio Market

In groups of two to three students visit a local/national organic market fair, attend different activities and interview owners of product/services stands. The following briefing is provided:

1. Before going to the fair, you might explore the digital schedule of activities, select and attend one to two you might like. Teams must attend one activity per student to have a broader perception.
2. Once reached the fair, take a short walking tour around the stands to get a general overview. Have a look at the certifications you already know and also new ones you see.
3. You might talk with the producers/stands to know more about why they are organic markets and other relevant info interesting for you.
4. Don't forget to attend the activities previously selected at home.

After the visit, a short (one to two minutes) engaging video must be produced to promote responsible consumption. The video will show interesting approaches to promote these particular daily options. Upload to YouTube/Vimeo and share the link via the campus online system. In addition, two short (one to two slides) PowerPoint presentations must be prepared to be shared with the class. One showing two to three certifications and their characteristics. The other showcasing one ingredient from a particular product and comparing industrial and organic by taking into account people's health or the environment.

Campus Mapping

In groups of four to five students, the final project is designed around a "hot spot" (problematic spaces on campus related to some SDGs selected by the teams) mapping the university campus. Following a design thinking methodology with a biomimetic approach, teams will empathise, ideate, validate, and design a conceptual proposal. Students must deliver a digital presentation and, in addition, be ready for a short Q&A session, answering in front of an external academic jury. A series of deliverables are requested, such as a digital report including the economic approach (university reputation, added value, marketing), prototyping, samples, models, etc. and one minute video.

15.7. ASSESSMENT

Evaluation consists of four different ways to show a global understanding and integration of the subject: 1) constant effort, 2) individual comprehension, 3) working in a team in a particular challenge, and 4) active participation. These

four criteria will provide a balanced and fair sense of the subject's primary culture, awareness, and decision-making.

Individual presentations (30 %). During the first period, week by week, every student must complete a series of seven assignments, building their mindset about sustainability through personal research and application, readings, and everything included in the syllabus. The main objectives to cover are personal transformation, enhancing awareness, systemic thinking, access to relevant and reliable data, working in groups, etc. This part will be essential to develop critical thinking about the actual global situation and solutions.

Intermediate test (20 %). A non-memory evaluation where systemic connections and consumption patterns will be tested according to the topics described in the content outline of this publication.

Final project (30 %). During the last part of the course, the student teams will scan the actual state of sustainability of the university campus and other facilities to design alternatives to enhance the situation as a final project.

Active class participation (20 %). Active and motivating participation in class, debating and showing a positive attitude.

15.8. PREREQUISITES

Required prior knowledge from students:

- No prior knowledge required

Required instructors and their core competencies:

- Teacher (core competences: sustainability indicators)

Required tools:

- Online communication platforms (e.g., Zoom)
- Online learning platform (e.g., CampusOnline)

15.9. RECOMMENDED RESOURCES

Table 15–5

Topic	Readings	Videos & Web sources
Units 1&2	• Bakker, C., Hollander M., Hinte, E. & Zljlstra, Y. (2014). *Products that last. Product Design for Circular business models*. TU Delft Library. • Leonard, A. (2010). *The story of stuff*. London, England: Constable.	• Johan Rockström (2010, July). Let the environment guide our development [Video]. TED Conferences. https://www.ted.com/talks/johan_rockstrom_let_the_environment_guide_our_development/transcript?language=en • elvladyman (2019, May). Before the Flood Full Movie National Geographic [Video]. YouTube. https://www.youtube.com/watch?v=zbEnOYtsXHA • Laurent, M. & Dion, C. (2017) Tomorrow (Demain) The Film [Film]. Move Movie; Mars Films; Mely Productions. • Devas, F. (2016). Cities (6/6) [TV series episode]. In Gunton, M. (executive producer) BBC Planet Earth II. BBC Natural History Unit; BBC America; ZDF, Tencent; France Télévisions. • The Toaster Challenge (2015, June). Olympic Cyclist Vs. Toaster: Can He Power It? [Video]. YouTube. www.youtube.com/watch?v=S4O5voOCqAQ • Sustainable Human (2014, December). How Whales Change Climate [Video]. YouTube. https://www.youtube.com/watch?v=M18HxXve3CM • Eames Office (2010, August). Powers of Ten™ (1977) [Video]. YouTube. https://www.youtube.com/watch?v=0fKBhvDjuy0
Unit 3	• Benyus, J. M. (1997). Biomimicry: Innovation inspired by nature. New York: Morrow. • Allen, R. (Ed). (2010). Bulletproof Feathers. How science uses nature's secrets to design cutting-edge technology. University of Chicago Press. • McDonough, W., & Braungart, M. (2010). Cradle to cradle: Remaking the way we make things. North Point Press. • McDonough, W., & Braungart, M. (2003). Towards a sustaining architecture for the 21st century: the promise of cradle-to-cradle design. Industry and Environment, 26(2), 13–16.	• Story of stuff. Story of Bottled Water [Video]. https://storyofstuff.org/movies/story-of-bottled-water/ • Scientific American. Fresh Water crisis [Video] https://www.scientificamerican.com/article/is-there-really-a-freshwater-crisis/?redirect=1 • Conservation International. Nature is Speaking [Video]. https://www.conservation.org/nature-isspeaking/Pages/default.aspx • Kiss the Ground. Media [Videos]. https://kisstheground.com/videos/ • Project DrawDown Project. Climate Solutions 101 [Video]. https://drawdown.org/climate-solutions-101 • Water footprint network (n.d.) Water footprint. https://www.waterfootprint.org/en/

Topic	Readings	Videos & Web sources
Unit 3	• Pilloton, E. (2009). Design revolution: 100 products that empower people. Metropolis Books. • Berners-Lee, M. (2011). How bad are bananas? The carbon footprint of everything. Grey Stone Books Publ. • Yarrow, J. (2008). How to reduce your carbon footprint. Duncan Baird Publ.	• Carbon footprint (n.d.) Carbon footprint. https://www.carbonfootprint.com/ • Global Footprint Network (n.d.) Footprint calculator. https://www.footprintnetwork.org/resources/footprint-calculator/ • World Wildlife Foundation (n.d.) Living Planet Index. https://livingplanet.panda.org
Unit 4	• Health Plan Magazine (2014). *Food E Numbers Explained*. https://www.healthplanspain.com/blog/health-tips/266-food-e-numbers-explained.html • Reggs Design Studio (2017). *Seven facts you didn't know about E-numbers*. Medium. https://medium.com/@reggs/seven-facts-you-didnt-know-about-e-numbers-9700e2343f53	• Ecolabel Index (2021) http://www.ecolabelindex.com

15.10. GENERAL TIPS FOR TEACHERS

Based on the author's own experiences on the evolution of students' attitudes year by year, the author considers that one of the most relevant aspects appreciated by the students is to share the opportunity for them to be an active part of the subject. There are numerous ways to develop positive group involvement that will depend on each topic. Based on the author's experience regarding the aspects of culture, self-confidence, determination, commitment to global challenges, and knowledge, the teacher must build "building blocks" around fostering a sustainability culture/mindset. The scope and perspective of connecting isolated dots needs to be combined with showing the students enthusiasm that pollinates the group and encourages them to participate. The evaluation required by the university, is a minor element that the student must also appreciate. In "real life", no company or institution is going to ask for their grades, but for the solutions, they can contribute to the challenges of the 21st century.

REFERENCES

Barnosky, D., Matzke, N., Tomiya, S., Wogan, O.U., Swartz, B., Quental, T.B., Marshall, C., McGuire, J.L., Lindsey, E.L., Mersey, B. & Ferrer, E.A. (2011). Has the Earth´s six mass extinction already arrived? *Nature*, 471, 51–57.

Benyus, J. (1997). *Biomimicry. Innovation inspired by Nature*. Harper Perennial Publ.

Braunghart, M. & McDonough, W. (2003). *Cradle to cradle*. McGraw Hill.

Bravo, R., Catalán, S., & Pina, J. M. (2019). Analysing teamwork in higher education: An empirical study on the antecedents and consequences of team cohesiveness. *Studies in Higher Education*, 44(7), 1153–1165.

Ceballos, G., Ehrlich, P.R, Barnosky, A.D., García, A., Pringle, R.P. & Palmer, T.M. (2015). Accelerated modern human–induced species losses: Entering the sixth mass extinction. *Science Advances*, 1(5), e1400253.

Crutzen, P. & Stoermer, E. (2000). The Anthropocene. *IGBP – The Global Change Newsletter*, 41, 17–18. http://www.igbp.net/download/18.316f18321323470177580001401/1376383088452/NL41.pdf

Herreid, C. F., & Schiller, N. A. (2013). Case studies and the flipped classroom. *Journal of College Science Teaching*, 42(5), 62–66.

IDEO (n.d.). *Design thinking defined*. https://designthinking.ideo.com/

Piloton, E. (2009). *Design Revolution. 100 products that empower people*. Bellerophon Publ.

Riebe, L., Girardi, A., & Whitsed, C. (2016). A systematic literature review of teamwork pedagogy in higher education. *Small Group Research*, 47(6), 619–664.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Rockström, J., W. Steffen, K. Noone, Å. Persson, F. S. Chapin, III, E. Lambin, T. M. Lenton, M. Scheffer, C. Folke, H. Schellnhuber, B. Nykvist, C. A. De Wit, T. Hughes, S. van der Leeuw, H. Rodhe, S. Sörlin, P. K. Snyder, R. Costanza, U. Svedin, M. Falkenmark, L. Karlberg, R. W. Corell, V. J. Fabry, J. Hansen, B. Walker, D. Liverman, K. Richardson, P. Crutzen, and J. Foley. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society* 14(2): 32. http://www.ecologyandsociety.org/vol14/iss2/art32/

Tollefson, J. (2020). Why deforestation and extinctions make pandemics more likely? *Nature* 584, 175–176. https://doi.org/10.1038/d41586-020-02341-1Tucker, B. (2012). The flipped classroom. *Education Next*, 12(1), 82–83.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Walker, L. (2010). *Choosing a Sustainable Future.* New Society Publ.

Silke Bustamante

Chapter 16. Engaging for Sustainability – Experiential Learning via Service Design Projects

16.1. COURSE SUMMARY

Table 16–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	12 weeks	
Credits	6 ECTS	
Workload	Presence: 66 h Self-study: 54 h Company experience 60 h[24]	Total: 180 h
Contents/primary topics	• Service design • Sustainable development • Ethics & responsibility	
Main course objectives	• Get acquainted with the methodology of service design. • Understand sustainability challenges, the concept of sustainable development and the sustainable development goals (SDGs). • Become aware of individual and corporate responsibility and get activated to engage for sustainability.	
Main teaching approaches	• Experiential learning • Collaborative learning • Active learning	
Main teaching methods	• Sustainability-related consulting project (service design methodology) • Reflection tasks • Lectures	
Learning environment	Classroom (face-to-face learning) (preferable) / virtual classroom (online learning) Beyond classroom (field trip for doing interviews with stakeholders and users for the solution that students work on in their project)	

24 Company experience is a specific feature of dual study programmes: Students learn within their practical phases by applying the learning of the theory phase in their practical work.

Link to Sustainable Development Goals (SDGs)	SDG 9 | Industry innovation and infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 12 | Responsible consumption and production | Ensure sustainable consumption and production patterns Other SDGs depending on the project and the challenge brought in by external partners (companies, Non-Governmental Organizations (NGO's)).

Table 16–2

Impact assessment	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students work independently on their service design project; the process is facilitated by the teacher.
2. Degree of student collaboration / group work	High	Students work mostly in groups throughout the course to solve the service design challenge.
3. Degree of student emotional involvement	Medium	Students are asked to write down a sustainability-related experience that emotionally touched them at the beginning of the class and are asked in further reflections to think about ways how they personally or as a member of a company can contribute to the sustainability challenges they identified to be related to their experience. They also need to work and observe in the field, which aims at creating personal and emotional connection with stakeholders and the sustainability issue itself.
4. Degree of inter-/transdisciplinarity	Medium	The teaching team consists of a professor for service design / design thinking and a professor for Corporate Social Responsibility (CSR) and sustainability.
5. Degree of student (self-) reflection	High	Different reflection exercises make students reflect about their role for sustainable development, the needs of different parties, and the potential of their solution to contribute to sustainable development.
6. Degree of experience of real-life situations	High	Students provide a solution to a real-life problem of a given organisation, usually conduct a field trip to the organisation and do field work to observe and interview potential "users" of the solution.
7. Degree of nature-related experiences	None	Students deal with sustainability challenges, but there are no other outdoor activities than doing field trips to visit the organisation in question / do interviews.
8. Degree of stakeholder integration	Medium	Students are asked to integrate different stakeholder perspectives, however, with a focus on users of their solution.
9. Degree of integration between theory and practice	High	Students get short lecture inputs respective the sustainability and service design and apply them directly in their work on the real-life challenges brought in by external partners.

16.2. COURSE INTRODUCTION

Higher Education Institutions have a major responsibility for developing competencies that enable students to take sustainable decisions in their future roles within governments, society or business (Chalkley, 2006).

Learning needs go beyond transferring knowledge, but target also values, attitudes and emotions that engage students to act (e.g. Chalkley, 2006), hereby creating an interlinked set of knowledge, skills, attitudes, and values that enable effective, embodied sustainability-related action (UNESCO, 2017; Wiek et al., 2011). Shephard (2008) points out that teaching should create sensitivity to sustainability issues and make students appreciate that they have a responsibility to sustain their environment. Raising awareness for sustainability issues and the SDGs and mobilizing students to contribute seems to be at the core of sustainability related teaching (UNESCO, 2020).

The course ”Engaging for Sustainability” therefore intends to create awareness for sustainability-related problems, make students question their values and behaviours and enable and motivate them to contribute to a more sustainable world. It is taught within the second year of a cooperative Bachelor programme in Business Administration where students already have experience in working for a company. Due to a tight curriculum with many already pre-determined courses, the course was created by linking two separate compulsory modules with two different lecturers: A module on service design with 5 ECTS and 44 in-presence teaching hours and a so called ”core competency module”[25] on responsibility for sustainability with 1 ECTS and 22 in-presence teaching hours. Hereby, Helmers & Ilchmann's (2019) recommendation to integrate sustainability-related teaching as compulsory courses within established degree programs was followed.

Within the course, student teams consisting of four to five persons work on a real-life challenge brought in by an external partner (company or NGO). Challenges are designed in a way that they refer to sustainability issues and aim at contributing to selected sustainable development goals. The methodology for working on the challenge is service design. Service design is suitable to solve so-called “wicked problems” (Morelli et al., 2021) and is increasingly used for facilitating social innovation (Yang et al., 2016) and sustainable business model innovation (Prendeville & Bocken, 2017). The two lecturers work as a team: one lecturer is facilitating the service design process, while the other lecturer provides short inputs on sustainability, sustainable development, ethics, civil

25 Core competency modules are modules that focus on the development of competencies rather than the imparting knowledge to students; they are not graded.

engagement and corporate responsibility and makes students reflect on their own responsibility and possibilities to contribute to the SDGs.

Students are asked to work and observe in the field and interact with stakeholders when possible, which aims at creating personal and emotional connection with stakeholders and the sustainability issue itself. The latter is supported by the requirement to analyze stakeholder needs and sustainability issues related to the project. Reflection tasks, beyond linking theoretical issues with project work, motivate students to question their beliefs and thoughts and think about their own role and capability to act responsibly.

16.3. LEARNING OBJECTIVES

The learning objectives of this course are aligned with its placement in the second year of studies. Students usually have only a superficial knowledge of sustainability and CSR, such that the major goal of this course is to create awareness for sustainability challenges, but not dig deep into their possible solutions. Instead, applying the idea of project-based learning, students are encouraged to design own solutions for very specific sustainability related challenges.

Table 16–3

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Rieckmann, 2018)
Cognitive	Students increase their awareness for sustainability challenges and understand the role of individual and corporate engagement.	Systems thinking
	Students know about creativity and innovation methods and are familiar with the methodology and procedure of service design / design thinking.	Problem solving
Socio-emotional	Students learn to critically assess the role of different actors (companies, politics, the third sector, individual citizens) for sustainable development.	Critical thinking, normative competency
	Students develop their competency to understand viewpoints and needs of others.	Collaboration
	Students critically reflect their responsibility for the achievement of sustainability goals set in the Agenda 2030 as individual person and as employee of a company.	Self-awareness

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Rieckmann, 2018)
Socio-emotional	Students refine and reassess their attitudes, beliefs and individual core values and question and change the ways they see and think about the world.	Self-awareness, critical thinking, normative competency
	Students develop communication, presentation and teambuilding skills.	Collaboration
Behavioural	Students apply their knowledge of sustainability and the service design method to solve a specific sustainability challenge.	Problem solving
	Students are able to take decisions in a participatory and collaborative way.	Problem solving, collaboration
	Students are activated to contribute to achieving the sustainability goals set in the Agenda 2030.	Self-awareness, problem solving

16.4. COURSE OUTLINE

Table 16–4

Structure		Session Focus (Specific exercises of the sessions can be found in subchapter 16.6)	Homework to next Session
Week 1	Session 1 (3 h)*	Sustainability challenges and SDGs, Reflection 1 (personal situation related to sustainability issue)	Get acquainted with one of the SDGs (Description and indicators for home country/ another selected country)
	Session 2 (5 h)	Intro User-Centred Innovation Management, Project Kick-Off, Teaming	Get acquainted with the project challenge
Week 2	Session 3 (3 h)	SDG Game / Discussion about SDGs	Reflection 2: SDGs touched by the challenge
	Session 4 (5 h)	1st phase Service Design: "Discover" – Understand, Preparation Observe	Plan observation phase
Week 3	Session 5 (2 h)	Responsible parties for sustainable development, idea of responsibility	Reflection 3: Own responsibility and motivations for contributing to sustainability issue described in first session; Individual sustainability challenge
	Session 6 (5 h)	1st phase Service Design: "Discover": Observe	Plan observation phase

Structure		Session Focus (Specific exercises of the sessions can be found in subchapter 16.6)	Homework to next Session
Week 4	Session 7 (2 h)	Ethical theories – overview	Individual sustainability challenge
	Session 8 (5 h)	2nd phase Service Design: "Define"	--
Week 5	Session 9 (2 h)	Responsibility as individual (e.g., consumer) – CO2 challenge	Individual sustainability challenge
	Session 10 (5 h)	3rd phase Service Design: "Develop"	--
Week 6	Session 11 (2 h)	The role of NGOs for sustainable development	Reflection 4: How could solution contribute to SDGs
	Session 12 (5 h)	4th phase of Service Design: "Deliver"; Interim Presentations	--
Week 7	Session 13 (2 h)	Sustainable innovation/social business	Reflection 5: Impact of solution on other stakeholders; potential conflicts of interest
	Session 14 (5 h)	4th phase Service Design: Iteration based upon testing	Preparation of final presentation
Week 8	Session 15 (2 h)	Corporate Social Responsibility: Issue analysis and implementation	Reflection 6: Corporate Responsibility for sustainability issue described in first session
	Session 16 (2h)	Corporate Social Responsibility (II): Greenwashing vs. CSR	Individual sustainability challenge
Week 9	Session 17 (5 h)	Pitching of project results	--
	Session 18 (2 h)	Reflection 7: Sustainability impact, trade-offs, risks of solution	--
Week 10	Session 19 (4 h)	Debriefing	

* Sessions highlighted in grey refer to the core competency course, while the others refer to the service design course.

16.5. TEACHING APPROACHES AND METHODS

The course presented here centres on experiential, collaborative and active learning. These pedagogies are decisive for changing awareness and conceptions about environmental and sustainability issues and activating an interdisciplinary and holistic way of thinking (Biasutti, 2015). Many studies emphasise the importance of experiential learning via real world experiences (e.g. Brundiers et al., 2010; Heiskanen et al., 2016; Molderez & Fonseca, 2018), and the positive effects of active and learner-centred learning (e.g. Brandt et al., 2021) and collaborative learning (e.g. Biasutti, 2015) on sustainability related competencies.

Among the learning methods that are suggested to support these learning approaches are collaborative real-world projects and reflective journals / refection tasks (UNESCO, 2017). Accordingly, and in alignment with the learning objectives of the course, the main teaching method of the course is a sustainability-related consulting project focused on a real–life challenge brought in by companies or NGOs (see subchapter 16.2 "Course Introduction"). Heiskanen (2015) showed, that confronting students with real life problems and engaging them as "consultants" fostered especially communication and collaboration as well as action skills related to strategic and problem-solving competencies. Examples of challenges we used in the course presented include:

- (Re-)Design the recycling experience for the city's households so that the (re)supply of valuable materials into the circular economy becomes more attractive
- (Re-) Design the sales experience of office farms to support companies in their engagement for sustainability
- (Re-) Design how users of the "Handprint" tool (developed by the German non-profit organization "Brot für die Welt") can be supported in the (very) first steps of their engagement

Students worked on the project using the service design methodology, a service-specific application of Design Thinking and design methodologies (Clatworthy, 2017). Service design can be defined as "*an approach to designing services that balances the needs of the customer with the needs of the business, aiming to create seamless and quality service experiences. […] (It) is rooted in design thinking, and brings a creative, human-centered process to service improvement and designing new services." (Miller, 2015 in* Stickdorn, 2018)*).* Due to its creative, participatory and human centred approach Service Design is particularly suitable for social innovation (Yang et al., 2016) and sustainable business model innovation processes (Prendeville & Bocken, 2017). At the same time, Design Thinking techniques and their service-specific applications are perceived as promising teaching methods for complementing the analytic perspectives predominantly taught at business schools and preparing graduates to deal with the numerous, complex, ill-defined problems in our today's world (Glen et al., 2014). The use of the service design methodology within sustainability related teaching therefore seems to be highly recommended.

Service design in teaching is based on experiential, collaborative and active approaches recommended also for sustainability teaching (Pimpa 2019; Earle & Leyva-de la Hiz, 2020). This teaching method is accompanied by short lecturing inputs, reflection tasks, group discussions as well as the use of "weekly challenges" (see exercises) to engage students to integrate sustainability into their daily life. The use of lectures is seen very critical in literature, as

lectures potentially negatively impact student's activeness (e.g. (Abdel Meguid & Collins, 2017; Erickson et al., 2020) and collaboration (e.g., Frick et al., 2020; Rissanen, 2018). However, it seems to be an appropriate method when it is used carefully and as means to initiate discussion and reflection. Konrad et al. (2021) argue that reflection and (lecturing) inputs complement experience and experimentation within an effective learning process. Reflection can be described as a "process of internally examining an issue, triggered by an experience which creates and clarifies meaning in terms of self …" (Ayers et al., 2020, p.2); it potentially changes students' perspective (Ayers et al., 2020). In this course, reflections are used by making students write or talk about experiences and there implications (see subchapter 16.6 "Exercises"). In addition, group-discussions were used to support reflection and foster students capabilities to listen to others and critically reconsider own viewpoints.

16.6. EXERCISES

Reflection Tasks About a Sustainability-Related Experience

The objective of this exercise is to get emotionally involved, activate values and norms and motivate personal engagement. It comprises a series of three reflections:

1. Students are asked to reflect about a sustainability-related experience, which personally touched them and identify the sustainability issues / SDGs that are involved. The results should be written down, recorded in a video / podcast or documented in a picture (session 1 – Sustainability challenges and SDG's).
2. Students are asked to reflect about own responsibility and motivations for contributing to sustainability issues related to experience described in the first session. They should document their ideas and present them to peer/ peers (session 5 – Responsible parties for sustainable development).
3. Students are asked to reflect in groups how companies can contribute to sustainability issues related to the experience described in the first session. They should document their ideas and comment on ideas of one other group (Session 15/16 – CSR).

Discussion SDG-Related Postulations (Card Play)

The objective of this exercise is to create awareness for sustainability issues, viewpoints, and SDGs. Students should play this game in the first session in groups of 5–10. They receive cards with statements related to SDGs; players

can either agree or reject the statement and should discuss about their viewpoints.

Weekly challenges

Students are asked to form groups and decide on a sustainability-related challenge for their own behaviour in the next week (e.g. eat one week only vegan food). In the next class they discuss and reflect within the group how well they were able to comply with the challenge and what have been obstacles for the according behaviour.

Persona

This exercise is one of a series of exercises used in the service design teaching process. It takes place in the second phase of the service design process and aims gaining a richer understanding of the audience and expanding empathy for the users for which groups design their solution. A persona is a tool for representing, summarizing, and communicating about a (potential) user that has been researched. By distilling the knowledge about a specific user, one can create a model for the person for which to design a solution. Clearly defining personas gives the team the fuller understanding of the potential users that then helps to make better product / service and marketing decisions.

16.7. ASSESSMENT

Table 16–5

Evaluation type	Percentage (%)
Reflection tasks (all in all six)	20
Oral presentation / pitching of the service design solution	30
Documentation of the service design process and the solution	50
Total	**100**

Reflection tasks can be provided in different forms: as mind maps, podcasts, short videos or just written documentations. For each one of the activities, an assessment rubric is created and handed to the students. The assessment of the project work includes two deliverables: a presentation of the project work to the project partners as well as written project reports. For both types of examination standards have been defined, which enable a uniform assessment of the students' competencies.

16.8. PREREQUISITES

Required prior knowledge from students:

- The course takes place at the beginning of the second study year. Basic knowledge of service management and marketing is required.

Required core competencies for instructors:

- Sustainability, responsibility, and ethics and design thinking/service design methodology.

Required tools:

- Online collaboration platforms (e.g., Zoom, Miro/Mural) in case the class is held online.

16.9. RECOMMENDED RESOURCES

Sustainable development goals:

- Barbier, E. B., & Burgess, J. C. (2017). The Sustainable Development Goals and the systems approach to sustainability. *Economics: The Open-Access, Open-Assessment E-Journal*. Advance online publication. https://doi.org/10.5018/economics-ejournal.ja.2017-28
- Hickel, J. (2020). *The World's Sustainable Development Goals Aren't Sustainable*. Foreign Policy, September 30th. https://foreignpolicy.com/2020/09/30/the-worlds-sustainable-development-goals-arent-sustainable/
- Leal Filho, W., Tripathi, S. K., Andrade Guerra, J. B. S. O. D., Giné-Garriga, R., Orlovic Lovren, V., & Willats, J. (2019). Using the sustainable development goals towards a better understanding of sustainability challenges. *International Journal of Sustainable Development & World Ecology*, 26(2), 179–190. https://doi.org/10.1080/13504509.2018.1505674
- Naidoo, R., & Fisher, B. (2020). *Reset Sustainable Development Goals for a pandemic world*. Nature Publishing Group. https://www.nature.com/articles/d41586-020-01999-x
- SDGCAfrica (2018, May). The Sustainable Development Goals: 17 Goals to Transform Our World [Video]. YouTube. https://www.youtube.com/watch?v=HW76iOQ7qVQ
- SDG card game/UN Global Compact Dilemma Game/other SDG Game

Responsibility and ethics:

- Becker, C. (2011). *Sustainability ethics and sustainability research*. Springer Science & Business Media.
- Crane & Matten, D. (2019). *Business Ethics: Managing Corporate Citizenship and Sustainability in the Age of Globalization*. Oxford University Press, New York.
- Rainforest Alliance (2012, September). Follow the frog [Video]. YouTube. https://www.youtube.com/watch?v=3iIkOi3srLo
- Better Future (n.d.). Have we really lost our minds [Video]. Vimeo. https://better-future.com/

Role of NGOs:

- Chen, S., Zhang, Q., & Zhou, Y. P. (2019). Impact of supply chain transparency on sustainability under NGO scrutiny. *Production and Operations Management*, 28(12), 3002–3022.
- Ferragina, E. (2012). *Social Capital in Europe*. Edward Elgar, Cheltenham/ Northhampton.

Social innovation and social business:

- Mulgan G., Tucker S., Rushanara A., Sanders B. (2007). *Social Innovation. What it is, why it matters and how it can be accelerated*. London: The Young Foundation.
- Bruder, I. (2020). A Social Mission is Not Enough: Reflecting the Normative Foundations of Social Entrepreneurship. *Journal of Business Ethics*, 1–19. https://doi.org/10.1007/s10551-020-04602-5

Corporate Social Responsibility:

- Auld, G., Bernstein, S., & Cashore, B. (2008). The New Corporate Social Responsibility. *Annual Review of Environment and Resources*, 33(1), 413–435. https://doi.org/10.1146
- Latapí Agudelo, M.A., Jóhannsdóttir, L. & Davídsdóttir, B. (2019). A literature review of the history and evolution of corporate social responsibility. *International Journal of Corporate Social Responsibility*, 4(1). https://doi.org/10.1186/s40991-018-0039-y
- Rasche, A., Morsing, M., Moon, J. (2017). *Corporate social responsibility: Strategy, communication, governance*. Oxford University Press, New York.

Service Design:

- Buchanan, R. (1992). Wicked Problems in Design Thinking. *Design Issues*, 8(2), 5–21.

- Morelli, N., de Götzen, A. & Simeone, L. (2021). *Service Design Capabilities*. Springer, Cham.
- Penin, L. (2018). *An introduction to service design: designing the invisible*. Bloomsbury Publishing.
- Stickdorn, M., Schneider, J., Andrews, K., Lawrence, A. (2011). *This is service design thinking: Basics, tools, cases*. Vol. 1. Hoboken, NJ: Wiley.
- Stickdorn, M. (2018). *This Is Service Design Doing: Using Research and Customer Journey Maps to Create Successful Services*. O'Reilly Media Incorporated.

16.10. GENERAL TIPS FOR TEACHERS

It is essential to integrate lecture inputs, reflections and project work in a way that makes sense to the students. Respective reflection tasks, teachers need to decide whether to place an emphasis on reflections respective the project work (e.g., impact of the solution on SDG's other stakeholders, potential barriers etc) or on personal experience the students were reporting on – doing both in a comprehensive manner may overburden students.

The teaching format usually is conducted in presence. However, in time of COVID-19, an online format for the project work based on Miro or Mural is a good option to engage teams to actively work together.

The course took place within a dual-study programme. For programmes that do not integrate additional company experience in their programme design, self-study hours should be increased to be able to allocate six ECTS.

REFERENCES

Abdel Meguid, E., & Collins, M. (2017). Students' perceptions of lecturing approaches: Traditional versus interactive teaching. Advances in Medical Education and Practice, 8, 229–241. https://doi.org/10.2147/AMEP.S131851

Ayers, J., Bryant, J., & Missimer, M. (2020). The Use of Reflective Pedagogies in Sustainability Leadership Education—A Case Study. *Sustainability*, *12*(17), 6726. https://doi.org/10.3390/su12176726

Biasutti, M. (2015). An intensive programme on education for sustainable development: the participants' experience. *Environmental Education Research*, *21*(5), 734–752. https://doi.org/10.1080/13504622.2014.921805

Brandt, J.-O., Barth, M., Merritt, E., & Hale, A. (2021). A matter of connection: The 4 Cs of learning in pre-service teacher education for sustainability. *Journal of Cleaner Production*, *279*, 123749. https://doi.org/10.1016/j.jclepro.2020.123749

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. https://doi.org/10.1108/14676371011077540

Chalkley, B. (2006). Education for Sustainable Development: Continuation. *Journal of Geography in Higher Education*, *30*(2), 235–236. https://doi.org/10.1080/03098260600717307

Clatworthy, S. (2017). *Service design thinking*. Edward Elgar Publishing.

Erickson, M., Marks, D., & Karcher, E. (2020). Characterizing student engagement with hands-on, problem-based, and lecture activities in an introductory college course. *Teaching & Learning Inquiry*, *8*(1), 138–153. https://doi.org/10.20343/teachlearninqu.8.1.10

Frick, H., Birt, J., & Waters, J. (2020). Enhancing student engagement in large management accounting lectures. *Accounting & Finance*, *60*(1), 271–298. https://doi.org/10.1111/acfi.12318

Glen, R., Suciu, C., & Baughn, C. (2014). The Need for Design Thinking in Business Schools. *Academy of Management Learning & Education*, *13*(4), 653–667. https://doi.org/10.5465/amle.2012.0308

Heiskanen, E., Thidell, Å., & Rodhe, H. (2016). Educating sustainability change agents: the importance of practical skills and experience. *Journal of Cleaner Production*, *123*, 218–226. https://doi.org/10.1016/j.jclepro.2015.11.063

Helmers, E., & Ilchmann, F. (2019). Sustainability Subjects in University Education – Development of a Comprehensive Indicator System and Quantitative Analysis of Degree Programs at German Universities. *European Journal of Sustainable Development Research*, *3*(4). https://doi.org/10.29333/ejosdr/5771

Konrad, T., Wiek, A., & Barth, M. (2021). Learning processes for interpersonal competence development in project-based sustainability courses – insights from a comparative international study. *International Journal of Sustainability in Higher Education*, *22*(3), 535–560. https://doi.org/10.1108/IJSHE-07-2020-0231

Molderez, I., & Fonseca, E. (2018). The efficacy of real-world experiences and service learning for fostering competences for sustainable development in higher education. *Journal of Cleaner Production*, *172*, 4397–4410. https://doi.org/10.1016/j.jclepro.2017.04.062

Morelli, N., Götzen, A. de, & Simeone, L. (2021). *Service design capabilities*. *Springer series in design and innovation: v. 10*. Springer. https://doi.org/10.1007/978-3-030-56282-3

Prendeville, S., & Bocken, N. (2017). Sustainable Business Models through Service Design. *Procedia Manufacturing*, *8*, 292–299. https://doi.org/10.1016/j.promfg.2017.02.037

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Rissanen, A. (2018). Student Engagement in Large Classroom: the Effect on Grades, Attendance and Student Experiences in an Undergraduate Biology Course. *Canadian Journal of Science, Mathematics and Technology Education*, *18*(2), 136–153. https://doi.org/10.1007/s42330-018-0015-2

Shephard, K. (2008). Higher education for sustainability: seeking affective learning outcomes. *International Journal of Sustainability in Higher Education*, *9*(1), 87–98. https://doi.org/10.1108/14676370810842201

Stickdorn, M. (2018). *This is service design doing: Applying service design in the real world : A practitioner's book* (First edition). O'Reilly Media, Inc. https://ebookcentral.proquest.com/lib/kxp/detail.action?docID=5219777

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

UNESCO. (2020). *Education for Sustainable Development Goals. A roadmap*. UNESCO Publishing.

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, *6*(2), 203–218. https://doi.org/10.1007/s11625-011-0132-6

Yang, C.-F., Sung, & Tung-Jung (2016). Service Design for Social Innovation through Participatory Action Research. *International Journal of Design*, *10*(1), 21–36. http://www.ijdesign.org/index.php/IJDesign/article/view/2456/725

Zsuzsanna Győri

Chapter 17. Business Ethics – Reflecting on Sustainability Issues in Business

17.1. COURSE SUMMARY

Table 17–1

Audience and level of studies	Students (Postgraduate Specialist Training Programme)	
Group size	26–50	
Course duration	14 weeks	
Credits	4 ECTS	
Workload	Presence: 16 h Self-study: 60 h	Total: 76h
Contents/primary topics	• Sustainable and responsible business operations • Business ethics	
Main course objectives	• Familiarising students with the most important models in the field of business ethics and sustainable operations • Enabling them to participate in corporate sustainability programmes through critical self-reflection • Developing moral sensitivity and expanding related expertise	
Main teaching approaches	• Lecture-based learning • Collaborative learning • Active learning	
Main teaching methods	• Lecture and group discussions/debates • Flipped classroom • Self-reflective exercises	
Learning environment	Classroom (face-to-face learning)	
Link to Sustainable Development Goals (SDGs)	SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	

Table 17–2

Impact assessment:	**(None) Low/ Medium/ High**	**Explanation**
1. Degree of student participation / activeness	Medium	Students engage in debates and in-class role-plays during the course.
2. Degree of student collaboration / group work	Medium	Medium: Students participate in extensive group assignments in class.
3. Degree of student emotional involvement	High	Students articulate their own emotional stands on different sustainability related issues, connecting the topics to their own lives and decisions as consumers, employees; or leaders.
4. Degree of inter-/trans-disciplinarity	Medium	Most of the students lack a BA degree in economics (as they are mostly engineers and lawyers), so their inclusion and experience make up a significant part of the course. Additionally, guest lectures from different business stakeholders are provided.
5. Degree of student (self-) reflection	High	As a course assignment, students produce a reflexive paper about a first-hand corporate or consumer sustainability experience.
6. Degree of experience of real-life situations	Low	Several case studies are discussed during class.
7. Degree of nature-related experiences	(None)	Classroom teaching, although there are a lot of references discussing the impact of business on the natural environment.
8. Degree of stakeholder integration	Medium	During the duration of the course, more guest lecturers are invited to familiarise students with the corporate manifestation of sustainability. As part of the case studies, several stakeholder groups are referred to, forming the basis of in-class role-plays during which students act as different stakeholders of a company.
9. Degree of integration between theory and practice	High	The recognition and discussion of the practical implications of theory are the main points regarding class assignments and in the reflective course paper.

17.2. COURSE INTRODUCTION

Business ethics is a field of science that deals with the ethical analysis of economic activities and systems of activities (Boda, 2013; Boda & Zsolnai, 2016). This course is offered as part of the Postgraduate Specialist Training Programmes, and for this reason all students have a BA degree in different fields (such as in economics, education, law or engineering). They have knowledge and experience in corporate practice, but the ethical side of decision-making and working for a company have not been taught to them before. Responsibility is primarily an ethical phenomenon, which is why this viewpoint is emphasized in relation to CSR (Corporate Social Responsibility) and corporate

sustainability. Speaking about ethics in a mainstream economics programme is still surprising and innovative in a sense, but as students' feedback show – after the acceptance of this topic – students understand why the topic is so important to deal with.

Thus, our course "Business Ethics" is innovative because it goes beyond the general debates of business ethics and debates focusing on ethical or moral dilemmas and decision-making by covering the most important concepts of sustainable and responsible business operations, i.e., the ethics of sustainability as proposed by Biedenweg et al. (2013).

The main point is to present the pitfalls of mainstream economic thinking through using short-term and one-dimensional value creation approaches (Pataki & Radácsi, 2000; Győri, 2012; Boda & Zsolnai, 2016). The three dimensions of sustainability (Elkington, 1997; UN, 1987, 2015a, 2015b) and especially the strong form of sustainability (i.e., manmade and natural capital are complements) (Daly, 1995, 1996, 1999) provide the key concepts for changing the mindset of future businesspeople and leaders about the role of the economy and activities within society and biosphere. According to Brenkert (2019), business ethics lacks a focus on its enactment component, transferring certain theories of moral change into principles and values that need to be followed up on. Overall, a better understanding of unethical behaviour in the workplace is needed (De Cremer & Moore, 2020), to be able to improve current business and management education as it also needs to move away from an organisation- to a human-centred worldview (Giacalone & Thompson, 2006) with an ultimate goal of measuring business success not against monetary/financial goals but on how well it will advance the interests of humankind.

On a more operative level, the course aims to familiarise students with the most important definitions and models in the field (EC, 2001, 2011; Kindler & Zsolnai, 1993; Boda & Radácsi, 1996; Holliday et al, 2002; Porter & Kramer, 2002, 2011; World Bank Institute, 2004; Matten & Moon, 2005; Vogel, 2006; Kotler & Lee, 2007; Szegedi, 2007; Tóth, 2007; Ligeti, 2008; Angyal, 2009; Boda, 2013; Győri, 2012; Braun, 2015; UN, 2015 a, 2015b; Radácsi, 2021) and enables them to participate in sustainability programmes in their respective workplaces.

The practical nature of the course is reinforced by the experience of professional guest lecturers from the world of business and from the civil sphere. Because of constantly emerging topics in the field, the subtopics and cases discussed during the course keep changing from semester to semester. That is why recent scholarly and economic articles are used as recommended readings besides the main course book.

Students' moral sensitivity is challenged, expanded, and developed through the interdisciplinarity of business ethics and education for sustainability by

integrating concepts and theories from different disciplines (economics, business administration, management, anthropology, psychology, etc.) (Bouckaert & Zsolnai, 2012; Annan-Diab & Molinari, 2017; Wamsler, 2020). Moreover, most of the students lack a BA degree in economics (as they are mostly engineers and lawyers), and thus the inclusion of their experience makes up a significant part of the course and contributes to lively debates.

17.3. LEARNING OBJECTIVES

Table 17–3

Learning objective dimension (UNESCO, 2017)	**Operationalization**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Students will have knowledge of the basic comprehensive concepts, theories, facts, domestic and international contexts of business ethics, corporate social responsibility and sustainability.	Self-awareness competency
	They will be able to independently understand and internalise the latest professional knowledge in the field and apply it in their work.	Strategic competency
	They will know the role of sustainability management in corporate operations and its connection to other functional areas.	Systems thinking competency
Socio-emotional	Students will develop moral sensitivity and self-awareness about sustainability issues.	Self-awareness competency; Critical thinking competency; Normative competency
	They will be able to recognise ethical decision-making dilemmas and discuss them relying on substantive arguments.	Integrated problem-solving competency
	In making their decisions and communicating about this with others, they will take into account ethical norms, and keep aspects of social and environmental responsibility in mind.	Normative competency; Collaboration competency
Behavioural	Students will be able to consciously apply the accumulated knowledge of the field of business ethics and responsible corporate operation in real projects.	Critical thinking; Self-awareness competency
	They will act empathetically when meeting challenges of sustainability and participating in corporate sustainability programmes.	Collaboration competency; Normative competency

17.4. COURSE OUTLINE

Table 17–4

Structure		Session focus
Session 1 (6 teaching hours)	Introduction, icebreaker, case study about Kiribati	Emotional relatedness to the topic
	Lecture – including a group discussion and self-reflection tasks	Concept and basic theories of business ethics and sustainability (e.g., triple bottom line) Case study – Unilever case from ISSUE Methodology book
	Group discussion	Usage of the I and we paradigm (Etzioni, 2003) concerning problems of tax payment
	Debate	Arguments concerning cheating, corruption and other topics based on deontology vs. consequentialism
	Lecture – including group discussions and tasks	Ethics and economy Ethical problems of mainstream economics The three pillars of sustainability Sustainable Development Goals (SDGs)
	Self-reflection task, following by group discussion	SDGs – What can I do? (personal ideas about achieving SDG 1,5 and 6 – one SDG from each pillar of sustainability)
Session 2 (5 teaching hours)	Lecture	Stakeholder theory
	In-class role play	Diversity task – different stakeholder groups' motivations, challenges, and expectations
	Group discussion	CSR definitions
	Lecture – including group discussions and tasks	Concept of CSR, ethical institutions
	Group discussion	Analysis of the values and principles held by the university based on our code of ethics
Session 3 (5 teaching hours)	Lecture – including group discussions	CSR on a national level
	Group discussion based on case studies	Best practice examples of national CSR initiatives
	Lecture – including a group task	Criticism of CSR
	Case study, self-reflection task	Case of WorldCom – Should and could I be a whistle-blower?
Course assignment	Students write a reflexive paper about a first-hand corporate or consumer sustainability experience	Sustainability related issue based on students' own professional or personal experience

17.5. TEACHING APPROACHES AND METHODS

Before presenting ethics and sustainability-related theories to the students, as a starting point, the teacher might want to use a case study about Kiribati for arousing students' interest. Kiribati is some small islands in the Pacific Ocean, halfway between Hawaii and Australia. It is the home of about 100,000 people. And these 100,000 people are slowly starting to pack because the ocean will engulf their country in the foreseeable future. Today, 100,000 are fleeing from one country to another, 100 million tomorrow and the next day… In the future, it may be our turn to move because of unsustainable environmental circumstances. Based on this reading and the follow-up discussion both cognitive and socio-emotional interest in the subject can be aroused. Some of the students question some of the information in the case study, others look up Kiribati online. In any case, joint thinking on the subject begins.

Another good starting task is using a Kahoot! test with simple-choice and true or false questions about different sustainability topics. Sometimes the data are shocking (e.g., How many litres of water do you need to make a pair of jeans? 10,000!), which can raise disbeliefs and different issues to discuss. The usage of these online polling tools makes it easier for the students to share their opinions at the beginning of the course. This innovative method helps students to open-up gradually.

Within this course a combination of different teaching approaches and methods is used. In the online form, different web-based tools and platforms are used for sharing resources and enabling group activities (e.g. CooSpace, MS Teams, streaming systems, Kahoot!, Padlet and Mentimeter). The basis of the course is established by lectures paving the way for a common understanding of the different concepts of the field (Bligh, 2000). These lectures are only 15–20 minutes long, so it is not difficult to maintain the attention of the audience. In a normal case, lectures are held in the classroom, but in the case of online or hybrid teaching the lectures can be recorded and uploaded for the students in advance, so they can come prepared for seminars/workshops with some basic knowledge and information. In this sense, flipped classroom (Lundin et al., 2018; O'Flaherty & Phillips, 2015) can also be used in addition to, or instead of, ordinary lectures to increase learning experience of students (Awidi & Paynter, 2019; McNally et al., 2017).

After the lecture part there are different forms of activities, so lectures can be used in a recurring way during seminars for sharing newer and newer pieces of information. Sometimes short videos from other sources (e.g., TED talks) are used instead of self-prepared lectures. For example, the first lecture is an introduction to basic concepts like ethics, sustainability, triple bottom line, Sustainable Development Goals (SDGs), the problems of mainstream economics,

one-dimensional vs. multi-dimensional value-creation, GDP vs. well-being vs. happiness (Győri, 2012; UN 1987, 2015a, 2015b).

Sometimes debate (Cotton & Winter, 2010) as a teaching method can also be used to reflect on the content that has been covered, e.g., in the case of using different ethical argumentation theories and practices. One student can get the task for arguing based on deontology (which theory suggests actions are good or bad according to a clear set of rules), while the other one has to use consequentialism (suggesting that an action is good or bad depending on its outcome) (Tóth, 2016). From these discussions and debates even an in-class role play (Rao & Stupans, 2012) can emerge, e.g., we have a teaching case study where representatives of a company's numerous departments should elaborate a solution for a business issue where reputational risk has emerged (Ramšak, 2021).

Collaborative learning (Kirschner, 2001) is repeatedly used where students participate in small-group activities and share their knowledge and experience in corporate sustainability tools and processes. As students have some working experience, they have different pieces of information to share and to discuss with each other. That is why using case studies or short articles for generating group discussions (Wamsler, 2020) is a useful and effective method for teaching about business ethics issues including different stakeholder needs, the management's decision-making principles and processes, or the relative importance of SDGs in various business sectors. The different answers and suggestions can be gathered by online tools like Mentimeter or Padlet, which help to visualise similarities and differences between various opinions.

Reflective exercises are based on the work and life experiences of the students. All of them have encountered sustainability issues before, but by getting to know the sustainability vocabulary, concepts and trends, they can rethink the cases and their role in each of them. For example, during the diversity task, they raise their previous issues related to discrimination or ethical HRM tools and try to find better solutions together. This continuous reflectivity causes ethics and sustainability to guide their decision-making and activities more strongly than ever before.

17.6. EXERCISES

Diversity Roleplay

In this exercise different groups of students simulate a company situation and discussion. The imagined groups consist of the following employees of a local subsidiary of a multinational company:

- Employees (leaders or experts) who work locally, but do not speak the local language, but the primary language of the multinational company.
- Employees composed of a specific ethnic minority group
- Employees with disabilities – it is up to the group whether they are homogenous in their disability (e.g., blind or physically disabled) or there are different types of disabilities within the group
- Female employees

First, the groups should separately elaborate (in classroom or via Padlet) their expectations towards the company and towards other employees; identify the group's contributions to the value creation of the company; and the challenges faced by each group during everyday operations and activities.

Second, all groups present this information to others. Group discussion is moderated by the teacher about the challenges of meeting stakeholders' expectations. Potential solutions concerning different viewpoints can be formulated.

Through this exercise, students are expected to learn that stakeholders can and should have expectations, but they have to articulate them. Beside their expectations, they also have responsibility for contributing to value creation. Even though all the groups focused here are employees, they have very different expectations and furthermore many other stakeholder groups with their own diverse expectations. For this reason, harmonising different needs is not an easy task and requires a lot of discussion, balancing and accepting of compromises.

Definitions for Corporate Social Responsibility

In this activity, after listening to a short lecture about some general points of corporate social responsibility (and prior to the actual lecture on the topic), different CSR definitions (EC 2001, 2011; Kindler & Zsolnai, 1993; Boda & Radácsi, 1996; Holliday et al., 2002; Porter & Kramer, 2002, 2011; World Bank Institute, 2004; Matten & Moon, 2005; Vogel, 2006; Kotler & Lee, 2007; Szegedi, 2007; Tóth, 2007; Ligeti, 2008; Angyal, 2009; Boda, 2013; Győri, 2012; Braun, 2015; UN, 2015a, 2015b; Radácsi, 2021) are distributed to students on slips of paper.

Students should pursue to identify:

- The given definition in relation to the moral case vs. business case categories.
- Origin of the definition (at least the continent, but it is even better to identify the country of origin).
- The year (or at least the decade) of the publication of the definition.

After all this guesswork, students should explain their own opinion on the definition by answering to the following questions:

- Is the definition appropriate?
- Can you agree with the definition?
- How could the definition be improved?

Through a group discussion, more than 20 different CSR definitions will be extensively discussed. The teacher can explain the different viewpoints and approaches regarding CSR (business case vs. moral case, multinational company vs. SME approach, explicit vs. implicit CSR, PR/communication vs. real commitment, etc.) The history and development of the concepts can be presented and this way regional and other differences can be understood (e.g., US vs. European approach and regulation, developed vs. developing countries). Also the names of the main organisations and scholars of the field become familiar to students.

The pool of definitions can be adjusted to changes in CSR. Competing terms like sustainability, social impact, circular economy, etc. can also be included. After this sensitisation and awareness raising discussion, the lecture on CSR will be much more understandable and easier to remember.

17.7. ASSESSMENT

For assessment, students should write a reflective paper (100 %) about an ethical issue which they have experienced during their professional life or as consumers. They should use their theoretical knowledge, tools and concepts as a framework for the analysis of the situation. In this way they can rethink and structure the case – maybe formulate a future good solution to the specific problem. This approach gives space to self-directed and creative learning as students have to think about a specific problem which somehow touches them, has importance for them. The use of theoretical aspects of the literature is not the main part of the assignment, it is rather used as a lens for investigating the chosen problem, so students' own examination and analysis are much more important (Győri & Mosolygó-Kiss, 2019).

This final task can be interpreted as a self-reflective task (Cotton & Winter, 2010). Students can examine their as well as their colleagues' and leaders' role and decisions in the specific situation based on the theories, methods and tools taught to them during the course. This way it is possible to achieve a higher level of cognitive, behavioural and socio-emotional competences on sustainability.

17.8. PREREQUISITES

Required prior knowledge from students:

- This course is not open for every student; it is embedded in the Postgraduate Specialist Training Programme at a business school. Even if there are no prerequisites, students come to the course with professional experience, which gives the teacher the opportunity to activate students and deal with different subtopics.

Required instructor and competences:

- Lecturer (business ethics, CSR, sustainability), and guest lecturers (with related practical experience)

Required tools:

- Web-based collaboration platforms (e.g., Microsoft Teams, Stream, CooSpace, Padlet, Kahoot!)

17.9. RECOMMENDED RESOURCES

- Baritz, S. T. (2014). *Three-dimensional economy – Is management possible if based on virtue ethics?* PhD dissertation draft in English, Corvinus University of Budapest. http://phd.lib.uni-corvinus.hu/793/4/Baritz_Sarolta_Terez_ten.pdf
- Budapest Business School (n.d.). *Budapest Business School Code of Ethics*. https://uni-bge.hu/en/bbs-code-of-ethics
- European Commission (2014). *Corporate Social Responsibility National Public Policies in the European Union – Compendium 2014*. https://digital-strategy.ec.europa.eu/en/library/corporate-social-responsibility-national-public-policies-european-union-compendium-2014
- Frank, R. H. (2004). *What Price the Moral High Ground? Ethical Dilemmas in Competitive Environments*. Princeton University Press, Princeton.
- Frank, R. H.; Gilovich, T.; Regan, D.T. (1993). Does Studying Economics Inhibit Cooperation? *Journal of Economic Perspectives*, 7(2), 159–171.
- Freeman, R. E. & McVea, J. F. (2001). A Stakeholder Approach to Strategic Management, *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.263511
- Frey, B. S.; Osterloh, M. (2005). Yes, managers should be paid like bureaucrats, *CESifo Working Paper*, No. 1379, Center for Economic Studies and Ifo Institute (CESifo), Munich. https://www.econstor.eu/bitstream/10419/18743/1/cesifo1_wp1379.pdf

- Győri, Zs., Khan, Y. and Szegedi, K. (2021b). Business Model and Principles of a Values-Based Bank—Case Study of MagNet Hungarian Community Bank, *Sustainability*, 13(16), 9239.
- Kardos, P. (2016). *The Effect of Beliefs in Free Market Ideology and Nationality of Companies on Justice Demands, Action Intentions and Emotions in Response to Corporate Transgressions*. PhD dissertation draft in English, Corvinus University of Budapest. http://phd.lib.uni-corvinus.hu/922/3/Kardos_Peter_ten.pdf
- Ministry of Foreign Affairs and Trade of Hungary (2018). *Trade Voluntary National Review of Hungary on the Sustainable Development Goals of the 2030 Agenda*. https://sustainabledevelopment.un.org/content/documents/20137Voluntary_National_Review_of_Hungary_v2.pdf
- Sen, A. (1993). Does Business Ethics Make Economic Sense? *Business Ethics Quarterly*, 3(1), 45–54.
- Smith, N.C. (1987). Consumer Boycotts and Consumer Sovereignty, *European Journal of Marketing*, 21(5), 7–19.
- Tóth, G. (2007). *The Truly Responsible Enterprise*. KÖVET, Budapest. https://kovet.hu/wp-content/uploads/2019/10/The-Truly-Responsible-Enterprise.pdf
- United Nations (2015a). *Transforming our world: the 2030 Agenda for Sustainable Development*. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
- United Nations (2015b). Sustainable Development Goals. https://sdgs.un.org/goals

Other online resources:

- ISSUE – Innovative Solutions for SUstainability in Education (n.d.) 21-Day Challenge- Offline Document. https://www.scribd.com/document/521303435/ISSUE-21-Day-Challenge
- ISSUE – Innovative Solutions for SUstainability in Education (n.d.) Green Office Guidelines. https://www.scribd.com/document/521501583/ISSUE-IO5-Green-Office-Guidelines
- ISSUE – Innovative Solutions for SUstainability in Education (n.d.) Methodology book. https://www.issue-project.eu/toolbox/methodology-handbook

17.10. GENERAL TIPS FOR TEACHERS

Teaching Business Ethics is not about rigor evaluation or exams, it is about raising awareness to the biggest challenges of our times. Using the knowledge, the everyday and professional experience of the students are crucial. Teacher only has to systematize the information which pervade our lives.

REFERENCES

Annan-Diab, F. & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *The International Journal of Management Education*, 15(2017), 73–83.

Angyal, Á. (2009). *Vállalatok társadalmi felelőssége, felelős társaságirányítás* (Corporate social Responsibility, Responsible Business Conduct), Kossuth Kiadó, Budapest.

Awidi, I. T., & Paynter, M. (2019). The impact of a flipped classroom approach on student learning experience. *Computers & Education*, *128*, 269–283.

Biedenweg, K., Monroe, M. C., & Oxarart, A. (2013). The importance of teaching ethics of sustainability. *International Journal of Sustainability in Higher Education*, 14(1), 6–14.

Bligh, D. A. (2000). *What's the use of lectures?* Jossey- Bass.

Boda, Z. (2013). *Üzleti etika* (Business Ethics), Corvinus University of Budapest.

Boda, Z. & Radácsi L. (1996). *Vállalati etika* (Corporate ethics) BKE, Budapest.

Boda, Z. & Zsolnai, L. (2016). The failure of business ethics. *Society and Business Review*, 11(1), 93–104.

Bouckaert, L. & Zsolnai, L. (2012). Spirituality and business: An interdisciplinary overview. *Society and Economy,* 34(3), 489–514.

Braun, R. (2015). *Vállalati társadalmi felelősségvállalás – a vállalatok politikája* (Corporate Social Responsibility – the Politics of Corporations) Akadémiai Kiadó.

Brenkert, G. G. (2019). Mind the Gap! The Challenges and Limits of (Global) Business Ethics. *Journal of Business Ethics*, 155(4), 917–930.

Cotton, D. R. E. & 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 S. Sterling, S. (Ed.), *Sustainability Education: Perspectives and Practice across Higher Education* (pp. 39–54). Routledge.

Daly, H. E. (1995). On Wilfred Beckerman's critique of sustainable development. *Environmental Values*, 4(1), 49–55.

Daly, H. E. (1996). *Beyond Growth. The Economics of Sustainable Development*. Beacon Press.

Daly, H. E. (1999). Uneconomic growth: in theory, in fact, in history and in relation to globalization. *Clemens Lecture Series*. 10. https://digitalcommons.csbsju.edu/clemens_lectures/10.

De Cremer, D., & Moore, C. (2020). Toward a Better Understanding of Behavioral Ethics in the Workplace. *Annual Review of Organizational Psychology and Organizational Behavior*, 7(1), 369–393.

Elkington, J. (1997). *Cannibals With Forks: The Triple Bottom Line of 21st Century Business*. Capstone Oxford.

Etzioni, A. (2003). Toward a New Socio-Economic Paradigm. *Socio-Economic Review*, 1(1), 105–118.

European Commission (EC) (2001). *Green Paper: Promoting a European Framework for Corporate Social Responsibility*. http://europa.eu.int/eur-lex/en/com/gpr/2001/com2001_0366en01.pdf.

European Commission (EC) (2011). *A renewed EU strategy 2011–14 for Corporate Social Responsibility*. https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2011:0681:FIN:EN:PDF.

Giacalone, R. A., & Thompson, K. R. (2006). Business ethics and social responsibility education: Shifting the worldview. *Academy of Management Learning & Education*, 5(3), 266–277.

Győri, Z. (2012). *Corporate Social Responsibility and Beyond: The history and future of CSR*. LAP LAMBERT Academic Publishing.

Győri, Z. & Mosolygó-Kiss, Á. (2019). *Company-Level Management of Sustainability in Hungary: Experience of the Green Mentor Programme at Some Greening Businesses*. In S. Lahiri (Ed.), *Exploring Environmental Education for Teachers (pp. 95–110)*. Studera Press.

Holliday, C. O., Schmidheiny, S., Watts, P. (2002). *Walking the Talk – The Business Case for Sustainable Development*. Greenleaf Publishing, Berrett-Koehler Publishers, Inc.

Kindler, J. & Zsolnai, L. (ed). (1993). *Etika a gazdaságban* (Ethics in the economy) Keraban Kiadó, Budapest.

Kotler, P. & Lee, N. (2007). *Corporate Social Responsibility: Doing the Most Good for Your Company and Your Cause*, John Wiley & Sons, Inc.

Ligeti, G. (2008). *CSR – Vállalati felelősségvállalás* (CSR – Corporate Social Responsibility). Kurt Lewin Foundation, Budapest.

Lundin, M., Bergviken Rensfeldt, A., Hillman, T., Lantz-Andersson, A., & Peterson, L. (2018). Higher education dominance and siloed knowledge: a systematic review of flipped classroom research. *International Journal of Educational Technology in Higher Education*, *15*(1), 1–30.

Matten, D. & Moon, J. (2005). A Conceptual Framework for Understanding CSR. In A. Habisch, J. Jonker, M. Wegner & R. Schmidpeter (Eds), *Corporate Social Responsibility Across Europe* (pp. 335–356). Springer.

McNally, B., Chipperfield, J., Dorsett, P., Del Fabbro, L., Frommolt, V., Goetz, S., ... & Rung, A. (2017). Flipped classroom experiences: student preferences and flip strategy in a higher education context. *Higher Education*, 73(2), 281–298.

O'Flaherty, J., & Phillips, C. (2015). The use of flipped classrooms in higher education: A scoping review. *The Internet and Higher Education*, *25*, 85–95.

Pataki, G. & Radácsi L. (2000). *Alternatív kapitalisták* (Alternative capitalists) Új Paradigma, Budapest.

Kirschner, P. A. (2001). Using Integrated Electronic Environments for Collaborative Teaching/Learning. *Learning and Instruction*, 10, 1–9.

Porter, M. E. & Kramer, M. R. (2002). The Competitive Advantage of Corporate Philantropy. *Harvard Business Review*, 80(12), 56–68.

Porter, M. E. & Kramer, M. R. (2011). Creating Shared Value: Redefining Capitalism and the Role of the Corporation in Society. *Harvard Business Review*, 89(1/2), 62–77.

Radácsi, L. (2021). *Felelős és Fenntartható Vállalat* (Responsible and Sustainable Company). Saldo, Budapest.

Ramšak, R. (Ed.) (2021). *Sustainability Teaching Case Studies. ISSUE Methodology book II: Innovative Solutions for Sustainability in Education*, Budapest Business School, Budapest, https://www.issue-project.eu/toolbox/methodology-handbook

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.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Szegedi, K. (2007). Üzleti etika (Business Ethics), Perfekt Kiadó, Budapest.

Tóth, G. (2007). The Truly Responsible Enterprise. KÖVET, Budapest

Tóth, G. (2016). Gazdasággép (Economy Machine), L'Harmattan – KÖVET, Budapest.

United Nations Development Program (1987). *Our Common Future*. http://www.un-documents.net/wced-ocf.htm

United Nations (2015a). *Transforming our world: the 2030 Agenda for Sustainable Development*.https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E

United Nations (2015b). *Sustainable Development Goals*. https://sdgs.un.org/goals

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Vogel, D. (2006). *The Market for Virtue – The Potential and Limits of Corporate Social Responsibility*. Brookings Institution Press.

Wamsler, C. (2020). Education for sustainability: Fostering a more conscious society and transformation towards sustainability. *International Journal of Sustainability in Higher Education*, 21(1), 112–130.

World Bank Institute (2004). *Can Small Be Responsible?* Summary of WBI „The Possibilities and Challenges of Corporate Social Responsibility among Small and Medium Enterprises" e-conference.http://info.worldbank.org/etools/docs/library/126862/small_responsible.pdf

Julia N. Solovjova

Chapter 18. Sustainable Consumption and Sustainability Marketing

18.1. COURSE SUMMARY

Table 18–1

Audience and level of studies	Students (bachelor)	
Group size	≤ 25	
Course duration	18 weeks	
Credits	3 ECTS	
Workload	Presence: 36h Self-study: 54h	Total: 90h
Contents/primary topics	• Sustainable consumption • Sustainability marketing strategy • Promotion of innovative models of sustainable consumption	
Main course objectives	• Increasing awareness about the need to promote sustainable development principles • Mastering the skills of creating marketing programmes targeted at introducing sustainable consumption models	
Main teaching approaches	• Experiential learning • Collaborative learning	
Main teaching methods	• Sustainability-related research project • Lectures • Debate	
Learning environment	Classroom + online activities (blended learning)	
Link to Sustainable Development Goals (SDGs)	SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns	

Table 18–2

Impact assessment	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students do project work, define their information needs and fill in the information gaps by talking with experts and potential consumers.
2. Degree of student collaboration / group work	High	Projects are performed as a team.
3. Degree of student emotional involvement	High	The topics of the course concern students' everyday life as consumers and society members.
4. Degree of inter-/transdisciplinarity	Medium	Knowledge of several related disciplines is applied such as Research Methodology, Consumer Behaviour, Corporate Social Responsibility (CSR).
5. Degree of student (self-) reflection	Medium	Students reflect on their practices and routines as consumers.
6. Degree of experience of real-life situations	High	The course stipulates extensive communication with practitioners and conducting full-scale market research.
7. Degree of nature-related experiences	None	
8. Degree of stakeholder integration	Medium	Student projects can be initiated by local companies, local authorities or the student teams themselves. The degree of stakeholder integration may be increased in case the project results are presented in sustainability-related contests and conferences.
9. Degree of integration between theory and practice	High	Students carry out several marketing activities such as making competitor and customer analysis, organising a customer survey, and developing a promotion programme.

18.2. COURSE INTRODUCTION

The course "Sustainability Marketing" was introduced in 2018. From the research perspective, sustainability marketing is a rapidly developing field: starting from 2001, 10–30 articles with both these key words in their title have been added to the Scopus database annually. Even more often, particular issues are addressed in the research such as application of specific marketing instruments, for example, labelling or communication policy to promote sustainable behaviour (i.e. Koszewska 2021; Walsh & Dodds, 2022).

Sustainable Marketing as an academic discipline has been largely influenced by the textbook written by Belz and Peattie (2009) and supported by video lectures (Belz & Peattie, 2013). However, recently a wide range of new

textbooks have appeared (e.g. Yuldasheva et al., 2017; Carvill et al., 2021, Sharma et al., 2021). The textbook by McKenzie-Mohr (2021) focuses on targeting unsustainable behaviours, identifying the barriers to change and communicating effective messages. The discipline still suffers from an ambiguity in terminology: relevant texts can be found also under the titles "Green Marketing" (e.g. Ottman, 2011) or "Social Marketing".

The idea of the course "Sustainability Marketing" is to show several driving forces for sustainability changes:

- Governments promoting SDGs in a top-to-bottom approach
- Consumers striving for higher quality of life and a sustainable environment
- Companies aiming at resource savings and achieving a high reputation among diverse stakeholders

The focus of this course is on changing consumer behaviour towards more sustainable choices, which has become a mighty force reshaping the business environment and the dominating narrative emanating from companies. Vice versa, without the customers who appreciate the value of contributing towards sustainability, competition will hardly be profiled by the dimensions of ethics and environmental protection.

However, the intersections of marketing and sustainability issues are still considered to be controversial: can marketing based on the idea of limitless needs and continuous consumption actually be sustainable (Kemper & Ballantine, 2019)? This controversy brings up many important issues that can be debated in class: Where is the threshold between sustainability and greenwashing? What aspects should be considered when talking about sustainable consumer behaviour: is it just turning off the lights, avoiding plastic bags and showing preference for organic products, or is it a comprehensive change in customer behaviour models accompanied by the corresponding change in companies' business models? Is the way to sustainable consumer behaviour by pursuing healthy lifestyles? Are there some aspects of sustainability that are not given enough attention as opposed to others that are promoted intensively? These issues are also put forward in current research (e.g. Konnikova et al., 2019; Braga et al., 2019; Quoquab et al., 2021; Matharu et al., 2021).

The main activities of this course are organised in the form of group project work. Student teams suggest their own "greenfield" sustainability projects or help specific companies to become more sustainable. First, they do the research work to answer the questions: What is the current status of consumer behaviour in the analysed market? Are consumers ready for a change towards sustainability? What are the obstacles to this change? Then student teams develop marketing programmes to make the desired change in consumer behaviour possible.

18.3. LEARNING OBJECTIVES

The main objective of the course is twofold: increasing awareness about the background and imperative need to promote sustainable development programmes as well as mastering the skills of creating marketing programmes targeted at introducing sustainable consumption models. Both objectives should be viewed as country-specific because both the awareness level and the challenges of unsustainability may vary.

The Education for Sustainable Development (ESD) -related competence framework by Makrakis et al. (2013) will be used for the operationalisation of learning outcomes. This framework is based on the integrated vision for education proposed by UNESCO (1996). The four initial pillars "learning to know", "learning to do", "learning to be" and "learning to live together" were later extended by one further pillar "learning to transform oneself and society". Within these pillars, the clusters of sustainability-related competencies were defined. "Learning to know" competencies include experiencing, constructing and transforming knowledge for making sustainability a mode of life and being; "learning to do" comprises merging knowledge with action for building a sustainable future. "Learning to be" are practices that lead to human self-actualisation, self-regulation and cultivating a sense of being versus having. Competencies within "learning to live together" lead to a peaceful and non-discriminatory society and human co-existence with the natural world. Finally, "learning to transform oneself and society" stipulates transforming unsustainable values and behaviours towards sustainability.

Table 18–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Makrakis et al., 2013)**
Cognitive	Understand how individual lifestyle choices influence social, economic and environmental development.	Learning to know
	Know approaches and methods of marketing research aimed at defining drivers and barriers for sustainable consumption.	Learning to do
	Understand trade-offs related to achieving sustainable consumption and production.	Learning to do
	Know strategies and models for sustainability marketing.	Learning to do

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Makrakis et al., 2013)**
Socio-emotional	Feel responsibility for the environmental and social impacts of own individual consumer behaviour.	Learning to be
	Explain the construct of sustainable consumption and sustainable lifestyles for the marketing research participants.	Learning to transform oneself and society
	Understand the barriers and obstacles that avert different customer segments from sustainable practices.	Learning to transform oneself and society
	Exchange ideas within the team on the ways to overcome these barriers and obstacles.	Learning to live together
	Promote ideas and practices of sustainable consumption for the target customer segment.	Learning to transform oneself and society
Behavioural	Evaluate consumption patterns and lifestyles using existing sustainability criteria.	Learning to live together
	Design and conduct marketing research of sustainability values and sustainable / unsustainable consumer behaviour.	Learning to do
	Generate ideas to increase the level of sustainability of specific product and service markets.	Learning to be
	Cooperate in project work targeted at development and market introduction of sustainable solutions.	Learning to transform oneself and society

18.4. COURSE OUTLINE

Table 18–4

Structure		**Session focus**	**Homework**
Weeks 1–8: lectures	Lecture 1 (4 h): Sustainable development, historical record and contemporary realities	• Environmental concerns as the basis for the sustainability concept • Triple bottom line • Millennium / Sustainable Development Goals (MDGs, SDGs), Sustainability standards, indices and reports (ISO, Global Reporting Initiative, Corporate Sustainability Assessment)	Browsing United Nations website on MDGs and SDGs [5, 6] and sustainable development dashboards [4]
	Lecture 2 (4 h): Sustainable consumption	• Consumerism vs. sustainable consumption • Ecological footprint • Classifications of sustainable consumption and barriers to it • Cases and trends	Using online ecological footprint calculator [7]

Structure		**Session focus**	**Homework**
Weeks 1–8: lectures	Lecture 3 (4 h): Sustainability marketing vs. greenwashing	• Seven sins of greenwashing • Sustainability marketing: definitions and principles • Cognitive marketing • Customer involvement	Browsing websites of ecolabels (i.e. [2]) and finding out rules how to differentiate them from greenwashing
	Lecture 4 (4 h): Sustainability marketing strategy and policies	• Segmentation – Targeting – Positioning • Timing of market entry • Sustainable value proposition, sustainable communications and sustainable pricing	Selecting the best ads of sustainable brands
Weeks 5–12: guest lectures and workshops	Guest lectures (2–4 h): Ongoing projects of promoting sustainable solutions	Real practices of for-profit and/or non-profit organisations introducing sustainable solutions and overcoming barriers in customer behaviour	Preparing questions for guest speakers
	Workshops: (2–4 h): On-demand classes on the required competences	Supporting student projects by providing necessary competencies, i.e., questionnaire design, quantitative research methods, project management, environmental studies	Discovering the deficits in the student team's competence base
Weeks 7–18: own projects	Kick-off meeting (2 h)	Solving organisational issues: team formation, introduction into the project work	
	Consultation 1 (20 min per team)	Specifying and approving students' project ideas	Coming up with the idea of a change in business practices and customer behaviour in a specific market leading to higher sustainability
	Consultation 2 (20 min per team)	Approving market research design	Elaborating methodology of consumer behaviour research in the chosen market
	Consultation 3 (20 min per team)	Refining sustainable value proposition on the basis of research results	Conducting market research of current consumer behaviour, drivers and obstacles to sustainable consumption. Coming up with sustainable value propositions
	Consultation 4 (20 min per team)	Discussing marketing programme to introduce sustainable value proposition	Developing communication and pricing decisions, testing available distribution channels
	Final presentation (4 h)	Team presentation of the project results and evaluation by the jury consisting of academic staff and practitioners	Creating presentation and handouts

18.5. TEACHING APPROACHES AND METHODS

Sustainable development is a hot topic: literally hundreds of academic articles, case studies, TV programmes, business reviews appear regularly. Most of them also have implications for sustainability marketing. It means that the role of teachers shifts from informing students towards structuring the abundant information, showing emerging trends and stimulating students' interest towards independent learning and participation.

Problems of unsustainability have a profound social significance and affect everybody. That is why teaching and learning sustainability marketing can be done in an emotional way leading to high involvement. However, it is important to separate facts from opinions in the debates and look for deeper cause-and-effect relationships rather than rely upon superficial a priori reasoning and widespread stereotypes.

The knowledge about sustainable development as well as the individual and organisational readiness to contribute to it might vary from country to country. It can be hypothesised that this level of knowledge depends on numerous factors: among others, if a country is a post-industrial society or just on its way to industrialisation, deficit of certain resources, the level of public welfare, acute social problems, governmental policies, and media attention. It should be considered in the study programme from two points of view. On the one hand, it is important to develop the students' perceptions based on their experience and background, taking into account specific barriers to sustainability that exist in their country. It might be challenging in case of an international audience, which educators encounter more and more often in bachelor programmes with a major in management. On the other hand, this situation provides numerous interesting cases for international marketing of sustainable products, where physical distance is multiplied by the cultural problems caused by the different levels of understanding of sustainability issues. It is important to suggest that students research international aspects in their own study projects.

Several *lectures* are interspersed with a *debate* on a topical issue, which varies depending on what is discussed in public and social media. To provide students with some reference points for such debates, several videos are suggested to be viewed before every lecture. The examples of possible debate topics are listed in the subchapter "Exercises". The aim of these debates is to inspire students' search for project topics and to show obstacles to sustainability caused by the lack of awareness and usual consumer habits. Several studies show that debate-based teaching is effective in engaging students in course content, stimulating critical thinking, helping students to appreciate the complexities involved in practice (Doody & Condon, 2012) and promoting the

ability to take ethical decisions (Kim & Park, 2019). These advantages are relevant for covering ethical issues in sustainability-related courses.

It is recommended to invite one or two practitioners to give *guest lectures* and talk about the projects they are currently working on. Examples of companies that might be especially valuable for the course "Sustainability Marketing":

- A company organising separate collection of waste
- Food producer entering the market with a green brand
- A chain of coffee shops introducing the service philosophy of new sincerity
- Donation-based club of healthy lifestyle

Students are supposed to not only listen to their presentations but also to participate actively by asking questions and reflecting on their own consumer behaviour in the analysed market. The focus is again on promoting interesting actual projects to the students and showing the real-life challenges of changing customer behaviour towards sustainability.

These study activities prepare students for the main part of the learning process in this course – the *sustainability-related research project*. In the framework of this research project, action-orientated *experiential learning approach* (Kolb, 1984) is realised. It creates links to real-life practices and encourages creation. Experiential learning increases the students' involvement in synthesising information in an active immersive environment (Feinstein, 2002). To reach the learning objectives, it is important to follow the complete Kolb's (1984) "Experiential Learning Cycle" and not omitting the stages of reflective observation and abstract conceptualisation.

At present, the project method is considered to be an effective instrument in higher education in various fields, flexible in reflecting the changing needs of the labour market. It influences positively cognitive, affective, and behavioural learning outcomes (Guo et al., 2020). This approach showed particular effectiveness in the context of sustainability-related studies (Manolis & Manoli, 2021). Project-based learning contributes to building not only professional hard skills but also universal soft skills such as self-study ability, teamwork, interpersonal communications, critical and creative thinking, and problem-solving skills. Project results can have an immediate impact on the development of specific companies and the regional economy (Trischenko, 2020).

The research project consists of three main parts:

1. Generating ideas on sustainability-related changes in consumer markets and formulating sustainable value proposition

2. Studying current consumer behaviour in this market as well as drivers and obstacles for the change towards sustainability
3. Developing a marketing programme to promote a sustainable value proposition

Study projects usually bear an interdisciplinary character. They form a holistic approach to the managerial decision-making. At the same time, they help students discover and fill in the gaps in their knowledge base. After the project start, the teacher organises one or two *workshops* covering these deficits. Most often, these workshops cover topics connected with conducting marketing research of customer behaviour: questionnaire design and quantitative methods of data analysis relevant for market segmentation. However, sometimes students' projects require knowledge about the markets of venture capital or consultations on the environmental impact of particular industries.

The organisation of such workshops facilitates student-centred learning. When the students receive each sub-task for the next consultation, the teacher discusses their previous knowledge about different aspects of market functioning and marketing activities. The students should try to select the most challenging tasks and justify the need to attract external help in the form of a workshop. Some workshops might be arranged by the teacher him/herself, but an external expert might bring extra drive and new viewpoints to the course. It is important that the students themselves feel the need to gain further knowledge and prepare questions for the expert beforehand.

We suggest that students work on their projects not individually but in teams because the task requires the combination of different competencies and perspectives. A competitive spirit is supported throughout the project, so that the students can benchmark their progress against other teams. Teamwork facilitates *collaborative learning* – the pedagogical approach stimulating knowledge co-creation between students (Doolan, 2013). Students perceive that each team member is responsible for the team's learning. This interdependency encourages them to actively engage in learning themselves (Biggs, 2003) and motivate their teammates.

The final presentation is made in front of a jury consisting of one or two teachers and one or two business / NGO representatives. The jury gives feedback on the strengths and weaknesses of each presentation and chooses the best presentation. Several categories can be awarded to student teams: the most creative solution, the best market insights, the solution best prepared for the realisation phase.

18.6. EXERCISES

Debates

Debates are organised as a group exercise in the class during lectures. As home preparation, several topical videos can be suggested for viewing. The group size can be five to seven students. Students can choose which debates they would prefer to take part in.

The debate can be organised in a classic way: arguments, questions to the opposite team and final speech with counterarguments. The duration might vary from 30 to 45 minutes.

Examples of possible debate topics:

- Fast fashion in high-income societies: will it end in the near future?
- Sustainable city mobility: the battle between car owners, pedestrians, and cyclists / scooter riders.
- Body positivity: advantages for self-consciousness or drawbacks for health?
- Should mankind become vegetarian?
- What is the best way towards sustainable consumption: healthy lifestyle, saving the family money or saving the world?
- Vaccination against COVID-19 in different countries: what influences the vaccination levels – availability of vaccines or public opinion?
- Who should deal with garbage in lakes, on shores, and in forests – public authorities or the local community?
- Who should deal with a lake's waterlogging near a village – public authorities or the local community?

The goal of such debates is not only to increase involvement, or to transfer passive listeners into active participants but also to show the variety of opinions and solutions in different sustainability-related areas. The choice of debate topics depends on the territory-specific problems and public stereotypes. The debates promote the choice of challenging and varying topics of student projects, which otherwise might mostly revolve around few popular themes like sorting waste and reducing the amount of plastic.

Sustainability-related research project

The work is carried out in student teams of three to five students. The normal duration of the project is about two months. Such duration stimulates students to focus and start working on the project without delays. The project work is facilitated by regular consultations with the teacher. The consultations are organised individually for each team. The aim of the consultations is to ensure smooth and productive workflow, to correct methodological mistakes and to

answer students' questions. The consultations are organized according to a waterfall project methodology. The content of the task for each consultation is presented below.

First consultation: Situation with the product

- Choose a market / life situation and generate an idea of sustainable value proposition in this market / situation.
- Identify market landscape and structure.
- Analyse strengths and weaknesses of competitive offers.
- Answer the questions: How the customer needs are satisfied at present? What are financial and non-financial expenditures? What are customer pains? In what respect is the present situation unsustainable?
- Conduct international benchmarking and find best practices.

Second consultation: Market research design

- Formulate hypotheses on the current customer behaviour, willingness to change it, motivation and obstacles for sustainability changes, differences in attitudes and behaviour between different demographic segments.
- Choose quantitative or qualitative research design.
- Plan the market research: face-to-face or online survey, number of respondents, content of the questionnaire.

Third consultation: Situation in the market

- Student teams should take the following steps:
- Conduct the planned market research and approve or reject hypothesis.
- Choose reasonable segments to target and describe customer portraits in each segment.
- Estimate market potential and its dynamics.
- Revisit the sustainable value proposition based on the customer opinions.

Fourth consultation: Promotion programme

- Outline the business model.
- Check the project for greenwashing accusations.
- Define the pricing policy for the sustainable solution.
- Check the available distribution channels.
- Suggest the communication campaign

The project ends with a presentation of its results in front of a jury. However, the possibility of disseminating the results of successful projects should be considered. One way to do it is to motivate students to apply for sustainability-related competitions and contests on the university and regional levels.

The projects might be structured according to the contest rules from the very beginning.

18.7. ASSESSMENT

Table 18–5

Evaluation	Criteria	Percentage (%)
Debates & consultations	• Timeliness and participation in debates (participation in debates is evaluated on the basis of students' engagement and following the rules of debating, without assessing the correctness of opinions). • Completeness of tasks prepared for each consultation.	30 %
Project presentation & handout	• Potential impact and innovative aspects of the proposed project. • Skilful application of market research instruments. • Good understanding of consumer behaviour and market insights. • Realistic promotion programme. • Appealing visual presentation and logical organization of oral presentation.	40 %
Final test	• Main concepts and models of sustainability marketing (questions with short answers, duration 45 minutes).	30 %

18.8. PREREQUISITES

Required prior knowledge from students:

- Basics of marketing
- Basics of business management
- Quantitative / qualitative research methods

Required instructors and their core competencies:

- Lecturer (competencies: marketing, project management)
- Guest speakers (competencies: real-life expertise in sustainability projects)
- Jury members (competencies: real-life business expertise)

18.9. RECOMMENDED RESOURCES

Topic 1:

- United Nations (2015). *Millennium Development Goals and Beyond 2015*. United Nations. https://www.un.org/millenniumgoals/
- Sachs, J., Lafortune, G., Kroll, C., Fuller, G. & Woelm, F. (2022). *From Crisis to Sustainable Development: the SDGs as Roadmap to 2030 and Beyond.* Sustainable Development Report 2022. Cambridge: Cambridge University Press.
- United Nations (2022). *The 17 Goals.* United Nations, Department of Economic and Social Affairs. https://sdgs.un.org/

Topics 2–4:

- World Wildlife Foundation (n.d.). *How Big Is Your Environmental Footprint? WWF Footprint Calculator*. WWF. https://footprint.wwf.org.uk/#/
- Our Changing Climate (n.d.) *Home* [Youtube channel]. Retrieved September 13, 2022, from https://www.youtube.com/c/OurChangingClimate/featured
- Belz, F.-M., & Peattie, K. (2009). *Sustainability Marketing: A Global Perspective.* Wiley.
- Global Ecolabelling Network (n.d.). *Linking a world of environmentally preferable products and services.* https://globalecolabelling.net/

18.10. GENERAL TIPS FOR TEACHERS

We recommend supporting pluralism of opinions in this course because it helps understand different viewpoints expressed by the customers. In marketing, it is dangerous to transpose one's own worldview onto the whole market.

It is also very important to lay the foundation for the further development of students' actions. In the feedback after the course (n=113), 90.3 % of students reported an increased awareness about the modern social and ecological challenges, 77.0 % agreed that the course helped them to develop their research skills. 72.6 % of respondents shared that as a result of the course their behaviour became more responsible, healthy and/or environmentally friendly. 69.0 % reported about an increased willingness to deal with the issues of corporate social responsibility, sustainable marketing and sustainable development in their future career. Though the overall feedback is satisfactory, it is seen that the scores on the cognitive learning outcomes are higher than on the behavioural. Thus, the students should be motivated to disseminate results of their project work even after the course is over.

REFERENCES

Belz, F.-M., & Peattie, K. (2009). *Sustainability Marketing: A Global Perspective*. Wiley.

Belz, F.-M., & Peattie, K. (2013). *Sustainability Marketing* (video course). Virtuelle Akademie Nachhaltigkeit. Universität Bremen. https://www.va-bne.de/index.php/de/veranstaltungen/26-sustainability-marketing

Biggs, J. B. (2003). *Aligning Teaching for Constructive Learning*. The Higher Education Academy Press.

Braga Junior, S., Martinez, M. P., Correa, C. M., Moura-Leite, R. C., and Da Silva, D. (2019). Greenwashing Effect, Attitudes, and Beliefs in Green Consumption. *RAUSP Management Journal*, *54*(2), 226–241.

Carvill, M., Butler, G., & Evans, G. (2021). *Sustainable Marketing: How to Drive Profits with Purpose*. Bloomsbury Business.

Doody, O., & Condon M. (2012). Increasing Student Involvement and Learning through Using Debate as an Assessment, *Nurse Education in Practice*, *12*(4), 232–237.

Doolan, M. A. (2013). A Pedagogical Framework for Collaborative Learning in a Social Blended E-Learning Context. In: Wankel, C. & Blessinger, P. (Eds.) *Increasing Student Engagement and Retention in E-Learning Environments: Web 2.0 and Blended Learning Technologies* (pp. 261–285). Emerald Group Publishing Limited.

Feinstein, A. H., Mann, S., & Corsun, D. L. (2002). Charting the Experiential Territory: Clarifying Definitions and Uses of Computer Simulation, Games, and Role Play. *Journal of Management Development*, *21*(10), 732–744.

Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A Review of Project-based Learning in Higher Education: Student Outcomes and Measures. *International Journal of Educational Research*, *102*, 101586.

Kemper, J. A., & Ballantine, P. W. (2019). What Do We Mean by Sustainability Marketing? *Journal of Marketing Management*, *35*(3–4), 277–309.

Kim, W.-J., & Park, J.-H. (2019). The Effects of Debate-based Ethics Education on the Moral Sensitivity and Judgment of Nursing Students: A Quasi-experimental Study. *Nurse Education Today*, *83*, 104200.

Kolb, D. (1984). *Experiential Learning.* Prentice Hall, Englewood Cliffs, NJ.

Konnikova, O. A., Yuldasheva, O. U., Solovjova, J. N., & Shubaeva, V. G. (2019). Consumer Behaviour on the Russian Wellness Market: Results of Empirical Study. *Academy of Strategic Management Journal*, *18*(6), 1–15.

Koszewska, M. (2021). Clothing Labels: Why Are They Important for Sustainable Consumer Behaviour? *Journal of Consumer Protection and Food Safety*, *16*, 1–3.

Makrakis, V., Kostoulas-Makrakis, N., & Kanbar, N. (2013). Developing and Validating an ESD Student Competence Framework: a Tempus-RUCAS Initiative. *International Journal of Excellence in Education*, *5*(1), 1–13.

Manolis, E. N., & Manoli, E. N. Raising awareness of the Sustainable Development Goals through ecological projects in higher education (2021). *Journal of Cleaner Production*, *279*, 123614.

Matharu, M., Jain, R., & Kamboj, S. (2021). Understanding the impact of lifestyle on sustainable Consumption Behavior: a Sharing Economy Perspective. *Management of Environmental Quality*, *32*(1), 20–40.

McKenzie-Mohr, D. (2011). *Fostering Sustainable Behavior: An Introduction to Community-based Social Marketing*. New Society Publishers.

Ottman, J.A. (2011). *The New Rules of Green Marketing: Strategies, Tools, and Inspiration for Sustainable Branding*. Berrett-Koehler Publishers.

Quoquab, F., Sivadasan, R., & Mohammad, J. (in press). Do They Mean What They Say? Measuring Greenwash in the Sustainable Property Development Sector. *Asia Pacific Journal of Marketing and Logistics*.

Sharma, R. R., Kaur, T., and Syan, A. S. (2021). *Sustainability Marketing: New Directions and Practices*. Emerald Publishing.

Trishchenko, D. A. (2020). Proektnoe obuchenie v vuze: napravleniya poiska vneshnego zakazchika [Project-based Learning in a Higher Education Institution: Searching for an External Customer]. *Bulletin of the MSRU. Series: Pedagogics*, 2, 105–115.

UNESCO (1996). *Learning: the Treasure within. Report to UNESCO of the International Commission on Education for the Twenty-first Century*.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Walsh, P. R., & Dodds, R. (2022). The Impact of Intermediaries and Social Marketing on Promoting Sustainable Behaviour in Leisure Travellers. *Journal of Cleaner Production*, *338*, 130537.

Yuldasheva, O. U., Solovjova, J. N., Pogrebova, O. A., Khalina, E. V., & Shirshova, O. I. (2017). *Ustojchivyj marketing: Teoriya i praktika ustojchivogo potrebleniya* [Sustainability Marketing: Theory and Practice of Sustainable Consumption]. St. Petersburg State University of Economics.

Helen Chiappini

Chapter 19. Ethical and Sustainable Finance

19.1. COURSE SUMMARY

Table 19–1

Audience and level of studies	Students (Bachelor)	
Group size	26 -50	
Course duration	8 weeks	
Credits	4 ECTS	
Workload	Presence: 48 h Self-study: 54 h	Total: 102 h
Contents/primary topics	• Sustainable finance characteristics • Sustainable finance products and markets • Financial return, risks, and social/environmental impact	
Main course objectives	• Identify and discuss sustainable finance opportunities • Recognise and describe sustainable finance products and markets • Increase awareness on climate and environmental, social, governance (ESG) risks	
Main teaching approaches	• Lecture-based learning • Active learning • Experiential learning	
Main teaching methods	• Lectures • Case studies	
Learning environment	Classroom + online activities (blended learning)	

Link to Sustainable Development Goals (SDGs**)**	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 19–2

Impact assessment	**(None) Low/ Medium/ High**	**Explanation**
1. Degree of student participation / activeness	High	Students conduct their own research and work on group projects.
2. Degree of student collaboration / group work	Medium	Students participate in a working group, presenting the final results at the end of the course.
3. Degree of student emotional involvement	Medium	Students articulate their own emotional stances on a selection of sustainable finance related issues.

4. Degree of inter-/trans-disciplinarity	Medium	Students listen to guest lecturers and reflect on the transferability of applied concepts and methods.
5. Degree of student (self-) reflection	Medium	Students reflect on their own experiences related to sustainable finance in class.
6. Degree of experience of real-life situations	Medium	Students discuss case studies on sustainable finance to identify the possible applications to relevant issues. Students also prepare and discuss project work on specific sustainable finance themes.
7. Degree of nature-related experiences	None	The course does not include any type of nature-based excursions.
8. Degree of stakeholder integration	Medium	Students have the opportunity to join guest lectures by one or more representative(s) of sustainable finance organisations.
9. Degree of integration between theory and practice	High	The course is based on a series of lectures providing a theoretical base and a practicum project that requires direct application of that theory.

19.2. COURSE INTRODUCTION

Financing sustainable growth is a relevant and timely issue. Ethical and sustainable finance – and all the related concepts under this umbrella term (Yen et al., 2019; Chiappini et al., 2021) – has piqued the interest of policymakers, financial market participants, and scholars. Academia specifically plays an important role in fostering the knowledge around this topic to grow the expertise of new generations of (sustainable) financial leaders.

In line with such considerations, the course provides an in-depth background in sustainable finance through a study of the main features and components of the sustainable finance industry, such as the babel of terminology (e.g., ethical, sustainable, responsible, impact, green finance), demand-side and supply-side players, financial products and instruments, regulations, markets, financial and non-financial risks (e.g., climate risk and environmental, social and governance – ESG risk), financial and social returns.

The first part of the course provides an overview of sustainable finance (Topic 1). The babel of terminology around sustainable finance will be identified and described, highlighting the most common characteristics and the risks of green and social washing arising from terminological uncertainty. The second part of the course identifies the demand-side and supply-side players as well as financing and investment needs (Topic 2), distinguishing between the mainstream socially responsible industry and the impact investment industry. The third part will identify the main sustainable financial products and instruments (Topic 3). Particular focus will be placed on microcredit, green, social, and sustainable bonds, responsible and impact investment funds, social, environmental, and development impact bonds. The fourth part analyses the

state of the art for the sustainable finance market, sustainable stock exchanges, and sustainable indices (Topic 4). The fifth part focuses on the regulatory innovations implemented by European countries on sustainable finance (Topic 5), while the sixth part analyses the main risks connected to sustainability issues: the ESG risk and the climate risk (Topic 6). Finally, the last part of the course explores tools and methodologies useful when evaluating an organisation's expected or realised social and environmental impact, comparing them with the mainstream ESG ratings (Topic 7).

19.3. LEARNING OBJECTIVES

Table 19–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Recognize the main figures of sustainable finance (financial products, markets, players, regulations, risks).	Systems thinking competency
	Identify the risk and return of sustainable finance products.	Anticipatory competency
	Recognize the main funding needs of different players and the related financing opportunities provided by sustainable finance products.	Anticipatory competency
Socio-emotional	Critically discuss the current state of the art of sustainable finance industry (demand-side and supply-side players, products, regulations, risks, impact. assessment) and the main issues related to green and social washing.	Critical thinking competency
	Become aware of opportunities and risks offered by sustainable finance.	Critical thinking competency
Behavioural	Apply knowledge of sustainable finance products to practical cases and make choices in the field of sustainable finance considering product risk, return, and expected impact measurement.	Critical thinking competency
	Take a position in the sustainable finance discourse.	Critical thinking competency
	Deal with conflicts in a group and facilitate collaborative and participatory problem-solving.	Collaboration competency

19.4. COURSE OUTLINE

Table 19–4

Structure		Session focus	Homework
Week 1	Session 1 (2h)	Topic 1: introduction to the course, teaching methods and sustainable finance	Watch the video "The investment logic of sustainability" (McKnett 2013)
	Session 2 (2h)	Topic 1: the babel of terminology around ethical and sustainable finance	Read the paper "What's in a name: An analysis of impact investing understandings by academics and practitioners" (Höchstädter & Scheck 2015)
	Session 3 (2h)	Topic 1: characteristics of ethical, sustainable, responsible, impact and green finance	
Week 2	Session 4 (2h)	Topic 2: demand for sustainable finance (responsible vs impact finance)	
	Session 5 (2h)	Topic 2: supply of sustainable finance (responsible vs impact finance)	
	Session 6 (2h)	Topic 3: classification of products and instruments	
Week 3	Session 7 (2h)	Topic 3: microcredit	
	Session 8 (2h)	Topic 3: sustainable, social and green bonds (principles and practices)	Watch the video "Green Bonds" (CNBC 2021)
	Session 9 (2h)	Topic 3: green bonds (calculating risk and returns)	
Week 4	Session 10 (2h)	Topic 3: investment funds (responsible and impact funds)	Watch the video "A provocative way to finance the fight against climate change" (Metcalfe 2015)
	Session 11 (2 h)	Topic 3: case studies	
	Session 12 (2 h)	Topic 3: pay-by-results instruments (social, environmental and development impact bonds)	Watch the video "An introduction to social Impact bonds" (The UK Government 2016)"

Structure		Session focus	Homework
Week 5	Session 13 (2h)	Topic 3: case studies	
	Session 14 (2h)	Project work: forming groups and choosing topics for the final assignment	Work on projects
	Session 15 (2 h)	Topic 4: sustainable market (state of the art)	
Week 6	Session 16 (2 h)	Topic 4: sustainable stock exchanges and indices	
	Session 17 (2 h)	Topic 5: overview of sustainable finance regulation in Europe	
	Session 18 (2h)	Topic 5: transparency and ESG regulation – the view of market authorities (seminar by an industry expert)	
Week 7	Session 19 (2h)	Topic 6: ESG risk	
	Session 20 (2 h)	Topic 6: climate risk	
	Session 21 (2 h)	Topic 7: tools and methods for measuring social and environmental impact	
Week 8	Session 22 (2 h)	Case studies: seminar by an industry expert	
	Session 23 (4 h)	Discussion of project work	

19.5. TEACHING APPROACHES AND METHODS

The course employs a variety of teaching approaches. Traditional lecture-based lessons will introduce the main issues and topics of ethical and sustainable finance and develop a narrative around the field of sustainable finance (French & Kennedy, 2016). Innovative developments in the field and a brief summary of research (Biggs & Tang, 2011) by scholars and prominent third-party organisations (such as Central Banks, Supranational Organisations, Development Agencies, Sustainable finance networks) will be presented by the instructor. The lessons are designed to be interactive (Rahimimand & Abbaspour, 2016), so students are encouraged to become active participants by asking questions or providing comments. Introducing key topics, such as the features of sustainable finance or the main characteristics of typical financial instruments, is particularly useful to clarify the concepts students encounter daily in the media and in investment advertisements and to increase their financial literacy. Reading relevant studies published by prominent institutions provides students with a foundation to better comprehend the dynamics of the sustainable finance industry, the current directions, and future (desirable) actions, such as international ad hoc regulations. Along with the study of sustainable finance topics, contradictions, and attempts to introduce regulatory frameworks, issues such

as the risk of greenwashing will also be discussed. Students will internalise these concepts and issues, building new awareness of the topic and will grow as ethical and sustainable retail investors. Being able to express different points of view is also highly beneficial, as it allows (undergraduate) students to understand something about the ecosystem of (sustainable) investors, including the behavioural characteristics. A classroom of students is definitely a specific ecosystem of (future) investors.

Second, an active learning approach is encouraged (Prince, 2004; MacVaugh & Norton, 2012). The students will be involved in brief practical exercises (some examples are provided in the subchapter "Exercises"). Students will alternate between working collaboratively to draft solutions to the problems presented and sessions of individual work. Specific articles from newspapers and scientific journals are used as prompts for students to read and comment on as well as some sections from reports published by national and international organisations (e.g., Global Sustainable Finance Alliance or Global Impact Investment Network). In addition, the instructor provides short videos and interviews with experts from Youtube or TED Talk, for instance, asking students to comment and discuss reflections. These approaches, along with the traditional lecture-based learning, are used to stimulate interest and help students develop a critical point of view (Allagui, 2021) about sustainable finance.

Third, an experiential learning approach is adopted (Slavich & Zimbardo, 2012) by involving students in project work. When the students show some mastery of the important topics in sustainable finance and especially the characteristics of the main financial products and instruments, the instructor gives them the option of doing a project. In general, about 80 % of the students decide to join one of these projects. The students form groups (maximum five students per group) and choose the theoretical, empirical or practical nature of the project they wish to develop. Theoretical works include a deeper study into a topic only marginally investigated during the lessons (e.g., an in-depth study of sustainable finance regulation in non-European countries). Empirical projects examine a set of case studies on sustainable financial products (e.g., analysis of a set of social impact bonds or a set of products offered by commercial banks or investment banks in a specific geographic area) or analyse the returns and risks of a set of financial products (e.g., risk and return of green bonds). Finally, practical projects require students to identify a social or environmental issue (e.g., the financing of National Parks or the need of financing sustainable costs) and design a public-private intervention that will use one or more sustainable finance products. Students are free to choose the type of project they believe to be the most interesting and in line with their interests, skills, and capabilities. At the end of the course, students present

the project work to the class as a simulation of a managerial presentation. If possible, the instructor invites experts in sustainable finance, asking them to provide non-academic feedback on the content of the presentation and the way the students present and discuss their results. The overall comments and suggestions (from the instructor and practitioner/s) allow students to reflect on the topic and on the way they presented the issues. In addition to the feedback, students receive a maximum of three points for their project, to be added to the final exam evaluation. Project work introduces students to the real work in sustainable finance and more in general, to real-life work. Thus, project work allows students to internalise the concepts, while also providing an important chance to construct a proper idea and to identify sustainable finance work-life aspirations. Although students are generally enthusiastic about working on a specific sustainable finance project, the type of project that they choose frequently indicates what type of sustainable finance scholars they are: curious but sceptic, aspiring sustainable finance practitioners, aspiring investors, and so on.

The primary teaching methods employed are lectures (Bligh, 2000), analysis of national and international case studies (Alt et al., 2020) of ethical and sustainable products, the financial players involved in sustainable finance, the sustainable markets as well as case studies of impact measurement; and seminars by experts aimed at introducing students to real life work. Thus, experts present practical cases and answer students' questions on sustainable finance challenges, operations of specific institutions working in sustainable finance (such as an ethical bank, a sustainable advisor, a sustainable asset manager).

This combination of approaches and methods not only allows students to become aware of what sustainable finance is, but also to become potential sustainable investors and players.

19.6. EXERCISES

During the lessons, students will be asked to complete different types of instructional activities (short questions, practical calculations, financial choices, etc). Students will find the solutions in groups or separately, according to the level of difficulty of each exercise (very short exercises/questions should be solved individually; more complex exercises can be solved working in small groups to stimulate reflection and teamwork).

First Exercise

Given three green bonds (A, B, C), please read the investors' prospectus (including expected environmental impact) and calculate the duration as a proxy of bond risk and the return, identifying the green bond that should generally attract an institutional investor and an impact investor. Please motivate your findings.

Second Exercise

An asset manager is setting the first ESG fund. Which factors should be considered to identify eligible firms?

Third Exercise

Taking into consideration three ESG market indices of your choice (one for Europe, the USA, and Asia), please identify the risk and return profiles over a specific period of your choice, and compare your findings with the traditional benchmarks. Which indices performed better? Are the results consistent over different periods or do they change during the Covid-19 pandemic?

Small case studies will also be used. A case of some green bonds, social bonds, and sustainable bonds, will be presented by the instructor as well as cases of investment funds using the environmental, social, and governance (ESG) screening criteria or the social and environmental purposes. A case of social impact bonds in contrast to layered social impact investment funds, is also generally presented and discussed during the lessons. Such examples of financial structures and social and environmental criteria that may be employed to finance different social and environmental issues are used as a basis for discussions on the potential and constraints of any sustainable finance product and reflections on potential investors and markets. Discussions based on these types of cases will improve critical understanding of the sustainable finance market.

19.7. ASSESSMENT

Course assessment will be an oral exam (the maximum mark is 30 with distinction, equivalent to an A in the ECTS grading system). Students who submit project work may receive a maximum of three points to be added to the oral exam mark. The projects are not mandatory, but they are highly recommended as they support the learning process helping students move from theory to practice and developing soft skills (e.g., group working and presentations).

19.8. PREREQUISITES

Student prior knowledge:

- Basic knowledge of sustainable development
- Basic knowledge of financial markets

Required instructors and their core competencies:

- Lecturer (competencies: finance, sustainable finance, technology)
- Industry expert (competences: real-life sustainable finance expertise)

Required tools:

- Online collaboration platforms (e.g.,Moodle)
- If necessary, online communication tools (e.g., Zoom, Google Meet, Teams)

19.9. RECOMMENDED RESOURCES

Overview of sustainable finance (Topic 1):

- Renneboog, L., Ter Horst, J., & Zhang, C. (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance*, *32*(9), 1723–1742.
- Höchstädter, A. K., & Scheck, B. (2015). What's in a name: An analysis of impact investing understandings by academics and practitioners. *Journal of Business Ethics*, *132*(2), 449–475.
- Migliorelli, M. (2021). What Do We Mean by Sustainable Finance? Assessing Existing Frameworks and Policy Risks. *Sustainability*, *13*(2), 975.
- McKnett (2013, November). The investment logic for sustainability [Video]. TED Conferences. https://www.ted.com/talks/chris_mcknett_the_investment_logic_for_sustainability

Demand and supply of sustainable finance (Topic 2):

- Chiappini, H. (2017). An Introduction to Social Impact Investing. In H. Chiappini (Ed.), *Social Impact Funds* (pp. 7–50). Springer International Publishing.

Financial products and instruments (Topic 3):

- Nicholls, A., & Tomkinson, E. (2015). The Peterborough Pilot Social Impact Bond. In A. Nicholls, R. Paton, & J. Emerson (Eds.), *Social Finance* (pp. 335–380). Oxford University Press.

- Chiappini, H. (Ed.). (2017). *Social Impact Funds*. Springer International Publishing.
- Paranque, B., & Revelli, C. (2019). Ethico-economic analysis of impact finance: The case of Green Bonds. *Research in International Business and Finance*, *47*, 57–66.
- Ruesta, C., & Benaglio, N. (2020). *Microcredit regulation in Europe: an overview*. European Microfinance Network. https://www.european-microfinance.org/sites/default/files/document/file/Microcredit_regulation_in_Europe_An_overview_2020_FINAL.pdf
- CNBC (2021, May). How The $1 Trillion Green Bond Market Works [Video]. YouTube. https://www.youtube.com/watch?v=ruXLhpXvhOE
- The UK Government (2016, October). Social Impact Bonds: An overview [Video]. YouTube. https://www.youtube.com/watch?v=DlXdCV9KyuE

Sustainable financial markets (Topic 4):

- Sustainable Stock Exchange (2020). *Ten Years of Impact and Progress*. https://sseinitiative.org/wp-content/uploads/2019/12/SSE-10-year-impact-report.pdf
- Global Impact Investment Network (2020). *Annual Impact Investors Survey*. https://thegiin.org/assets/GIIN%20Annual%20Impact%20Investor%20Survey%202020.pdf
- Global Sustainable Investment Alliance (2020). *Global Sustainable Investment Review*. http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf
- Metcalfe (2015, November). A provocative way to finance the fight against climate change [Video]. TED Conferences. https://www.ted.com/talks/michael_metcalfe_a_provocative_way_to_finance_the_fight_against_climate_change/transcript

Regulation on sustainable finance (Topic 5):

- Busch, D., Ferrarini, G., & Grünewald, S. (2021). Sustainable Finance in Europe: Setting the Scene. In D. Busch, G. Ferrarini, & S. Grünewald (Eds.), *Sustainable Finance in Europe* (pp. 3–17). Palgrave Macmillan.

ESG and climate risk (Topic 6):

- Caselli, G., & Figueira, C. (2020). The Impact of Climate Risks on the Insurance and Banking Industries. In M. Migliorelli & Ph. Dessertine (Eds.), *Sustainability and Financial Risks* (pp. 31–62). Palgrave Macmillan.
- Migliorelli, M. (2020). The Sustainability–Financial Risk Nexus. In M. Migliorelli & Ph. Dessertine (Eds.), *Sustainability and Financial Risks* (pp. 1–29). Palgrave Macmillan.

Measurement of social and environmental impact (Topic 7):

- Spiess-Knafl, W., & Scheck, B. (2017a). Social Impact Assessment. In W. Spiess-Knafl & B. Scheck (Eds.), *Impact Investing* (pp. 135–152). Palgrave Macmillan, Cham.
- Spiess-Knafl, W., & Scheck, B. (2017b). Assessment Tools and Methodologies. In W. Spiess-Knafl & B. Scheck (Eds.), *Impact Investing* (pp. 135–152). Palgrave Macmillan.

19.10. GENERAL TIPS FOR TEACHERS

Use a cross-sectional approach to the content and issues to highlight the evolving role of sustainable finance and to point out the phenomenon of greenwashing / social washing. Take into consideration that current students will be future financial managers and investors, so it is important to develop a critical overview of sustainable finance.

REFERENCES

Allagui, B. (2021). TED talk comments to enhance critical thinking skills in an undergraduate reading and writing course. *Education and Information Technologies*, *26*(3), 2941–2960.

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.

Biggs, J. B., and Tang, C. (2011). *Teaching for Quality Learning at University*. 4th ed. London: Open University Press.

Bligh, D. (1985). What's the use of lectures? *Journal of Geography in Higher Education*, *9*(1), 105–106

Busch, D., Ferrarini, G., & Grünewald, S. (2021). Sustainable Finance in Europe: Setting the Scene. In D. Busch, G. Ferrarini, & S. Grünewald (Eds.), *Sustainable Finance in Europe* (pp. 3–17). Palgrave Macmillan.

Caselli, G., & Figueira, C. (2020). The Impact of Climate Risks on the Insurance and Banking Industries. In M. Migliorelli & Ph. Dessertine (Eds.), *Sustainability and Financial Risks* (pp. 31–62). Palgrave Macmillan.

Chiappini, H. (2017). An Introduction to Social Impact Investing. In H. Chiappini (Ed.), *Social Impact Funds* (pp. 7–50). Springer International Publishing.

Chiappini, H., Vento, G., & De Palma, L. (2021). The Impact of COVID-19 Lockdowns on Sustainable Indexes. *Sustainability*, *13*(4), 1846.

French, S., & Kennedy, G. (2017). Reassessing the value of university lectures. *Teaching in Higher Education, 22*(6), 639–654.

Global Impact Investment Network (2020). Annual Impact Investors Survey. https://thegiin.org/assets/GIIN%20Annual%20Impact%20Investor%20Survey%202020.pdf

Global Sustainable Investment Alliance (2020). Global Sustainable Investment Review. http://www.gsi-alliance.org/wp-content/uploads/2021/08/GSIR-20201.pdf

Höchstädter, A. K., & Scheck, B. (2015). What's in a name: An analysis of impact investing understandings by academics and practitioners. *Journal of Business Ethics*, *132*(2), 449–475.

Migliorelli, M. (2020). The Sustainability–Financial Risk Nexus. In M. Migliorelli & Ph. Dessertine (Eds.), *Sustainability and Financial Risks* (pp. 1–29). Palgrave Macmillan.

Migliorelli, M. (2021). What Do We Mean by Sustainable Finance? Assessing Existing Frameworks and Policy Risks. *Sustainability*, *13*(2), 975.

Nicholls, A., & Tomkinson, E. (2015). The Peterborough Pilot Social Impact Bond. In A. Nicholls, R. Paton, & J. Emerson (Eds.), *Social Finance* (pp. 335–380). Oxford University Press.Paranque, B., & Revelli, C. (2019). Ethico-economic analysis of impact finance: The case of Green Bonds. *Research in International Business and Finance*, *47*, 57–66.

Rahimimand, M., & Abbaspour, A. (2016). The Relationship between teaching methods (group discussion, questions and answers, scientific demonstration and lectures) with Student achievement motivation. *Educational Psychology*, *12*(39), 1–24.

Renneboog, L., Ter Horst, J., & Zhang, C. (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance*, *32*(9), 1723–1742.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Ruesta, C., & Benaglio, N. (2020). *Microcredit regulation in Europe: an overview*. European Microfinance Network. https://www.european-microfinance.org/sites/default/files/document/file/Microcredit_regulation_in_Europe_An_overview_2020_FINAL.pdf

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

Spiess-Knafl, W., & Scheck, B. (2017a). Social Impact Assessment. In W. Spiess-Knafl & B. Scheck (Eds.), *Impact Investing* (pp. 135–152). Palgrave Macmillan, Cham.

Spiess-Knafl, W., & Scheck, B. (2017b). Assessment Tools and Methodologies. In W. Spiess-Knafl & B. Scheck (Eds.), *Impact Investing* (pp. 135–152). Palgrave Macmillan.

Sustainable Stock Exchange (2020). *Ten Years of Impact and Progress*. https://sseinitiative.org/wp-content/uploads/2019/12/SSE-10-year-impact-report.pdf

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Yen, M. F., Shiu, Y. M., & Wang, C. F. (2019). Socially responsible investment returns and news: Evidence from Asia. *Corporate Social Responsibility and Environmental Management*, *26*(6), 1565–1578.

Olaia Martinez Gonzalez, Jonatan Miranda Gomez, Virginia Navarro Santamaria, Iñaki Etaio Alonso, Igor Hernández Ochoa, Idoia Larretxi Lamelas, Marian Bustamante Gallego, Arrate Lasa Elgezua, Edurne Simón Magro, Diego Rada Fernandez de Jauregi & Itziar Txurruka Ortega

Chapter 20. Implementation of Sustainability and Social Responsibility Competencies in the Degree of Human Nutrition and Dietetics

20.1. COURSE SUMMARY

Table 20–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	16 weeks (for overall subject)	
Credits	9 ECTS (for overall subject)	
Workload	Presence: 6h Self-study: 14h	Total: 20h
Contents/primary topics	• Aspects of sustainability and social responsibility in the nutrition and diet of specific groups (here especially of elderly people)	
Main course objectives	• Optimise resources and management of public canteens for elderly people following criteria of sustainability and social responsibility	
Main teaching approaches	• Collaborative learning • Active learning	
Main teaching methods	• Case study • In-class role play • Group discussion	
Learning environment	Classroom (face-to-face learning)	
Link to Sustainable Development Goals	SDG 2 | Zero Hunger | End hunger, achieve food security and improved SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages	

Table 20–2

Impact assessment:	(None) Low/Medium/High	Explanation
1. Degree of student participation / activeness	High	Students analyse a problem, propose possible solutions, make decisions and design a resolution plan that, in turn, includes a preventive plan.
2. Degree of student collaboration / group work	Medium	Students are working in assigned groups in class.
3. Degree of student emotional involvement	Medium	Students get the opportunity to anticipate results of own actions and empathize with other people.
4. Degree of inter-/ transdisciplinarity	Medium	Throughout the course, students have to propose solutions, make decisions and design a holistic solution under consideration of different positions.
5. Degree of student (self-) reflection	Medium	Students have to reflect about the consequences of the programmed actions.
6. Degree of experience of real-life situations	Medium	Students work on an own project using real data.
7. Degree of nature-related experiences	(None)	
8. Degree of stakeholder integration	Medium	Students conduct an interview with a representative of a stakeholder group.
9. Degree of integration between theory and practice	High	Students use real data provided by stakeholders for direct application of the theory explained in class.

20.2. COURSE INTRODUCTION

This contribution focuses on one part of a subject titled "Nutrition and Diet of Specific Groups", which is taught over a period of four months within the framework of a degree in Human Nutrition and Dietetics. The *degree* equips health professionals with competences for the assessment of the nutritional status, interventions on individual or collective eating behaviour, and the prevention and treatment of diseases. The degree includes 240 ECTS that are taken over four years. Dietetics and nutrition graduates and dietitian-nutrition professionals are key to promoting sustainable eating patterns and consumption of foods produced in a more environmentally friendly way. Moreover, their work can be devoted to solve malnutrition rates and reduce the healthcare costs that it carries. Therefore, sustainable development and social responsibility are transversal competencies that these graduates should develop to integrate them into their professional work. The *subject "Nutrition and Diet of Specific Groups"* consists overall of nine credits. It addresses the nutrition and diet of

three groups: children, athletes and elderly people. The activities described in this chapter are developed for the *part of elderly people*. Within this part, the physiological process of aging is studied. It is analysed in depth what nutritional requirements and recommendations exist for elderly people. Additionally, guidelines for designing a balanced diet are discussed and a focus is put on strategies to adapt those to the conditions of the group of elderly people. It must be taken into account that in master classes students first receive a brief description of the sociology of elderly people.

This chapter presents an example of the way that sustainability and social responsibility can be integrated in the mentioned subject. According to the bibliography (Anderson, 2015; Vega-Marcote et al., 2015; Wiek et al., 2011), sustainability and social responsibility competencies have been first divided into three sub-competencies in order to facilitate tackling them:

- Holistic approach to the problem (C1): This sub-competency describes the ability to study complex systems from different spheres (society, environment, economy, health, etc.) and at different levels (from local to general).
- Predictive or anticipatory capacity (C2): This sub-competency is defined as the ability to propose, analyse and evaluate, as a team, various possible future scenarios related to sustainability. It implies training to anticipate the future evolution of current problems, contexts or measures.
- Strategic competency (C3): This sub-competency describes the ability to design and/or implement transformative strategic interventions or actions related to sustainability, finding solutions to real problems.

Based on this, the lecturers involved in this subject design activities that allow students to achieve these sub-competencies gradually throughout the course. Those comprise active methodologies such as working on a case study and engaging in a role play. Through these activities, students receive information and reflect on sustainability and social responsibility in an active, collaborative and continuous way, during the whole course. Moreover, the activities enable students to integrate the skills into their usual behaviour.

Evaluation rubrics (adapted to each level of learning) are designed to verify the development and acquisition of the three described sub-competencies.

20.3. LEARNING OBJECTIVES

Table 20–3

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework described in subchapter "Course Introduction"**
Cognitive	Ability to define indicators from the evolution of a problem to provide proposals related to health and nutrition Additionally respective the problem analysis: to identify, analyse and integrate diverse environmental dimensions (social, cultural, demographic, economic, political, physical, biological, media, attitude models ...)	Holistic approach (C1)
	Ability to anticipate the future situation of affected people in case of not acting	Anticipation competency (C2)
Socio-emotional	Ability to design and evaluate transversal plans or proposals to solve problems related to sustainability. Note: Respective the design, students' approach to social responsibility is assessed, taking aspects such as solidarity, education, multidisciplinarity and commitment into account.	Strategic competency (C3)
Behavioural	Ability to play the role of people involved in a problem: politicians, administrative workers, nutritionists, chefs from public canteens, social workers, psychologists, etc.	Holistic approach (C1)
	Ability to interview the main stakeholders implied in a problem	Holistic approach (C1)
	Ability to design and evaluate transversal plans or proposals to solve problems related to sustainability	Strategic competency (C3)

20.4. COURSE OUTLINE

Table 20–4

Structure		**Session focus**	**Homework**
Subject "Nutrition and Diet of Specific Groups", Part on elderly people	Session 1 (1h)	Spontaneous reflection about the implementation of collective canteens to improve autonomy, food security and nutritional status of the elderly	Classification of problems and proposal of possible solutions
	Session 2 (2h)	Interview with a technical manager of collective canteens of the city to collect real data; Analysis of proposals in other countries	Design of a strategy to tackle the problem (group work)

Structure		Session focus	Homework
Subject "Nutrition and Diet of Specific Groups", Part on elderly people	Session 3 (1h)	Role-play session	Collection of different perspectives and the severity of the problem
	Session 4 (1h)	Realistic and achievable planning under consideration of different agents, perspectives, solutions and costs of the problem	Report including the strategy to solve the problem and anticipation of its consequences
	Session 5 (1h)	Discussion about the designed strategies	Individual argumentation

20.5. TEACHING APPROACHES AND METHODS

Active and collaborative methodologies are used for the development of this project. These methodologies have been studied in depth in recent years due to the obtained positive results at any educational level (Aranzabal, 2014; Freeman et al., 2014; Prince, 2004). According to literature (Freeman et al., 2014; O'Byrne et al., 2015; Vega-Marcote et al., 2015), it is preferable to work on sustainability by strengthening relationships and reflections with other people, for which active teaching methodologies are most appropriate.

Regarding the three sub-competencies of the complex cross-curricular skill of sustainability and social responsibility, for the development of a holistic vision, it is necessary to combine social and environmental aspects (O'Byrne et al., 2015; Watson et al., 2013). In order to make students understand and integrate such a vision, problem-solving skills must be developed, scientific and social knowledge deepened, and an awareness and sensitiveness about the relationship between human beings and the environment created (Mitchell & Walinga, 2017). Traditional lectures do not enable the development of sustainability in detail. Based on constructivist theory (Ertmer & Newby, 2013), active methodologies are a more suitable tool for students to acquire complex skills. Cooperative work, active participation, reflection, debate and a critical attitude are a fundamental part of sustainability that can be fostered through active methodologies. In these cases, the development of knowledge depends on the participation and reflection of the student (Collins & O'Brien, 2003). Of course, the implementation of such methodologies requires dedication and specific training from teachers (Ashmann and Franzen, 2017; Etaio et al., 2018; Frame et al., 2015; Vega-Marcote et al., 2015).

Active methodologies identify students as true protagonists of their learning, which must be situational, through authentic tasks, that is, related to their professional future. Methodologies such as working on a case study or conducting an in-class role play reinforce this objective. Moreover, cooperative learn-

ing is supported as well through the dynamic of peer-teaching, that encourages positive interdependence among students, and other tasks or exercises, which place students in different perspectives of the same problem and force them to reach consensus.

As mentioned above, in the present subject "Nutrition and Diet of specific groups" (especially the part for elderly people described here) the case method is used in order to facilitate the development of the complex cross-curricular skills of sustainability and social responsibility. A real case is exposed to students with real data about the lack of accessibility to foods among elderly people, which leads to malnutrition problems. This methodology is carried out along the whole course, combined with group discussions and role-playing activities in order to make students deepen in the case, preview its evolution and find the most sustainable solution.

20.6. EXERCISES

The exercise described below (in the form presented to students) covers the whole part focused on throughout this contribution.

Case-exercise: "Public canteens now!"

You are a worker from the administration with responsibility that receives information about the following real problem:

> *The number of elderly people is increasing in our society as life expectancy increases. However, measurements to ensure their quality of life are not increasing at the same rate. The administration has to meet this challenge. Nursing homes cannot care for more people because they are overcrowded and, moreover, financially inaccessible for some people. As a result, many people are left without a place to go. Who can take care of them? On the other hand, some of these people could live on their own, being able to maintain their "autonomy" with a little help. Furthermore, some cases of food poisoning have occurred due to improper food handling at home. An increasing number of people with malnutrition, such as sarcopenia, are in the hospitals. Even more serious is that some people are dying alone at home, without anyone noticing their absence. As a result, elderly people are taking to the streets to denounce this situation. Society is demanding solutions, starting with the demand for public canteens for them. Their slogan is "Public canteens now!"*

You need to analyse the situation from different perspectives, design a resolution proposal to face the problem and consider its possible consequences. For this purpose, the following key questions are provided and discussed in the first session:

- Who can take charge of the problem?
- The problem can be analysed from many different aspects: could you define them? Categorize these aspects, study how affects each one to the problem and propose possible solutions.
- How do you think this problem will evolve?
- Prepare a feasible and realistic four-year strategic plan. Consider the most important aspects that affect to the problem and give solutions.

After, in the second session, you will have to work on an in-depth analysis of the problem, taking into account the problem from different perspectives and based on the real indicators provided: malnutrition range among elderly, demographic details, the available canteens, catering services for elderly people living alone, dysphagia ranges, nutritional campaigns carried out in order to improve the nutritional status of elderly people, etc. This holistic analysis must also contain a forecast of the future situation in case of failure to act.

In the third session, we will carry out a role-playing activity. You will be divided into different groups and each one will have to represent a different person involved in the problem, such as different administrative workers (politicians from different departments), nutritionists, chefs from public canteens, social workers, psychologists, etc. The purpose of this activity is to find the most important roles involved in the problem in order to clarify how the solution needs to be designed.

In the fourth session, you will work on a second deliverable that contains a strategy to solve the problem. For that purpose, you need to contemplate in your proposal the information analysed in the first deliverable. You will have to describe aspects such as: which elderly (all or specific groups) are you going to cover with your solution, how many people will you contract, how many menus can you afford, which funds are you going to use for the projects, etc. Finally, you should consider also the foreseeing of your plan, the consequences that it will have in the future.

Finally, we will carry out a fifth session with a final discussion about the problem and the designed strategies.

20.7. ASSESSMENT

Bearing in mind that this is a fourth-year subject and that aspects of sustainability have been worked on in previous years, it is expected that this activity will help students achieve a high degree of deepening in each of the three sub-competencies. Learning outcomes are measured by three assessment rubrics: the first one for the holistic approach competency (C1), the second one for the

anticipatory competency (C2) and the third one for the strategic competency (C3) (see Table 20–5).

In the assessment rubric for the *Holistic approach competency (C1)*, the learning outcomes consist of identifying or interpreting dimensions, analysing and integrating them. The assessment rubric for the *Anticipatory competency (C2)* is considered at a medium level of abstraction. The students have to foresee and analyse the evolution of the problem, integrating this evolution into the solution. The *Strategic competency (C3)* is the one with the highest level of abstraction. The assessment rubric contemplates the analysis of the plans that tackled specific sustainability problems as well as their design and evaluation. In the matrix, the scale has been divided into four levels (0, 1, 2 and 3) that allow establishing the degree of acquisition of each skill. This activity represents 10 % of the overall final grade for the "Nutrition and Diet of Specific Group" subject. The other 90 % are comprised of a written assignment from classroom practices and the final exam.

Table 20–5

Learning outcomes	**Evaluation criteria and grading**			
	0	1	2	3
C1 Holistic approach competency				
To integrate dimensions.	They have not integrated or all that they have integrated are wrong.	They have integrated half or some of the dimensions but not correctly or less than half correctly.	They have integrated all of the dimensions but not all are correctly or they have integrated most of them and correctly.	They have integrated all correctly.
C2 Anticipatory competency				
To predict the evolution of the problem development	No, they do not predict the evolution of the problem.		Yes, they have raised any (one or more) aspect(s) concerning the evolution and/or future aspects of the proposed problem.	
To predict, argue and evaluate the evolution of the problem.	They only consider a current perspective of the proposed problem.	They have set out an aspect concerning the evolution of the proposed problem in the future and they argue it.	They have set out an aspect concerning the evolution of the proposed problem in the future and they argue it taking into account one dimension of sustainability.	They have set out an aspect concerning the evolution of the proposed problem in the future and they argue it taking into account different dimensions of sustainability (2 or more).

Learning outcomes	**Evaluation criteria and grading**			
	0	1	2	3
To predict, argue and evaluate the possible consequences of an intervention.	They do not consider the possible consequences of the proposed intervention.	They have set up an aspect concerning the possible consequences of the proposed intervention and they argue it.	They have set up an aspect concerning the possible consequences of the proposed intervention. They argue it taking into account a dimension of sustainability.	They have set up an aspect concerning the possible consequences of the proposed intervention. They argue it taking into account different dimensions of sustainability (2 or more).
C3 Strategic competency				
To find and debate contextualized action plans for solving problems related to sustainability.	They have designed an action plan but it is not related to any of the dimensions proposed in C1.	They have designed an action plan that considers some of the dimensions analysed in C1.	They have designed an action plan that considers most of the dimensions analysed in C1.	They have designed an action plan that both considers most of the dimensions analysed in C1 and is in accordance with the anticipatory view of the situation (C2).
	They have not considered formative plans, multidisciplinarity, and promotion of behavioural changes (and solidarity).	They have considered one of the following aspects: formative plans, multidisciplinarity, promotion of behavioural changes (and solidarity).	They have considered two of the following aspects: formative plans, multidisciplinarity, promotion of behavioural changes (and solidarity).	They have considered more than two of the following aspects: formative plans, multidisciplinarity, promotion of behavioural changes (and solidarity).

20.8. PREREQUISITES

- Prerequisites for students: Students should have passed previous subjects from the Human Nutrition and Dietetics degree, such as, "Food Chemistry and Biochemistry", "Human Nutrition" or "General and Applied Dietetics" where theoretical contents for understanding the subject "Nutrition and Dietetics in Specific Groups" are laid and problems related to sustainability are proposed to students, which they have to solve.
- Prerequisites for instructors: Any teacher who is an expert in the subject (graduate or PhD in Health Sciences) and aware of sustainability and social responsibility related problems can carry out the present course.
- Required tools: the proposed bibliography and the methodological guide written by the ZEHARGAITUZ research team and published by the Univer-

sity of the Basque Country (see here https://addi.ehu.es/handle/10810/53790) can result very helpful.

20.9. RECOMMENDED RESOURCES

Lozano, R., Ceulemans, K., & Scarff Seatter, C. (2015). Teaching organisational change management for sustainability: designing and delivering a course at the University of Leeds to better prepare future sustainability change agents. *Journal of Cleaner Production, 106*, 205–215

Mitchell, I. K., & Walinga, J. (2017). The creative imperative: the role of creativity, creative problem solving and insight as key drivers for sustainability. *Journal of Cleaner Production, 140*, 1872–1884.

Navarro, V., Martínez, O., Miranda, J., Rada, D., Bustamante, M. A., Etaio, I., Lasa, A., Simón, E., & Churruca, I. (2020). Including aspects of sustainability in the degree in Human Nutrition and Dietetics: An evaluation based on student perceptions. *Journal of Cleaner Production, 243*, 118545.

O'Byrne, D., Dripps, W., & Nicholas, K. A. (2015). Teaching and learning sustainability: an assessment of the curriculum content and structure of sustainability degree programs in higher education. *Sustainability Science. 10* (1), 43–59.

Perez Salgado, F., Abbott, D., & Wilson, G. (2018). Dimensions of professional competences for interventions towards sustainability. *Sustainability Science, 13* (1), 163–177.

Rose, G., Ryan, K., & Desha, C. (2015). Implementing a holistic process for embedding sustainability: a case study in first year engineering, Monash University, Australia. *Journal of Cleaner Production. 106*, 229–238.

Stough, T., Ceulemans, K., Lambrechts, W., & Cappuyns, V. (2018). Assessing sustainability in higher education curricula: a critical reflection on validity issues. *Journal of Cleaner Production, 172*, 4456–4466.

20.10. GENERAL TIPS FOR TEACHERS

- Sustainability should be developed gradually throughout the academic courses of an university degree.
- Teachers and teaching teams who wish to work on sustainability in their subject or degrees must first consider the three competencies: the holistic perspective, the anticipation competency and the strategic competency.
- Working on sustainability through active and cooperative methodologies and in dynamic groups increases students´ conscience and involvement about sustainable development.
- The sustainability teaching proposals must be adapted to the students' profile, in terms of their age and their future professional practice.

REFERENCES

Aranzabal, A. (2014). Enfoque "Aprendizaje Basado en Proyectos" para enseñar sistemas de potencia de gas y vapor. *@tic. revista d'innovació educativa, 13*, 138–148.

Ashmann, S., & Franzen, R. L. (2017). In what ways are teacher candidates being prepared to teach about the environment? A case study from Wisconsin. *Environmental Education Research, 23*(3), 299–323.

Collins, J. W., & O`Brien, N. P. (2003). *The Greenwood Dictionary of Education*. Greenwood Press.

Ertmer, P. A., & Newby, T. J. (2013). Behaviorism, cognitivism, constructivism: comparing critical features from an instructional design perspective. *Performance Improvement Quarterly, 26*(2), 43–71.

Etaio, I., Churruca, I., Rada, D., Miranda, J., Saracibar, A., Sarrionandia, F., Lasa, A., Simón, E., Labayen, I., & Martinez, O. (2018). Cross-curricular skills development in final-year dissertation by active and collaborative methodologies. *Interactive Learning Environments, 26*(2), 175–188.

Frame, T. R., Cailor, S. M., Gryka, R. J., Chen, A. M., Kiersma, M. E., & Sheppard, L. (2015). Student perceptions of team-based learning vs traditional lecture-based learning. *American Journal of Pharmaceutical Education, 79*(4), 51–51.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America, 111*(23), 8410–8415.

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

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Vega-Marcote, P., Varela-Losada, M., & Álvarez-Suárez, P. (2015). Evaluation of an educational model based on the development of sustainable competencies in basic teacher training in Spain. *Sustainability, 7*(3), 2603–2622.

Watson, M. K., Lozano, R., Noyes, C., & Rodgers, M. (2013). Assessing curricula contribution to sustainability more holistically: Experiences from the integration of curricula assessment and students' perceptions at the Georgia Institute of Technology. *Journal of Cleaner Production, 61*, 106–116.

Wiek, A., Withycombe, L., Redman, C., & Mills, S. B. (2011). Moving forward on competence in sustainability research and problem solving. *Environment: Science and Policy for Sustainable Development, 53*(2), 3–13.

Rana Parween & Mark Hoyle

Chapter 21. Applied Sustainable Practices

21.1. COURSE SUMMARY

Table 21–1

Audience and level of studies	Students (Bachelor) Professionals (practitioners)	
Group size	51–75	
Course duration	12 weeks	
Credits	10 ECTS	
Workload	Presence: 36h Self-study: 64h	Total: 100h
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	
Main course objectives	• Critically analyse and discuss environmental movements and controversies leading to the development of SDGs • Acquire knowledge of environmental management and sustainable principles to critically appraise a business or enterprise • Adopt the ability to assess and produce a plan for the development of subject specific businesses and make suitable recommendations for their sustainable development (including the three realms – social, economic and environmental).	
Main teaching approaches	• Lecture-based learning • Experiential learning • Active learning	
Main teaching methods	• Lecture • Group discussion • Sustainability-related research	
Learning environment	Hybrid classroom (face-to-face and online learning)	

Link to Sustainable Development Goals (SDGs)	SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Table 21–2

Impact assessment	**(None) Low/ Medium/ High**	**Explanation**
1. Degree of student participation / activeness	High	Students engage in activities based in class and around the lecture content. Students also are expected to actively research a company of their choice, making recommendations for its transition to a more sustainable company.
2. Degree of student collaboration / group work	Medium	There are group discussions in class, where students are expected to participate. There are also opportunities for students to participate in online forums via the Virtual Learning Environment (VLE).
3. Degree of student emotional involvement	High	Generally, after the first few lectures, underlining the rationale for the sustainability agenda, students understand the need for sustainability and become impassioned about making recommendations for change. The viva voce offers a chance for students to show their passion and discuss their emotional involvement in their projects.
4. Degree of inter-/trans-disciplinarity	High	Through this module students are expected to consider other modules that they are concurrently studying (i.e., business) and other disciplines that they may not be studying. This transdisciplinary approach helps students understand the three pillars of sustainability rather than seeing sustainability as a standalone agenda. The students are also mixed groups as this is a cross-college module, so students have the opportunity for peer-peer learning.
5. Degree of student (self-) reflection	High	Students are expected to write a reflective journal about their sustainability experience. There are opportunities for reflective discussion in class on theoretic and case study materials.
6. Degree of experience of real-life situations	High	Whilst on the field trip, discussion will be made on real life technology, along with the effectiveness of policies and legislations surrounding sustainability. The students also spend a significant amount of the module time researching and investigating a chosen real-life business situation.

Impact assessment	(None) Low/ Medium/ High	Explanation
7. Degree of nature-related experiences	Medium	Students have first-hand opportunities to interact with nature on the field trip(s) students also consider nature and industry's impact through their investigations into their chosen business which could be a nature reserve or a national park
8. Degree of stakeholder integration	Medium	Students learn about Mendelow's (1981) stakeholder analysis, considering a range of stakeholders such as farmers, indigenous community members etc. and their wants and needs for the chosen business. Students also interact with key industry representatives through the field trips. The mixture of involvement with the aforementioned stakeholders and students on the programme allows for an element of stakeholder integration within class
9. Degree of integration between theory and practice	High	a module consisting of lecture series providing theory and a practical project that requires direct application of that theory to the students own work. This challenges the student "head on" to think about theory and see how it is embedded into practice within their chosen business.

21.2. COURSE INTRODUCTION

There is an increasing need for all industries to conduct their business in a sustainable way. Students, as the future work force, will need to equip themselves with the relevant knowledge and analytical tools to be able to assess sustainable options and critically evaluate their future impacts. This module is designed to equip students with the knowledge and understanding to promote sustainability within their chosen lines of study/ careers. It should allow students to explore, analyse, and critically evaluate the opportunities for developing sustainable practice within their own sector, reflecting on the United Nation SDG 2030 and 2050 Targets. Students will have the opportunity to investigate a business or enterprise within their discipline area and propose a sustainability strategy based on a sound in-depth review of present sustainability ideas including available technology, economic viability and scientific robustness. The strategies developed should be environmentally sound, economically viable, and meeting the societal needs. Students will have the opportunity to develop a holistic view of contemporary sustainability practice including issues relating to the ethics, politics and economics of sustainable practice, whilst exploring available technologies and scientific developments available within societies. Where possible, reference to Aichi Target 18 will be made. "By 2020, the traditional knowledge, innovations and practices of indigenous and local communities relevant for the conservation and sustainable use of biodiversity, and

their customary use of biological resources, are respected, subject to national legislation and relevant international obligations, and fully integrated and reflected" (CBD, n.d.). Thus, lessons from the past will be reflected upon, investigated, refined, and appraised against their current scope of use (CBD, 2021; Chan *et al.* 2020). This course will comprise of a mix of face to face lectures, independent tasks, field visit and will be assessed through written as well as oral assessment. Details can be seen in the "Teaching Approaches and Methods" subchapter.

21.3. LEARNING OBJECTIVES

Table 21–3

Learning objective dimension (UNESCO, 2017)	**Operationalization**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Critically discuss the history, policies, legislation, and culture relating to sustainability.	Critical thinking competency
	Critically analyse and discuss environmental movements and controversies.	Critical thinking competency
	Critically evaluate processes that make sustainable societies through advances in public awareness, technology, policy, and economics.	Critical thinking competency
Socio-emotional	Appraise a range of sustainability frameworks to solve complex environmental, social, and economic problems as they impact the management of a chosen business or enterprise.	Integrated problem-solving competency
	Assess and produce a plan for the development of an organisation's human resource, financial and environmental requirements.	Strategic competency
	Discuss theory in groups and share the findings of investigations with the wider group. This exposes the whole group to the findings of each individual, rather than each individual solely understanding the role of only their chosen company.	Collaboration competency; Self-awareness competency
Behavioural	Apply acquired knowledge of environmental management and sustainable principles to critically appraise a business or enterprise.	Systems thinking competency
	Draw sound conclusions to make suitable strategic recommendations on sustainable development for a chosen business.	Strategic competency
	Defend the analysis, conclusions and recommendations of their research/topic review by viva-voce.	Critical thinking competency

21.4. COURSE OUTLINE

Table 21–4

Structure		Session focus	Homework
Week 1	Session 1 Lecture (2 hours) Short film on Rachel Carson and the role of her book 'Silent Spring" (1962) in the development of sustainability agenda; Discussion on historical milestones: Stockholm conference, Brundtland commission and Brundtland report (1989), Rio Summit etc. Independent learning (1 hours): Explore the major milestones that lead to the development of SDGs	Introduction to the course. Basic principles, philosophical views and history surrounding sustainability	Get acquainted with the course, teaching methods and assessments
Week 2	Session 2 Lecture (1 hour): culture surrounding sustainability Group work (2 hours): case studies from global communities Discussion and sharing of information on sustainable communities	Culture surrounding sustainability	Start writing the proposal (assessment 1)
Week 3	Session 3 Lecture (1 hour) on historical and current legislations pertinent to sustainability. The groups will be allocated into "for" and "against" groups. In class debate (2 hours) on the effectiveness of policies and legislation surrounding sustainability	Policies and legislations surrounding sustainability	Work on the proposal
Week 4	Session 4 Lecture (3 hours):ISO140001 explained. The need for ISO, its development, advantages and drawbacks.	ISO140001 and its implications for sustainable practice	Submit proposal for formative feedback
Week 5	Session 5 Lecture (1 hours): Sustainability Frameworks- an introduction Small group learning (2 hours) Students to explorer most relevant frameworks applicable/ useful for their chosen business	Sustainability frameworks and sustainable development for organisations to move towards more sustainable future	Finalise the chosen organisation for the main report (assessment 2)
Week 6	Session 6 Lecture (1 hours): Sustainable development in practice and its awareness Group work (2 hours) Explore how businesses communicate sustainable development and promote public awareness	Sustainable development in practice. Communicating sustainable development within business.	Literature search for the report

Week 7	Session 7 Trips to a selected organisation to understand sustainable practices (organisations used previously include e.g., Europe's largest coal fired power station (Drax Power), supermarkets, zoos, and local factories), in addition to a trip to the York Wildlife area	Investigative company visit to gain first-hand experience and speak with industry related persons. Outdoor, nature-related experience and talk.	Continue working on the report
Week 8	Session 8 Assignment workshop on Report Writing (3 hours)	Formative feedback to student reports	Bring the draft to class for formative feedback
Week 9	Session 9 Lecture (1 hour): Environmental Impact assessment Workshop (2 hours) on EIA documentation	Evaluation and Environmental Impact Assessment (EIA) documentation	Make changes as per the formative feedback
Week 10	Session 10 Lecture (1hour): International Institute for Sustainable Development (IISD) and Building Research Establishment Environmental Assessment Method (BREEAM) Independent work (2 hours): Explore alternative and environment friendly energy sources (solar, hydro, thermal etc.)	Environmental management systems – Attitudes to sustainable practice within the business sector.	Finalise the report
Week 11	Session 11 Lecture (2 hours): Science and engineering-driven solutions for sustainability problems versus area specific traditional practices for sustainability Active learning/ group work (1 hour) to explore non-contemporary sustainability options	BREEAM and other sustainability options	Submit the report and prepare for an oral defense of your design through a viva voce
Week 12	Session 12 Viva voce (oral defense of their report, each student has a 30-min slot allocated)	Students' defense of analysis, conclusions and recommendations of their research/topic review.	

21.5. TEACHING APPROACHES AND METHODS

This course uses a student centric, discovery approach, as we believe that this fosters critical thinking, helping students with the primary objective of this module. Early in the module, students will choose a business that they have an interest in, this may be a family farm, or a business that they currently have part time work in or a business they have an interest in. The students will be supported in their enquiries into their chosen business through talks with the conservationists. These lectures, generally toward the earlier part of the module, tend to take a more lecturer centric approach (Leary, 2012), with stu-

dents being offered opportunities to contextualise the learning to their subject area and their chosen companies. This mixed session allows for peer-to-peer learning.

Lectures provide an opportunity to transmit bulk content to a large group, assisting in the delivery of outcome two, acquire knowledge of environmental management and sustainable principles. Following the lecture approach to teaching, some of the sessions are based around the teaching methods such as group discussions on the topic/ case studies facilitated by the teacher (Bligh, 1985). Group discussion is an effective way to solve group decision problems, which allows exchanging information and ideas and integrates individual's experience into group intelligence (Yang *et al.*, 2011). Additionally, students will also be involved in class debates viewing aspects from different perspectives and for varying reasons.

Lectures are created and delivered with well designed, achievable, as well as challenging session aims and objectives. These objectives are checked at the end of each session, either through oral question and answers or through short written responses. The 'in class exercises' such as short case studies will require active learning. Students' answers are then tested through further questioning to create assessments for learning opportunities. In these early lectures, key, generic, sustainability principles are transmitted to the student.

As part of investigating a chosen business, students develop their research, critical thinking and investigative skills. Through the report, students will also pursue self-directed learning, where they will take the initiative, with or without the help of the lecturer, in diagnosing their learning needs, and choosing and implementing appropriate learning strategies, and evaluating learning outcomes (Knowles (1975, p. 18) cited based on O´Shea (2003)).

In order to make a connection between the three realms of sustainability (social, economic and environmental), and to address sustainability frameworks, students will experience inter/transdisciplinary learning. Through the inter /transdisciplinary learning, students will study a topic in-depth, by drawing on knowledge from several disciplines at the same time (Greig and Priddle, 2019, p. 3), hence there will be evidence of transfer of knowledge form disciplines such as sociology, history, physics, biology, chemistry, engineering, business etc. Additionally, students will analyse, synthesise and formulate their understanding into a coherent project write up that will include lessons learnt that are beyond the culture of any single discipline. The interdisciplinary approach gives students the ability to assess and produce a business plan, which is the third outcome of the module. Encouraging the students to make links to other subject areas develops their understanding of the three realms of sustainability (part of learning outcome three) rather than them seeing sustainability as a free standing, separate discipline.

By watching videos/ TED talks, and reflecting on the global case studies, students will have a broader, and both contemporary as well as old-fashioned insight of sustainability related issues from various perspectives and countries.

Students continue working on the individual projects incorporating the lessons learnt in class, on the visit, from the guest lecture talks and through the case studies and videos. The student's project is to choose a business which they have a personal interest in and produce a plan for the development of these specific businesses (e.g., a zoo, wildlife park, a pet shop, equine business, farm, veterinary practice, a nature reserve or a national park etc.). Then, they analyse their current sustainable practices and then based on the lessons learnt in class, as well as the field trip report, make recommendations for further enhancing the business's sustainability agenda/ vision.

21.6. EXERCISES

TED Talks Meet Sustainable Development

Students are asked to watch a TED talk of their choice on a relevant topic on sustainability such as alternative sources of energy, building designs and architecture, new technology such as bioremediation, bioaugmentation etc. Students should then share the information in class. The shared information should give a background to the issue being addressed and present a solution to the issue. Where possible, the solution should be evaluated against the 17 SDGs of the United Nations (2015).

Calculate Your Carbon Footprint!

As a self-analytical/ exploratory fun exercise, students can find an online carbon footprint calculator and evaluate their own personal choices and impact on the environment. In recent years several online "carbon calculators" have been developed to facilitate awareness and effects of personal choices. There are many different options that break down a person's impact into household, transportation and food categories, which are then usually illustrated in a comparitive analysis.

Investigating Ways of Living in Local Communities

Students will go through the case studies from global historical communities and their lifestyle. These case studies will be made available on the Virtual Learning Environment. Sustainability is the long-term viability of a community, set of social institutions, or societal practices. It is considered as a form of

intergenerational ethics in which the environmental and economic actions taken by the present generation does not diminish the opportunities for future generations to enjoy similar levels of wealth, utility, environment, nature or welfare. Students should investigate the ways of living followed by these societies, and then prepare their own notes regarding sustainable lifestyles from these case studies. Students will share the information gathered with their peers, in the form of class discussion/ blog or oral presentation.

Exploring Viewpoints on Sustainability Practices

In class discussions are vital in this module, with this particular subject matter as these opportunities afford students the ability to observe from multiple viewpoints. In the classes there are usually a variety of viewpoints on what sustainability is, what good and bad practice are and where companies' responsibilities end. In a monoculture situation, where all opinions are the same in the class, various stakeholder wants and needs prompt cards could be used to enliven debate and prompt students to consider various alternative viewpoints. It is noted that in these classes these cards have never been used as within the groups there has been sufficient variety of opinion and ability to observe, consider and understand the opinions of others outside the formal group.

Planning Sustainability Field Trips

Industry specific trips form part of the formal organised activities for this module. The college is well placed in a semi-rural area of Northern England, to be able to access both land based and heavy commercial industry. Trips for this module are usually tied in with other business module learning to maximise the value of the trip. Recent trips have included a tour of Drax power station and an assessment of their conversion from coal to biomass burning and a trip to a former clay extraction area, landfill site and brick works which is slowly being converted back to a nature area. These trips allow the students face to face visual learning, contextualising the theory into actual practice in their local area. The trips are usually accompanied by college staff and an employee of the visit location; this enables students to ask some (often challenging) questions around sustainable practices.

Being a Sustainability Scholar

Students are asked to read an article from either the journal named 'Sustainability' or 'Journal for Education for Sustainable Development', with a view to write an article for the journal based on their own research finding. Students can then produce a poster and present their finding in a conference-like setup.

Students should be mindful to incorporate the three realms of sustainability and where appropriate link it to the SDG targets.

Highlighting Corporate Sustainability Examples

Students are asked to individually investigate companies that they are interested in – this is the preliminary task to the overall assessment. Investigation could be through reviewing the company's social media, insider knowledge, publicity campaigns, reviews of the company, financial information provided by the company to UK Companies House or any other accessible materials on the company. This element develops the student as an independent learner and peaks the students' interest in the particular company. Regular peer to peer learning opportunities can informally take place here as students compare their chosen companies with each other to assess who "has the best company" and which company is portrayed as the "worst performer". This exercise feeds directly into the summative assessment.

21.7. ASSESSMENT

Initial Proposal

Students are required to produce a proposal (500 words) and a bibliography. They will be expected to choose a business, critically appraise the business, and briefly apply the acquired knowledge of environmental management and sustainable principles. The initial proposal covers course objectives one and two. Formative feedback will be given based on the proposal.

Main Report

Students will produce a research report (4000 words) on the chosen business within their discipline area. Students should outline the nature of a business enterprise in a clear and succinct format. Students will be required to carry out a literature review on the current state of understanding relating to sustainable practice and technology relevant to their business. They are advised to collect a range of data that will allow them to demonstrate the viability of introducing sustainable practice and / or technology. The data should contain costing, information on present energy needs and future energy demands, and the need for sustainable practice etc. The main report covers course objectives one, two and three. The main report covers 80 % of the overall mark.

Viva Voce Examination

Viva voce examination will be conducted around four key questions; these questions will be around the chosen business and the written report. This will enable the students to articulate their understanding and undertake a free discussion on their professional thoughts and opinions on sustainability within their chosen area of interest, an oral defense of your designs for the chosen business. Duration of the examination is approximately 10 minutes. The examination covers 20 % of the overall mark.

21.8. PREREQUISITES

Required prior knowledge from students:

- None

Required instructors and their core competencies:

- Lecturer (competencies: technology, sustainability, innovation management, systems and design competency)
- Industry expert (competences: real-life business expertise)

Required tools:

- Online collaboration platforms (e.g., Zoom, Google docs, Moodle)
- Additionally, for effectively re-enforcing leaning, field trips can be used as a useful activity/ tool. Planning for one trip to the most appropriate organization/ business such as (a power station, zoo, hospital, a supermarket, market stalls, museum etc.) can aid students learning processes.

21.9. RECOMMENDED RESOURCES

Topic 1 (Introductory resources):

- Elliott, J. (2012). *An Introduction to Sustainable Development*. Routledge.
- Adams, B. (2019). *Green Development: Environment and Sustainability in a Developing World*. Routledge.
- American Experience: PBS (2017, January). *Chapter 1: Rachel Carson [Video]*. YouTube https://www.youtube.com/watch?v=SeJNRaE11A0.

Topic 2 (Sustainability and Culture):

- Benson J.F. & Roe M. (2006). *Landscape and Sustainability*. Routledge.

Topic 3 (Policy and Legislation):

- Bell. S., and McGillvrary, D. (2008). *Environmental Law*. Oxford.
- Hughes, D., Jewell, T. and Lowther, J. (2002). *Environmental Law*. London: Butterworths.

Topic 4 (ISO14001):

- International Organization for Standardization (ISO) (2021). *ISO 14000 Family: Environmental Management.* https://www.iso.org/iso-14001-environmental-management.html.

Topic 5 (Sustainability frameworks):

- Hussen, A. (2004). *Principles of Environmental Economics*. London: Routledge.
- Monkelbaan, J. (2019). *Governance for the Sustainable Development Goals: Exploring an Integrative Framework of Theories, Tools, and Competencies*. Geneva: Springer.

Topic 9 (Environmental Impact Assessment):

- Carroll, B. and Turpin, T. (2009). *Environmental Impact Assessment book: A practical Guide for Planners, Developers and Communities*. 2nd ed., London: ICE Publishing.

Topic 10 (Environmental Management Systems):

- Goudie, A. (2006). *The Human Impact on the Environment*. London: Blackwell.
- Elliott, J.A. (1999). *An Introduction to Sustainable Development*. Routledge.

Topic 11 (BREEAM and sustainable options):

- Building Research Establishment Ltd. (2021). *Building Research Establishment Environmental Assessment Method*. https://www.breeam.com/

21.10. GENERAL TIPS FOR TEACHERS

This module will be delivered using formal lectures, seminars and discussion groups over the course of the delivery. Weekly timetabled lectures and seminars will provide an outline of the key themes. Students will also be given directed study time under tutor's supervision/guidance to develop their understanding

further. Lecturers will ensure support is provided via opportunities for small group discussions over the course of the delivery, in addition to regular formative learning opportunities to consolidate learning. This module may include visits and guest speakers with specific industry-based expertise in sustainability and sustainable practices. In order to conduct the viva voce, care must be taken on the number of students, and a strict time allocation followed.

REFERENCES

Bligh D. (1985). What's the use of lectures? *Journal of Geography in Higher Education*, 9(1), 105–106.

Brundtland, G.H. (1989). Global change and our common future. *Environment: Science and Policy for Sustainable Development*, *31*(5), 16–43.

Carson, R. (1962). *Silent Spring*. Houghton Mifflin.

Chan, K.M., Boyd, D.R., Gould, R.K., Jetzkowitz, J., Liu, J., Muraca, B., Naidoo, R., Olmsted, P., Satterfield, T., Selomane, O. and Singh, G.G. (2020). Levers and leverage points for pathways to sustainability. *People and Nature*, *2*(3), 693–717.

Convention on Biological Diversity (CBD) (n.d.). *Aichi Target 18*. https://www.cbd.int/aichi-targets/target/18

Convention on Biological Diversity (CBD) (2021). *Preparations for the Post-2020 Biodiversity Framework: Third meeting of the Open-ended Working Group on the Post-2020 Global Biodiversity Framework*. https://www.cbd.int/conferences/post2020

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

Knowles M. S. (1975). *Self-Directed Learning: A Guide for Learners and Teachers.* Follett Publishing.

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

Mendelow, A. L. (1981). Environmental scanning: The impact of the stakeholder concept. In C. A. Ross (Ed.), *Second International Conference on Information Systems*. (pp. 407–418). Cambridge, MA. https://aisel.aisnet.org/icis1981/20/

O'Shea, E. (2003). Self-directed learning in nurse education: a review of the literature. *Journal of Advanced Nursing*, 43, 62–70.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

United Nations (2015) Transforming our World: The 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Yang, Z., Lin, X. and Song, Y. (2011). Intelligent stock trading system based on improved technical analysis and Echo State Network, *Expert Systems with Applications*, 38(9), 11347–11354.

Hasret Balcioglu

Chapter 22. Circular Economy and Strategies of Sustainability

22.1. COURSE SUMMARY

Table 22–1

Audience and level of studies	Students (Bachelor)	
Group size	26–50	
Course duration	14 weeks	
Credits	6 ECTS	
Workload	Presence: 36h Self -study: 142h	Total: 178h
Contents/primary topics	• Circular economy • Corporate social responsibility • Sustainable innovation management	
Main course objectives	• Increased understanding based on the growing business sector of sustainable development, and managing, leading, and operating a sustainable business by incorporating circular economies into necessary strategies to stimulate growth	
Main teaching approaches	• Experiential learning • Collaborative learning • Inter-/transdisciplinary learning	
Main teaching methods	• Flipped classroom • Self-reflection tasks • Field trip	
Learning environment	Hybrid classroom (face-to-face and online learning)	
Link to Sustainable Development Goals (SDGs)	SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation	

Table 22–2

Impact assessment:	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students make thoughtful contributions based on the lecture notes that advance the conversation and activities such as group discussions, brainstorming, active discussion with the expert, and gamification.
2. Degree of student collaboration / group work	High	Students come together in groups to discuss a topic, to see the opinions of others, and to work on a common task.
3. Degree of student emotional involvement	Medium	Students are expected to show enthusiasm for the topics discussed (obtained experiences from past years)
4. Degree of inter-/transdisciplinarity	High	Students coming from different disciplines are expected to share their knowledge and perspectives for the topic at the same time
5. Degree of student (self-) reflection	High	Students are expected to act on feedback given from their teachers and peers to improve their success
6. Degree of experience of real-life situations	Medium	Students are expected to be encouraged to be aware of the choices they can face in the market and how they fit into greater societal needs and supplies. In the course, students experience real-life situations with emotional short essay writing and field trips
7. Degree of nature-related experiences	Medium	Students learn how to discover principles, concepts, and facts for themselves and the topics with the help of intuitive thinking with in-class role play
8. Degree of stakeholder integration	Low	Students get practical experiences by working with people and using the resources in the market (in-class role-play with acting/drama coach and gamification to design waste and scarce sources in business processes)
9. Degree of integration between theory and practice	Low	Students make connections between fields, curricula, and the topics discussed in the class with take-home, case studies

22.2. COURSE INTRODUCTION

Teaching this course is important because the circular economy is a new production and consumption model that enables sustainable growth over time. The students will be able to understand how to drive the optimisation of resources, decrease the consumption of raw materials, and recover waste by recycling it or by creating a new product with the help of a circular economy. Economic sustainability, on the other hand, creates a stable economy. A stable economy is resilient to uncertainty, such as increasing costs in the energy sector and raw materials. Sustainability encourages the students to take responsibility for their actions and to contribute to a sustainable future.

In summary, it can be said that the goal of the course is to help students learn about the growing business sector for sustainable development and to learn how to handle, manage, and lead a sustainable business by incorporating circular economy principles into the required strategies for fostering sustainable growth. The content of the course focuses on business, administration, and law. The primary topics of the course include circular economy, corporate social responsibility, sustainable innovation management, values-based leadership, and business / corporate ethics.

The topics describe:

1. Sustainability and its relation with overproduction/overconsumption from business and economic points of view and multiple metrics for measuring sustainability.
2. The fundamentals of a circular economy and the characteristics of a circular business models.
3. The building of a sustainable culture in organisations.
4. Circularity enabling sustainability, the other enablers of sustainability, and the design of waste out of the business processes (Suárez-Eiroa et al., 2021).
5. Innovation led by sustainability and innovations that have improved the context of sustainability.
6. The characteristics of sustainable finance and the impact of investments.

22.3. LEARNING OBJECTIVES

Table 22–3

Learning objective dimension (UNESCO, 2017)	Operationalisation	Competency referred to (Rieckmann, 2018)
Cognitive	Gain an understanding of the function and implications of the Circular Economy and Sustainability Strategies	Strategic competency
	Recognize corporate social responsibility and sustainable innovation management	Systems thinking competency
Socio-emotional	Develop skills of self-questioning and problem-solving	Critical thinking competency
	Gain interpersonal communication and collaborative learning skills	Collaboration competency
	Practice the presentation skills	Collaboration competency
Behavioural	Gain self and peer-assessment skills with rubrics criteria	Anticipatory competency

22.4. COURSE OUTLINE

Table 22–4

Structure		Session focus	Course Sessions/Out of Class Activities (Self-Reflection Exercise, Homework, and Trips)
Week 1	Session 1 (1h)	Introduction to the course and self-reflection exercise. Introduction of the course on the Whiteboard platform. Short informative videos on the online collaboration platform.	Get acquainted with the course and methods used.
	Session 2 (2h)	Define sustainability from a business and economic perspective and its connection to excessive consumption and overproduction.	Reading article 1 (60 min.) Writing an emotional short essay in groups of five students on the topic of sustainability (1h, in-class activity). Students are expected to define sustainability in sectors that use resources efficiently to create long-term values through emotional essay writing. The emphasis should be on writing various case studies with various roles.
Week 2	Session 1 (1h)	Describe different metrics for measurement of sustainability.	Emotional short essay writing in groups of five students on the topic of measuring sustainability using various metrics (1h, in-class activity). Students are expected to define the measurement of sustainability with different metrics in sectors when writing emotional essays. The emphasis should be on writing various case studies with various roles.
	Session 2 (2h)	Peer Review of Sustainability	Article 1 Group Presentations (12 min each, in-class activity). Each group will send one representative to make the sustainability presentations (worked in groups in week 1, session 2).
Week 3	Session 1 (1h)	Define the basic principles of circular economy and the characteristics of circular business models	Reading article 2 (1h, in-class activity)
	Session 2 (1h)	Describe the benefits of business when transitioning to a circular business model	Writing an emotional short essay in groups of five students on the topic of a circular business model (1h, in-class activity). Students are expected to describe the benefits of business when transitioning to a circular business model in emotional essay writing. The emphasis should be on writing various case studies with various roles.
Week 4	Session 1 (2h)	Peer Review of week 3 session 1	Article 2 group presentations (12 min each, in-class activity). Each group will send one representative to make the sustainability presentations (worked in groups in week 3, session 1).

Structure		Session focus	Course Sessions/Out of Class Activities (Self-Reflection Exercise, Homework, and Trips)
	Session 2 (2h)	Peer review of week 3 session 2	Group Presentations (12 min each, in-class activity). One representative from each group to make the presentations about the benefits of business when transitioning to a circular business model (worked in groups in week 3, session 2).
Week 5	Session 1 (1h)	Understand how to build a sustainable culture in the organization, including how to incorporate other business strategies into the process	In groups of five students, have a group discussion (in-class activity). Each group has one representative who discusses business strategies for organizational sustainability culture.
	Session 2 (2h)[26]	Introduction to Experiential Learning	Playing a role (4 min each, in-class activity). Each student is expected to play a role in a real-world scenario and to apply the actual skills required to deal with the situation.
Week 6	Session 1 (1h)	Identify and develop a plan to avoid potential pitfalls when changing organizational culture	Students individually list keywords of potential pitfalls and make a plan for organizational culture change (in-class activity).
	Session 2 (2h)[27]	Field Trip	Each student will receive two papers for brainstorming purposes: i. Explaining the significance of field trips; and ii. describing the company's structure (one week before the field trip) Brainstorming (while on a field trip) focuses on the field trip's objectives: i. To provide first-hand knowledge, ii. To pique people's interest and motivation in science, iii. To make learning and interrelationships more relevant, iv. To improve observation and perception abilities, and v. To encourage personal (social) development (Michie, 1998)
Week 7	2h[28]	Mid-Term Exam	
Week 8	Session1(1h)	Analyse how the cycle achieves sustainability and describe various other drivers of sustainability	Group Discussion (in-class activity).
	Session 2 (2h)[29]	Invitation of a business expert	Active discussion (in-class activity).

26 Acting/drama coach works with students for 40 hours out of class.
27 Self-study for the trip is 2 hours.
28 Self-study for the mid-term exam is 20 hours.
29 Self-study for preparation of the questions for the business expert is 6 hours.

Structure		Session focus	Course Sessions/Out of Class Activities (Self-Reflection Exercise, Homework, and Trips)
Week 9	Session 1 (1h)[30]	Learn how to design waste in business processes	Gamification: LEGO Game (in-class activity) based on prior game self-study (out-of-class activity).
	Session 2 (2h)	Peer Review	Individual presentations on the topic of waste design in business processes (3 minutes each, in-class activity).
Week 10	Session 1 (1h)	Understand how sustainability drives innovation and describe innovations that improve sustainability	Gamification (in-class activity). Use illustrations to demonstrate the concepts.
	Session 2 (2h)	Peer Review	Individual presentations (3 min each, in-class activity) on the topic of innovations that improve sustainability.
Week 11	Session 1 (1h)[31]	Use the ReSOLVE framework as a springboard to create sustainable innovation	Case Study. McKinsey & Company's ReSOLVE framework applies the core principles of circularity to six actions: regeneration, sharing, optimization, recycling, virtualization, and exchange. Form groups of five students and brainstorm an idea (1h, max 500 words, out-of-class activity).
	Session 2 (2h)	Peer Review	Group presentations on the topic of sustainable innovation (12 minutes each, in-class activity).
Week 12	Session 1 (1h)	Describe the characteristics of sustainable finance	Individual comment writing (in-class activity).
	Session 2 (2h)[32]	Visit a Bank	Brainstorming (out-of-class activity). The first discussion paper about the structure and function of the bank will be distributed to each student one week before the visit to assist the students in asking questions of the managers.
Week 13	Session 1 (1h)	Learn how to measure the impact of investments	Individual comment writing (in-class activity).
	Session 2 (2h)[33]	Visit a Bank	Brainstorming (out-of-class activity) The second discussion paper about the structure and function of the bank will be distributed to each student one week before the visit to help the students to ask questions to the managers (out-of-class activity).
Week 14	2h[34]	Final Exam	

30 Self-study for the LEGO design is 20 hours.
31 Self-study for Take-home is 10 hours.
32 Self -study for the first discussion paper is 2 hours.
33 Self-study for the second discussion paper is 2 hours.
34 Self-study for the final exam is 40 hours

22.5. TEACHING APPROACHES AND METHODS

Experiential learning, collaborative learning, and inter-/transdisciplinary learning are the main teaching approaches used in this course. Experiential learning focuses on student-appropriate materials and skills. Experiential learning fosters real-world relevance, allows for creativity and reflection, teaches the value of mistakes, directs students toward the future, and prepares them for future life (Clancy et al., 2021). Collaborative learning allows students to work together and learn and grow from one another. Its advantages include the ability to develop higher-level thinking, communication, self-management, and leadership skills. It also boosts student retention, self-esteem, and accountability (Marjan and Seyed, 2012). Gamification in this course assists students in the assimilation of new information, group work, and the use of scarce resources such as elements of the game. It also assists students in developing their creativity and innovative abilities. With critical reflection, inter-/ transdisciplinary learning allows for a different understanding of subjects. This method of instruction allows students to develop concepts and skills in a variety of subject areas (Taylor et al, 2021).

Flipped classrooms, self-reflection tasks, and field trips are among the teaching methods used. Students have more collaboration time to cover subject activities, discussions, and peer-reviewing when using the flipped classroom method (Fuchs, 2021). Students evaluate their work using criteria, track their learning progress, identify their knowledge and skill strengths and weaknesses, set realistic learning goals, and reflect on their learning processes during the self-reflection task. Students benefit from real-world learning, have access to tools and environments not available at school, and develop socio-emotional growth during the field trip. Field trips supplement the curriculum, improve students' observation skills, and broaden their awareness (Nils and Budke, 2021).

Students will have a fundamental understanding of the topics as well as deep learning as a result of the teaching methods. Students must also communicate and collaborate in groups with diverse actions and motivations. They will gain the necessary experience and knowledge to achieve the desired learning outcomes. The lesson plan, on the other hand, includes activities that are designed to foster respect and provide a safe environment in which to discuss sensitive topics. The plan includes activities that will aid in the understanding of key terminology, allow for the exchange of ideas, and highlight the complexities of terminology. The lesson plan includes one or more visible thinking routines, with a focus on how students benefit from the lesson objectives. These activities include incorporating peer education elements throughout the curriculum and emphasizing the empowering aspects of learning from peers.

The motivations for these activities are not always clearly articulated. There is a clear indication that the role of emotion has been addressed, and the curriculum elements will effectively help build empathy. The lesson plan follows through on all of its learning objectives. The course plan includes a variety of activity types as well as a large number of ideas or elements. The course's design encourages the use of adaptive learning. It is well known that in traditional learning, education is not based on individual needs, capacity, or understanding of the topic (Dewey, 1938). Students in adaptive learning, on the other hand, receive a personalized learning plan and the opportunity to learn the concepts (Feldstein & Hill, 2016).

As the world's education demand grows, the use of intelligent educational tools such as LEGO games, as well as efficient and effective learning management systems (MOODLE and Whiteboard), becomes increasingly important. The learning platform integrates technology and communication tools to activate the learning process while focusing on the needs of various students. A learning platform, for example, can aid in the development of students' skills in an active learning environment. Furthermore, regular monitoring and analysis of student performance via the information processing platform can improve learning efficiency and quality.

22.6. EXERCISES

The following topics are commonly used for collaborative work: sustainability (a holistic approach that focuses on ecological, social, and economic dimensions), planned obsolescence model, and impact investment. Planned obsolescence refers to a strategy that intentionally ensures that the current version of a given product is out of date or useless within a specified time frame (Bulow, 1986). Obsolescence can be achieved by introducing better alternative models or by purposefully designing products to disable normal functions within a specific time frame (Orbach, 2004). In either case, consumers will theoretically prefer newer products over older ones. Sustainable, responsible, and impact investing is an investment strategy that takes into account environmental, social, and corporate governance standards to generate long-term competitive financial returns and positive social impacts (Hirst, 2016). It is applicable to all asset classes, such as stocks, bonds, and cash.

Emotional Short Study Writing on Sustainability

In groups of five students, the students are expected to discuss Article 1 for defining sustainability from a business and economic standpoint, as well as its connection to excessive consumption and overproduction.

Then, they describe various metrics for measuring sustainability and work together to write a case study (a detailed study of sustainability in a sector) of at least 300 words, assigning responsibility for the required sections. It represents a short, emotional essay. Students create PowerPoint slides for the case studies and select a group leader to lead the presentations.

They deliver speeches (at most 10 min., each). Peers can ask questions and grade the presentations using Rubrics Criteria after the presentations. The total grade will be the sum of the student and teacher grades.

Emotional Short Study Writing on Circular Economy and Circular Business Models

In groups of five persons, the students discuss article two for defining the basic principles of circular economy and the characteristics of circular business models.

They work together to write a case study (detailed study of circular economy and circular business models in a sector) of at least 300 words and are assigned responsibilities for the necessary sections (emotional short essay writing).

Students create PowerPoint slides for the case studies and select a group leader to lead the presentations. They make the presentations (at most 10 min. each). Peers can ask questions and grade the presentations using Rubrics Criteria after the presentations. The total grade will be the sum of the student and teacher grades.

Potential Business Change Pitfalls and Steps to Change the Company Culture

In one hour, students must list the keywords for potential business change pitfalls and create a plan for the steps to change the company culture. When changing organizational culture by Rubrics Criteria, it is critical to identify and develop a plan to avoid potential pitfalls. The plan should not exceed 200 words. The teacher will be in charge of grading.

Gamification

In this session, students will participate in a LEGO® game where students will play the role of a manufacturer who needs to decide the planning of materials to maximise their profit and design waste out of the business processes. Following the game, students will be required to give individual presentations. The total grade will be the sum of the student and teacher grades.

Illustrating Concepts

Discover how sustainability can be used to drive innovation and describe innovations that have improved sustainability. Use illustrations to demonstrate the concepts. Big fish, for example, eat small fish. Innovative drawing should also be used to explain the expression. In economics, the phrase "big fish eats small fish" refers to how small organizations are often swallowed up or destroyed by those with more market power, such as monopolies. Students will be expected to give individual presentations at the end of the process. The total grade will be the sum of the student and teacher grades.

Individual Comment Writing

Students should read selected chapters of the book by Stefanakis & Nikolaou (2021) to learn about sustainable finance, investment, and methods for measuring the impact of investments. As a class activity, students will write their thoughts on the aforementioned concepts. The essay should not be longer than 400 words. The comment writing time is 40 minutes. Each student is given an essay written by another student and has 20 minutes to grade it. The teacher will be in charge of delivering the papers. The total grade will be the sum of the student and teacher grades.

22.7. ASSESSMENT

The deliverables in this course are presentations and short essays throughout the course (weeks 2–11), a case study (week 11) and two exams (week 7, week 14). The following rubics will be used to assess students continuous performance on presentations and essays.

Table 22–5

Scoring Rubric for Oral Presentations	**Scoring Rubic for Short Essays**
Content and Scientific Merit (60 points): • Introduction: Defines background and importance of research States objective, and can identify relevant topics • Body: The presenter has a scientifically valid argument Addresses audience at an appropriate level Offers evidence of proof Describes methodology The talk is logical • Conclusion: Summarizes major points of the talk. Summarizes potential weaknesses Provides students with a "take-home" message	Content: • Citations provided (20 points)
Delivery of speech (20 points): • Speaks clearly and at an understandable pace. • Maintains eye contact with the audience. • Well-rehearsed • Limited use of filler words ("um," "like," etc.). • Speaker uses body language appropriately • Speaker is within time limits	Delivery: • Posts on time (20 points) • 500 word length requirements met (20 points)
Audio/Visual (20 points): • Graphs/figures are clear and understandable • The text is readable and clear • Audio/Visual components support the main points of the talk • Appropriate referencing of data	Style: • Language is grammatically correct and professional (20 points)

22.8. PREREQUISITES

Required prior knowledge from students:

- Basics of Microeconomics and Macroeconomics
- Basics of innovation management
- Basics of sustainable growth

Required instructors and their core competencies:

- Lecturer (competences: economics, technology, management, innovation, corporate responsibility, growth)

- Acting/drama coach (competences: theatre-based teaching)
- Business expert (competencies: real-life business sector expertise)

Required tools:

- Online communication platform (e.g., Zoom)
- Online learning platform (e.g., Moodle)
- Online collaboration platform (e.g.,Whiteboard)
- Gamification (e.g.,Leaderboard)

22.9. RECOMMENDED RESOURCES

Topic 1–2 Sustainability:

- Balcioglu H. (2020). The Economics of Space. *International Journal of Innovative Science and Research Technology*, 5(9), 1242–1243.

Topic 3–4 Circular Economy & Circular Business Model:

- Balcıoğlu H. B. and Kıvanç V. (2009). Comparison of Macroeconomic Performance of Selected Asian Countries. An Econometric Analysis of China Economic Growth and Policy Implications. *Theoretical and Applied Economics*, 9(538), 9–16.

Topic 5–12 Organizational Culture, Business Strategies, Business Process, Sustainable Innovation, Sustainable Finance & Impact of Investments:

- Stefanakis, A., & Nikolaou, I. (Eds.). (2021). *Circular Economy and Sustainability: Volume 2: Environmental Engineering*. Elsevier.

22.10. GENERAL TIPS FOR TEACHERS

Circular economy is an integrated and innovative management approach in which, in addition to regular entrepreneurial competencies, systems thinking and inclusivity are important. A society that represents a circular economy necessitates different knowledge, skills, and attitudes. The teaching approaches and methods implemented in this course have been chosen to aid educators in developing such versatile competencies compatible with circular economy. To implement this course effectively, it is critical to maintain open lines of communication between students and educators, as well as among students, taking into consideration the cultural and language differences between participants and thus ensuring inclusivity.

REFERENCES

Balcioglu, H. (2020). The Economics of Space. *International Journal of Innovative Science and Research Technology*, 5(9), 1242–1243.

Balcıoğlu H. B., & Kıvanç V. (2009). Comparison of Macroeconomic Performance of Selected Asian Countries. An Econometric Analysis of China Economic Growth and Policy Implications. *Theoretical and Applied Economics*, 9(538), 9–16.

Bulow, J. (1986). An Economic Theory of Planned Obsolescence. *The Quarterly Journal of Economics*, 101 (4), 729–749.

Clancy, A., Cullen, J. G., Hood, A., & McGuinness, C. (2021). Student engagement with experiential learning in large classes. *Journal of Management Education*, 45(3), 340–343.

Dewey, J. (1938). *Experience and Education*. Kappa Delta Pi Lecture.

Feldstein, M., & Hill, P. (2016). Personalized learning: What it really is and why it really matters. *Educause Review*, 51(2), 24–35.

Fuchs, K. (2021). Book Review: The Flipped Classroom—Practice and Practices in Higher Education, Front. Educ., https://doi.org/10.3389/feduc.2021.741656

Hirst, S. (2016). *Social Responsibility Resolutions*. The Harvard Law School Program on Corporate Governance Discussion Paper. No. 2016–06. https://scholarship.law.bu.edu/faculty_scholarship/342

Marjan, L., & Seyed, M. G. (2012). Benefits of collaborative learning. *Social and Behavioral Sciences*, 3, 486–490.

McKinsey Center for Business and Environment, Ellen MacArthur Foundation (2015). *Growth Within: A Circular Economy Vision for a Competitive Europe*. https://ellenmacarthurfoundation.org/growth-within-a-circular-economy-vision-for-a-competitive-europe

Michie, M. (1998). Factors influencing secondary science teachers to organize and conduct field trips. *Australian Science Teacher's Journal*, 44, 43–50.

Nils, T. and Budke, A. (2021). The Use of Digital Field Trip Guides for 'Learning On-site' and 'Virtual Excursions' in a Covid-19 World, AACE.

Orbach, B. (2004). The Durapolist Puzzle: Monopoly Power in Durable-Goods Market. *Yale Journal on Regulation*, 21, 67–118.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Reidsema, C., Kavanagh, L., Hadgraft, R., & Smith, N. (2017). *The Flipped Classroom—Practice and Practices in Higher Education*. Springer.

Stefanakis, A., & Nikolaou, I. (Eds.). (2021). *Circular Economy and Sustainability: Volume 2: Environmental Engineering*. Elsevier.

Suárez-Eiroa, B., Fernández, E., & Méndez, G. (2021). Integration of the circular economy paradigm under the just and safe operating space narrative: Twelve operational principles based on circularity, sustainability and resilience. *Journal of Cleaner Production*, 322, 129071. https://doi.org/10.1016/j.jclepro.2021.129071

Taylor, J., Jokela, S., Laine, M., Rajaniemi, J., Jokinen, P., Häikiö, L., & Lönnqvist, A. (2021). Learning and Teaching Interdisciplinary Skills in Sustainable Urban Development — The Case of Tampere University, Finland. *Sustainability*, 13, 1180. https://doi.org/10.3390/su1303 1180

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Daria Podmetina & Ellen Saltevo

Chapter 23. Innovation and Technology for Sustainable Future

23.1. COURSE SUMMARY

Table 23–1

Audience and level of studies	Students (Master)	
Group size	≤ 25	
Course duration	7 weeks	
Credits	3 ECTS	
Workload	Presence: 28h Self-study: 50h	Total: 78h
Contents/primary topics	• Disruptive technologies • Sustainable Development Goals (SDGs) • Design, management, impact assessment, implementation and envisioned development trajectories of innovations in the context of sustainability	
Main course objectives	• Understanding the major causes, impacts and interconnectedness of key environmental and social challenges occurring in socio-economical systems • Identifying the potential and challenges of science and engineering-driven solutions in solving sustainability problems • Analysing potential solutions critically and collaboratively creating alternative visions for a more sustainable future	
Main teaching approaches	• Active learning • Collaborative learning • Inter-/transdisciplinary learning	
Main teaching methods	• Arts-based teaching and learning • Vision-building exercise • In-class role play	
Learning environment	Virtual classroom (online learning) Synchronous (interaction in real-time) and non-synchronous learning (interaction in different times)	

Link to Sustainable Development Goals	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 2 | Zero Hunger | End hunger, achieve food security and improved nutrition and promote sustainable agriculture. SDG 3 | Good Health and Well-being | Ensure healthy lives and promote well-being for all at all ages SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 6 | Clean Water and Sanitation | Ensure availability and sustainable management of water and sanitation for all SDG 7 | Affordable and Clean Energy | Ensure access to affordable, reliable, sustainable and clean energy for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 11 | Sustainable Cities and Communities | Make cities and human settlements inclusive, safe, resilient and sustainable SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 14 | Life below Water | Conserve and sustainably use the oceans, seas and marine resources for sustainable development SDG 15 | Life on Land | Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss SDG 16 | Peace, Justice and Strong Institutions | Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development

Table 23–2

Impact assessment	(None) Low/ Medium/ High	Explanation
1. Degree of student participation / activeness	High	Students are expected to actively engage in course activities in the form of multiple seminar, workshop and individual assignments, as well as the main course project, while the teacher acts merely in the role of a facilitator.
2. Degree of student collaboration / group work	High	Most course activities are in the form of group work where students are expected to convey their arguments, see the perspectives of others, and try to find a common ground, as well as work together towards a common goal.

Impact assessment	(None) Low/ Medium/ High	Explanation
3. Degree of student emotional involvement	Medium	Students are expected to articulate their own feelings and thoughts about sustainability, as well adopt the role of others and try to empathise and find arguments from their point-of-view in relation to sustainability.
4. Degree of inter-/trans-disciplinarity	High	Sustainability is addressed throughout the course as a wicked problem embedded in complex systems in need of inter-/transdisciplinary approaches. The course applies knowledge from business, engineering, arts, design, sustainability sciences and social sciences to accumulate a holistic understanding of sustainability that students can employ in their main course project.
5. Degree of student (self-) reflection	Low	Students are expected to self-reflect on one's own role as business experts, engineers and innovators through capabilities, possibilities, and restrictions throughout the course in the exercises and in the main course assignment.
6. Degree of experience of real-life situations	Medium	Case examples are utilised as a baseline for analysis and discussion in seminar assignments, and guest lecturers from industry are included to ensure the practical implementation and understanding of the topics.
7. Degree of nature-related experiences	(None)	Course is carried out in an online classroom environment.
8. Degree of stakeholder integration	Medium	Sustainability is introduced as a largely normative issue with differing values and goals attached to it by different stakeholders whose views students are expected to reflect in seminar and individual assignments, as well as in the main course project.
9. Degree of integration between theory and practice	Medium	Lectures available online are used throughout the course for brief transfers of knowledge about the main theories and concepts that will act as a baseline for applied learning for the main course project, where students are expected to envision and evaluate the development trajectories of existing disruptive technological innovations in the context of sustainability.

23.2. COURSE INTRODUCTION

It is widely acknowledged that innovation is a key element in the global pursuit of sustainable development. This means shifting from the traditional innovation logic of merely finding economic applications for inventions in pursuit of limitless economic growth (Schumpeter, 1912) towards sustainability-oriented innovation – developing solutions to existing global problems in order to create and realise social and environmental value, as well as economic returns (Adamset al., 2015) or responsible innovation (Stilgoe et al., 2020; Owen et al., 2013).

Sustainability is understood as a wicked problem (Rittel & Webber, 1973) with multiple "hard to identify" root causes that impact various stakeholders and that are deeply intertwined with other issues. Thus, determining appropriate solutions is difficult and determining the sustainable nature of an innovation calls for a wide lens of inspection. Sustainable change is deeply entrenched in socio-technical systems emphasising the role of technological innovation that is fundamentally linked to societal constructs that need to co-evolve with it (Geels, 2010).

The course *Innovation and Technology for a Sustainable Future* is designed to improve understanding of the role innovation and technology play in sustainable development and how it is translated into engineering (Jansen, 2008) and business management education (Wankel & Stoner, 2009) — the primary target audience for this course. This course goes beyond techno-utopianism and promotes a critical approach to technological innovation development in the context of sustainability. By the end of the course, students should be able to understand the challenges, benefits, and potential of developing engineering-driven solutions to sustainability problems; to evaluate the impacts of innovations and to forecast possible development trajectories for the future; and begin to create solutions to solve the complexities that relate to their adaptation as part of larger socio-technical and economic systems.

The course is delivered in an online format. Key theoretical and factual knowledge is transferred through short, pre-recorded lectures, expert interviews and recommended independent readings available for each week of the course on the learning platform. The main theoretical concepts discussed are disruptive technologies, design and management of sustainability-oriented/responsible innovations, impact assessment and stakeholder analysis, ethical issues related to sustainability and technological development, system change and transitions, as well as future studies.

Students are expected to get familiar with each lecture and the recommended materials at the beginning of the week, to be able to build upon the newly acquired knowledge in seminar sessions and in preparation of individual assignments at the end of each week. Key learnings are put to the test in individual assignments and seminar sessions with exercises utilising theatre-based teaching methods that leave room for different interpretations and perspectives to be debated. There are no right or wrong answers. The aim is merely to enable students to find multiple possible pathways towards a more sustainable future and inspire them to act as change agents themselves.

During each week, students will also participate in film making workshops. Film making workshops will aid students in preparing for their main course project, where they are expected to employ their learnings throughout the course in examining a specific technology in the context of a specific United

Nation's (UN) (2015) Sustainable Development Goal (SDG) and create their own visions of the future in the form of a short film.

23.3. LEARNING OBJECTIVES

Table 23–3

Learning objective dimension (UNESCO, 2017)	Operationalization	Competency referred to (Rieckmann, 2018)
Cognitive	Students learn to describe and recognise the key environmental and social challenges that occur in a variety of socio-economic systems and understand their causes, impacts and interconnectedness.	Systems thinking competency
	Students learn to analyse the inherent complexities that relate to sustainable technological development and implementation in business and society.	
	Students learn to evaluate and decide between multiple possible pathways towards solutions of grand challenges	Anticipatory competency
	Students learn to identify the potential, as well as risks and challenges, of science and engineering-driven solutions for sustainability problems.	
	Students learn to question what can be deemed as sustainable or responsible through the exploration of differing perspectives, opinions, and norms.	Critical thinking competency
Socio-emotional	Students learn to deal with the uncertainty of what they don't know and to build on it by turning the unknown into an exploration of probable, plausible and unexpected versions of the future.	Anticipatory and systems thinking competency
	Students learn how to respect, reflect, and learn from the perspectives of others, as well as to create collaborative understanding and action.	Collaboration competency
Behavioural	Students learn to create their own visions of the future and communicate them to others.	Anticipatory competency
	Students learn to build evidence and take part in the sustainability discourse through scientific argumentation, class discussions and debates, written reports, and presentations.	Critical thinking competency

23.4. COURSE OUTLINE

Table 23–4

Structure		Session Focus	Homework
Week 1	Session 1 (2 h)	Introduction to the course and methods used. Introduction to short film making.	Getting acquainted with the course contents, schedule and teaching methods. Reading through the requirements for the main course project*. Making groups and choosing topics for the main course project.
	Session 2 (2 h)	Introduction to key concepts: SDGs and disruptive technologies for the future.	
Week 2	Session 3 (2 h)	Workshop: short film making (project development). Sustainable innovation and design • Responsible innovation • Design thinking	Getting familiar with the chosen topic (specific SDG, technology, and context).
	Session 4 (2 h)	Seminar: Stakeholder roleplay*.	
Week 3	Session 5 (2 h)	Workshop: short film making (pre-production). Sustainability impact awareness, assessment and tools – examples from the ICT industry.	Working on the main course project: written report (part 1) and short film (project development).
	Session 6 (2 h)	Seminar: ICT is the backbone of almost any solution we have for the future – but how sustainable is any software? • Case example: bitcoin	
Week 4	Session 7 (2 h)	Workshop: short film making (production) Sustainable systems and transitions • Sustainability transitions • Socio-technical systems and the multi-level perspective	Working on the main course project: written report (part 2) and short film (pre-production).
	Session 8 (2 h)	Individual assignment: socio-technical system change and sustainable transitions require cooperative effort – what elements are needed for change? • Case example: mobility as a service (MaaS)	
Week 5	Session 9 (2 h)	Workshop: short film making (post-production) Ethics of technological innovation and sustainable development.	Working on the main course project: written report (part 3) and short film (production).
	Session 10 (2 h)	Individual assignment: collective story writing*. • Case example: artificial intelligence (AI)	

Structure		Session Focus	Homework
Week 6	Session 11 (2 h)	Seminar: Futures studies in practice – examples from the consulting industry.	Working on the main course project: short film (post-production).
	Session 12 (2 h)	No activities for this week. Students will work on the main course project.	
Week 7	Session 13 (4 h)	Visions for the future: students will present their short films followed by a joint discussion in class about each topic and the overall role of technology and innovation in sustainable development.	Peer evaluation of short films. Group members evaluate each others' performance within the group throughout the main course project.

*See further instructions from subchapter "Exercises".

23.5. TEACHING APPROACHES AND METHODS

The course combines aspects of active, collaborativeand inter-/transdisciplinary learning as its core teaching approaches. This combinatory pedagogical approach is critical in flipping the role of the student from a listener and subject learner of Science, Technology, Engineering and Math (STEM) to an active participant of group learning activities and designer of collaborative learning spaces together with other students and teachers.

Active learning is used throughout the course to enable students to take charge of their own level of engagement and input in assignments, as well as in the organization of the main course assignment, while teachers act in the role of facilitators. Collaborative learning is used to enable student interaction in small teams while working on common assignments. Inter- and transdisciplinary learning is used to gain a holistic view of the integrated issues of innovation and technology development in the context of sustainability by applying principles from multiple fields of study, such as business, engineering, arts and design, sustainability sciences and social sciences, and analysing their compounded effect throughout the course, and especially with the main course project.

With the implementation of these approaches, the students need to process, evaluate, and reflect the theoretical materials provided by the teachers with different backgrounds on several aspects of the same topic and synthetise a creative project in collaboration with other students, reflecting the learning of the theoretical materials put through the prism of individual and group backgrounds and perspectives. Such participatory and collaborative pedagogies can boost self-reflection in addition to active learning, leading to the development of more sustainable habits, minds, and lifestyles (Mezirow, 2000; Giangrande et al., 2019; Ayers et al., 2020). There is theoretical evidence that pedagogi-

cal freedom, teachers' skills, university support and favourable infrastructure are needed to enable inter/transdisciplinary, active and collaborative learning (Moore et al., 2005). The development of this course benefitted from such resources available. With a general transformational focus on sustainability, students and teachers are advised to keep an open mind and to be up for a challenge (Sipos at al., 2008). Moreover, "sustainability education implies the benefits of fully integrative, active, collaborative, and applied approaches to sustainability-oriented curriculum development and teaching—approaches that can directly involve students in learning and practicing transdisciplinary engagement in service to sustainability" (Evans, 2019, p. 20). As highlighted by UNESCO (in Sipos et al., 2008), creative practices in addition to proactive and collaborative learning practices are key in developing "transdisciplinary understandings" in sustainability education.

Following the need to develop a variety of skills, arts-based teaching and learning, and more specifically theatre-based learning, was selected as the dominant method used in this course. Adding arts-based teaching and learning is how a traditional STEM course is transformed into a STEAM (Science, Technology, Engineering, Arts, and Mathematics) course. STEAM is a specific teaching-learning methodology and transdisciplinary method aiming to develop "transversal knowledge, in which the contents of each of these branches is not taught or learned in isolation, but rather is imparted in an interdisciplinary way that ensures contextualized and meaningful learning" (Moaveni & Chou, 2016). Moreover, the combination of art and science increases "creativity, critical thinking, cooperative learning and develop[s] problem-solving skills" (Chien & Chu, 2018), gaining students the skills that will help them in their future work life (employability skills) in an active way (Yakman, 2008; Yakman & Lee, 2012; Chien &Chu, 2018; Stehle & Peters-Burton, 2019; Perignat & Katz-Buonincontro, 2019).

Art-based teaching also allows for uncertainty and sense-making of complex situations through creativity (Nissley, 2010), especially useful for the exploration of innovation in an increasingly complex world faced by the wicked problems of sustainability. As noted by Ødegaard (2002), "theatre" and "theory" have similar etymological underpinnings, and both refer to ways of viewing the world and extracting truth from it – eluding a natural interconnection between the two. Therefore, the use of theatre-based methods in science education can be understood as an alternative route towards the truth. To utilise this connection, improvisation, narrative development, drama production and acting performance are used in assignments and in the main course project to develop wider and more nuanced insights into technological innovation development in the context of sustainability than strict science-based methods could deliver. Theatre-based methods of teaching facilitate the understanding of

difficult concepts, develop expression capacity, inter-personal communication and empathy, as well as provide a suitable frame for exploring future scenarios (McSharry & Jones, 2000; Nissley, 2002).

Vision building and in-class roleplay are specific approaches embedded in the theatre-based methodology. Vision building is used to synthesise the main course learnings and apply them into the creation of docufiction stories about plausible future scenarios as the main course project. Docufiction is a cinematographic term that relies on the factual basis of a documentary but adds a dramatic flair and fiction to provoke new ideas and challenge perspectives (Rhodes & Springer, 2005). The infusion of fiction not only makes learning more interesting, but it is also a necessary approach to understanding the future, the key literacy competence of the 21st century (Miller, 2018), as "there are no facts or evidence from the future (we create the future as we experience it) – we should be thinking about futures in terms of different (--) perspectives, frames of references and images" (UNDP, 2018, 8).

In-class role play is used to broaden and reflect one's perspectives by assuming the improvised role of another in a structured way (rules) within a theoretical or conceptual frame to increase contextual and personal understanding (Ødegaard, 2007). Role-play has also been found to be highly effective in developing students' soft skills and empathy (Bearmanet al., 2015).

23.6. EXERCISES

Stakeholder roleplay for Disruptive Innovations

The main goal of this exercise is to enable the students to expand their viewpoints by stepping into the role of another person through roleplay. The exercise is intended to increase emotional and knowledge-based understanding of the importance of including and mitigating all stakeholder perspectives in the development and implementation of responsible innovations. This exercise is carried out in groups and conducted early in the course for students to get acquainted with theatre-based methods used throughout the course.

The students are given a range of technological innovations that are viewed as disruptive (e.g., platform economy, lab grown meat, biofuels, or robotics and automation). In relation to each innovation, some stakeholder roles which are expected to experience differing impacts on the further implementation of the innovation are determined. The groups will choose topics on which to focus, and within each group assign individual stakeholder roles. The students will continue to search information about the topic and the role of their individual stakeholder. The students will discuss the gathered information in the group to

be able to prepare and compose fact-based, but imagination driven, identities and perspectives for each stakeholder.

Finally, each group will proceed to present their topic in class in the form of a dialogue held by all the members of the group acting in the role of their individual stakeholder. Each stakeholder will deliver their own view of the topic and mirror this perspective in relation to other stakeholder views. Afterwards, the audience is tasked to identify the main controversies that exist in the stakeholder views in relation to the topic and to think collectively how they could possibly be mitigated.

Fact Based Future Fiction

This exercise acts as the main course project and is worked throughout the course in groups of four to five students. The main goal of this exercise is to enable the students to summarise and implement the main course learnings by comprising a holistic understanding of a specific sustainability problem and analysing a possible technological solution for it withstanding all related complexities, uncertainties, differences in perspectives and conflicts by processing it in a structured way and translating it into a form that can be convincingly conveyed to others.

The students construct a topic for the project by selecting a sustainability issue from one of the 17 SDGs (UN, 2015) along with a disruptive future technology to explore their compounded impact in a specific context. An overview of disruptive future technologies by Diamandis and Kotler (2022), including quantum computing, artificial intelligence, robotics and automation, material science and nanotechnology, biotechnology, networks and sensors (IoT), augmented and virtual reality (immersive technologies), blockchain, and 3D printing, as a reference point is provided. To illustrate, a possible topic could be "enhancing peace and justice (SDG 16) through immersive technologies (augmented and virtual reality) in peace-tech (context)".

First, students are tasked to delve deeper into the SDG (what are the main issues behind the goal and their contributing factors) and the more specific context chosen (how do these issues manifest in the specific context). Second, they investigate how the chosen technology or technologies could be applied in this specific context to aid in solving the underlying problems and drive forward the SDG's fulfilment. Third, they conduct a holistic impact assessment and an examination of the solution's development trajectory. This will act as knowledge-based background research for the development of a storyline.

Second, the key findings of the research will be formulated into an interesting storyline and produced into a short film with a duration of 15 minutes maximum. By building a storyline, the students are forced to include not only

detached factual perspectives of technological and economic analysis, but also more personal and emotional perspectives in order to go beyond what is known, into what should and could be to build visions for the future. To help structure the film, the students are suggested to follow the typical five-step dramatic scheme (Pavis 1998):

1. *Introduction of the setting and the underlying problem*: what is the sustainability problem?
2. *Evolving action:* what is the rising proposed solution?
3. *Collision or climax:* how does the proposed solution affect stakeholders, surrounding systems and structures, and does it create possible conflicts?
4. *Last twist in the form of surprising events:* is there a possibility of unintended consequences or other risks, ethical or cultural considerations?
5. *Resolution:* what the does the future look like?

To ensure the successful transfer of facts into future fiction, expert instructions and workshops for drama and film making are made available to the students throughout the course.

Collective Story Writing

What is the value of technological development and innovation? Is this value intrinsic or extrinsic, i.e., context dependent or not? If related to context, then the value of the innovation is dependent on its use for the general good or bad. But is the definition and distinction of good and bad relative or universal? Also, do good intentions matter if the outcome is ultimately bad?

This thought process above illustrates a brief and simplified extract of the many ethical considerations related to assessing technological innovations in the context of sustainability. To invoke nuanced ethical contemplations, the students are instructed to engage in a digital version of an improvisation exercise by participating in collective story writing around a predetermined topic (e.g., artificial intelligence) in the learning platform. One by one, the students post on the platform and continue the story by introducing new characters, perspectives, thoughts, events, changes of scenery – whatever brings forth an illustrative example of an alternative ethical standpoint – and little by little a rich collective understanding on the matter is formulated.

23.7. ASSESSMENT

Assessment is based on individual and group performance using teacher, peer-to-peer and group internal evaluation-based techniques to ensure the representa-

tion of multiple voices also in the evaluation in line with the explorative and "no right answers" perspective applied throughout this course.

Individual performance is determined based on participation in seminars, workshops and completion of individual assignments. From each six individual performance events five points are available and graded pass or fail, amounting to a total of 30 points. *Group performance* consists of the successful delivery of the main course project: the written report with 30 points and the short film with 40 points, amounting to a total of 70 points. Different evaluation criteria and evaluators are used for the written report and the presentation. The quality of the written report is evaluated by the teacher against the learning objectives and competencies set for the course, and therefore should embody critical, systems and anticipatory thinking competencies in the analysis of the topic. The quality of the short film is an extension of the report but evaluated by student peers in the final seminar based on the presentation's expression (originality and fit of chosen format), narrative (informative and critical), vision (plausibility), and novelty value (new perspectives presented). An equally important learning opportunity in the course is also how to learn, manage and create collaborative understanding and action (i.e., collaboration competency), which is why each student's *individual scoring* from the total points awarded for the written report and the short film is determined by the other group members. The group members will evaluate each other by assigning a score from 1–100 % based on the perception of each team member's ability to collaborate. An average of all evaluations is formed for each student and used as a weight to determine the number of final points awarded for the success of the group performance.

Table 23–5

Performance	Target of evaluation	Basis of evaluation	Maximum points	Average collaboration scoring from group	Weight for final grade
Individual performance	Participation in seminars	Pass/fail	2*5=10p.	NA	30 %
	Completion of individual assignments		2*5=10p.		
	Participation in workshops		4*2,5=10p.		

Performance	Target of evaluation	Basis of evaluation	Maximum points	Average collaboration scoring from group	Weight for final grade
Group performance	Final report	Separate criteria for final report	30p.	* 0,1–1	70 %
	Short film	Separate criteria for short film	40p.	* 0,1–1	

23.8. PREREQUISITES

Required prior knowledge from students:

- No prior knowledge required

Required instructors and their core competencies:

- Lecturer (competencies: technology, sustainability, innovation management, systems and design competency)
- Creative expert (competencies: drama teaching or film production)
- Industry expert (competencies: real-life business expertise)

Required tools:

- Online collaboration (e.g., Google docs), learning (e.g., Moodle) and communication platforms (e.g., Zoom)
- Video editing software (e.g., Filmora)

23.9. RECOMMENDED RESOURCES

Please note that given the wide scope of this course, independent information seeking on more specific topics withing the scope is a key element of this course. Therefore, the suggested materials are merely example frameworks and theories on how to approach each topic.

Week 1:

- United Nations (2015). Transforming our World: The 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1.
- Diamandis, P. H., & Kotler, S. (2020). The future is faster than you think: How converging technologies are transforming business, industries, and our lives. Simon & Schuster.

Week 2:

- Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D. & Overy, P. (2015). Sustainability-oriented innovation: A Systematic Review. *International Journal of Management Reviews*, 00, 1–26.
- Lubberink, R., Blok, V., Van Ophem, J. & Omta, O. (2017). Lessons for Responsible Innovation in the Business Context: A Systematic Literature Review of Responsible, Social and Sustainable Innovation Practices. Sustainability, 9, 721.
- Owen, R., Macnaghten, P., & Stilgoe, J. (2012). Responsible research and innovation: From science in society to science for society, with society. Science and public policy, 39(6), 751–760.
- Stilgoe, J. Owen, R. & Macnaghten, P. (2013). Developing a framework for responsible innovation. Research Policy, 42, 9, 1568–1580.
- Buchanan, R. (1992) Wicked Problems in Design Thinking. Design Issues, 9 (2), 5–21.
- Oxman, N. (2016). Age of Entanglement. Journal of Design and Science. https://doi.org/10.21428/7e0583ad 1

Week 3:

- James, P, Magee, L., Scerri, A. & Steger, M. (2015) Urban Sustainability in Theory and Practice: Circles of Sustainability, Routledge, London, 2015.
- Penzenstadler, B., Duboc, L., Akinli Kocak, S., Becker, C., Betz, S., Chitchyan, R.,Easterbrook, S., Leifler, O., Porras, J., Seyff, N. & Venters, C. (2020, January). The SusAF Workshop – improving sustainability awareness to inform future business process and systems design (Version 2). Zenodo.
- Podder, S., Burden, A., Singh, S. K., & Maruca, R. (2020). How green is your software? Harvard Business Review, Sept.

Week 4:

- Bolton,R. & Hannon, M. (2016) Governing sustainability transitions through business model innovation: Towards a systems understanding. Research Policy 45, 9 (2016) 1731–1742.
- Geels, F.W., (2004). From sectoral systems of innovation to socio-technical system: insights about dynamics and change from sociology and institutional theory. Research Policy 33 (6/7), 897–920.
- Markard, J., Raven, R., & Truffer, B. (2012) Sustainability transitions: An emerging field of research and its prospects. Research Policy, 41,955–967.
- Rotmans, J. & Loorbach, D. (2009) Complexity and Transition Management. Journal of Industrial Ecology, 13, 2, 185–1196.

Week 5:

- Van de Poel, I. R., & Royakkers, L. M. (2011). Ethics, technology, and engineering: An introduction. Wiley-Blackwell.
- Bostrom, N. (2002). Existential risks. Journal of Evolution and technology, 9(1), 1–31.
- Bryden, J., & Gezelius, S. S. (2017). Innovation as if people mattered: The ethics of innovation for sustainable development. Innovation and development, 7(1), 101–118.
- de Vries, B. J. (2019). Engaging with the Sustainable Development Goals by going beyond Modernity: An ethical evaluation within a worldview framework. Global Sustainability, 2.

Week 6:

- Miller, R. (2018). Transforming the future: Anticipation in the 21st century. Taylor & Francis.
- United Nations Development Programme (2018) Foresight Manual. Empowered Futures for the 2030 Agenda. UNDP Global Centre for Public Service Excellence.

23.10. GENERAL TIPS FOR TEACHERS

Applying arts in STEM education is somewhat novel, which is why some change resistance regarding the new method can appear. Making a case for STEAM methodology by stating the objectives and needs for this kind of teaching is critical from the start, in addition to regularly gathered feedback sessions with students.

Some students may also find it uncomfortable to throw themselves into the theatre-based approach. To overcome the reservations of these students, it is important that teachers show their own example of role-playing, sharing opinions, creating example narratives, etc. to create a positive and secure environment where students can get creative too and enable an interactive learning experience. Therefore, the positive attitude, competencies and facilitator skills of teachers are extremely important for the successful implementation of this teaching format.

The topic of the course is wide and some of the theoretical concepts can seem somewhat abstract. Therefore, it is important to clearly link the theory of each session to the exercises to have a practical element that students can grasp onto and utilize in their main course project.

Finally, clarity of instructions regarding course implementation and assessment, as well as ease and efficiency of communication (among students, as well as between students and teachers) is of special importance to a successful teaching and learning process in an online course.

REFERENCES

Adams, R., Jeanrenaud, S., Bessant, J., Denyer, D., & Overy, P. (2016). Sustainability-oriented innovation: A systematic review. International Journal of Management Reviews, 18(2), 180–205.

Ayers, J., Bryant, J. and Missimer, M. (2020). The Use of reflective pedagogies in sustainability leadership education—A case study. *Sustainability*, 12(17), 6726.

Bearman, M., Palermo, C., Allen, L. M., & Williams, B. (2015). Learning empathy through simulation: a systematic literature review. *Simulation in Healthcare*, 10(5), 308–319.

Chien, Y.H. & Chu, P.Y. (2018). The different learning outcomes of high school and college students on a 3D-printing STEAM engineering design curriculum. *International Journal of Science and Mathematics Education*, 16(6), 1047–1064.

Diamandis, P. H., & Kotler, S. (2020). The future is faster than you think: How converging technologies are transforming business, industries, and our lives. Simon & Schuster.

Evans, T.L. (2019). Competencies and pedagogies for sustainability education: A roadmap for sustainability studies program development in colleges and universities. *Sustainability*, 11(19), 5526.

Geels, F.W. (2010). Ontologies, socio-technical transitions (to sustainability), and the multi-level perspective. *Research Policy*, 39, 495–510.

Giangrande, N., White, R.M., East, M., Jackson, R., Clarke, T., Saloff Coste, M. & Penha-Lopes, G. (2019). A competency framework to assess and activate education for sustainable development: Addressing the UN sustainable development goals 4.7 challenge. *Sustainability*, 11(10), 2832.

Jansen, I. J. (2008). (Higher) Education for Sustainable Development. Global Watch, 3(3), 47.

McSharry, G. & Jones, S. (2000). Role-play in science teaching and learning. *School Science Review*, 82(298), 73–82.

Mezirow, J.(2000). Learning as Transformation: Critical Perspectives on a Theory in Progress. The Jossey-Bass Higher and Adult Education Series. Jossey-Bass Publishers, 350 Sansome Way, San Francisco, CA 94104.

Miller, R. (2018). Transforming the future: Anticipation in the 21st century. Taylor & Francis.

Moaveni, S., & Chou, K. (2017). Using the five whys methods in the classroom: How to turn students into problem solvers. Journal of STEM education, 17(4).

Moore, D., Cheng, Y., McGrath, P., & Powell, N. J. (2005). Collaborative virtual environment technology for people with autism. Focus on autism and other developmental disabilities, 20(4), 231–243.

Nissley, N. (2002). Arts-based learning in management education. Rethinking management education for the 21st century, 14(5), 27–61.

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.

Ødegaard, M. (2003). Dramatic Science. A Critical Review of Drama in Science Education, *Studies in Science Education*, 39(1), 75–101.

Ødegaard, M.(2007). Naturfag til nytte og glede! Naturvitenskapelig allmenndannelse ved dramatiske virkemidler. *Nordic Studies in Science Education*, 3(1), 76–85.

Owen, R., Stilgoe, J., Macnaghten, P., Gorman, M., Fisher, E. & Guston, D. (2013). A framework for responsible innovation. *Responsible innovation: managing the responsible emergence of science and innovation in society*, 31, 27–50.

Pavis, P. (1998). *Dictionary of the theatre: Terms, concepts, and analysis*. University of Toronto Press.

Perignat, E., & Katz-Buonincontro, J. (2019). STEAM in practice and research: An integrative literature review. Thinking skills and creativity, 31, 31–43.

Rhodes, G. D., & Springer, J. P. (Eds.). (2005). *Docufictions: Essays on the intersection of documentary and fictional filmmaking*. McFarland.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Rittel, H. W., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning.", *Policy Sciences*, 4(2), 155–169.

Schumpeter, J.A. (1912) Theorie der wirtschaftlichen Entwicklung. Dunker & Humblot, Leipzig. The Theory of Economic Development, translated by R. Opie. Harvard University Press, Cambridge, MA, 1934.

Sipos, Y., Battisti, B. & Grimm, K. (2008). Achieving transformative sustainability learning: engaging head, hands and heart. International Journal of Sustainability in Higher Education, 9 (1), 68–86.

Stehle, S.M. & Peters-Burton, E.E. (2019). Developing student 21st Century skills in selected exemplary inclusive STEM high schools. *International Journal of STEM education*, 6(1),1–15.

Stilgoe, J., Owen, R., & Macnaghten, P. (2013). Developing a framework for responsible innovation. Research policy, 42(9), 1568–1580.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

United Nations (2015). Transforming our World: The 2030 Agenda for Sustainable Development. General Assembly Resolution A/RES/70/1.

United Nations Development Programme (UNDP) (2018). Foresight Manual. Empowered Futures for the 2030 Agenda. UNDP Global Centre for Public Service Excellence.

Wankel, C. and Stoner, J.A. (eds.) (2009). *Management education for global sustainability*. IAP.

Yakman, G. (2008). STEAM education. An overview of creation a model of integrative education. PATT.

Yakman, G., & Lee, H. (2012). Exploring the exemplary STEAM education in the US as a practical educational framework for Korea. Journal of the Korean Association for Science Education, 32(6), 1072–1086.

Unai Tamayo Orbegozo & Julen Castillo-Apraiz

Chapter 24. Sustainable Marketing and Sales Management

24.1. COURSE SUMMARY

Table 24–1

Audience and level of studies	Students (Bachelor)	
Group size	51–75	
Course duration	15 weeks	
Credits	3 ECTS	
Workload	Presence: 42 h (teaching) + 18h (seminars) Self-study: 30 h	Total: 90 h
Contents/primary topics	• Product development • Sustainable production • Sustainable marketing mix	
Main course objectives	• Strengthen sustainability related aspects in product/service design, marketing strategies and sales management	
Main teaching approaches	• Active learning • Experiential learning • Collaborative learning	
Main teaching methods	• Group discussion • Case studies • Sustainability-related research project	
Learning environment	Classroom (face-to-face learning)	
Link to Sustainable Development Goals (SDGs)	SDG 4 | Quality Education | Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns	

Table 24–2

Impact assessment	**(None) Low/ Medium/ High**	**Explanation**
1. Degree of student participation / activeness	High	Students work on an own project throughout the whole class students and experiences through group discussions and debates.
2. Degree of student collaboration / group work	High	Students participate in a team project and need to work together to gain synergies.
3. Degree of student emotional involvement	Medium	Students get emotionally involved by sharing their own interests, personal views and backgrounds. They also get examples of real environment-related cases, which increases emotional links.
4. Degree of inter-/transdisciplinarity	Low	Students benefit from team members' different backgrounds.
5. Degree of student (self-) reflection	Medium	Students need to openly share their personal characteristics (e.g., hobbies) and experiences with colleagues.
6. Degree of experience of real-life situations	Medium	Students hear in class cases of companies with a social and environmental purpose and they need to create ideas which would have a real application (sustainability-related research project).
7. Degree of nature-related experiences	None	Teaching and learning happens in classroom only.
8. Degree of stakeholder integration	Low	Stakeholders are considered when students hear cases and when they create their own ideas.
9. Degree of integration between theory and practice	High	Practical examples of organizations that have generated a sustainable business model are presented by young entrepreneurs that are invited to the classroom and serve as inspiration for the students. In class, students are given the opportunity to work on disruptive business ideas and need to base on real examples to create their own ideas usually based on theoretical inputs provided by lecturers.

24.2. COURSE INTRODUCTION

Today's world is facing new challenges and approaching sustainability is certainly one of them. Education is one of the pillars upon which the change is built. In this regard, Education for Sustainable Development (EDS) is a lifelong learning process directing individuals to act in a sustainable manner (Rieckmann, 2018). EDS plays a major role in proactively making the change happen.

The course is framed in the business field. The main objective of the course is to provide students with a basic training that will enable them to structure and analyse marketing and commercialization problems and thereby formulate sustainable product, price, distribution and communication policies.

Lecturers need to focus on today's students as they will be tomorrow's business leaders. Nowadays, sustainability is one of the key areas which affects — to a greater or lesser extent — almost all business decisions generally speaking, some of which are compulsory but many others are voluntary (Castillo-Apraiz, 2021a,b). Hence, the well-known 4Ps of Marketing mix (Mc Carthy, 1971) need to develop accordingly so that they respond to emerging problems. In fact, scholars acknowledge that sustainability-related practices have a positive impact on performance in terms of marketing mix strategies (Duffett et al., 2018; Khan et al., 2020).

Students have to develop a business idea based on a product or service that generates social-environmental value. They must define the target and a specific market, design the distribution and communication strategy, and establish the appropriate pricing strategy according to the target market. In order to stimulate practical application in the projects, entrepreneurs/start-ups involved in sustainability field are invited to present their socio-environmental entrepreneurship projects face-to-face in the classroom. This serves as inspiration for students, and this way sustainable entrepreneurship support programmes of different universities as well as stakeholders can be integrated into the course to bring students closer to reality. Subsequently, in a simulated context, the groups are asked to create video content (in an audio-visual format of no more than three minutes) about their business idea. They should follow the Social CANVAS Model (Daou et al., 2020; Osterwalder & Pigneur, 2010), using the *Elevator Pitch* methodology (Margherita & Verrill, 2021).

24.3. LEARNING OBJECTIVES

Table 24–3

Learning objective dimension (UNESCO, 2017)	**Operationalisation**	**Competency referred to (Rieckmann, 2018)**
Cognitive	Identify and cluster significant environmental and social issues and major research related to product design sustainable development.	Systems thinking competency
Socio-emotional	Develop a professional oral communication and writing, in order to improve business and marketing vocabulary, specifically about green marketing and environmental business and management issues.	Collaboration and critical thinking competencies
Behavioural	Implement new solutions to solve sustainability problems and reduce potential product development related negative impacts.	Strategic and integrated problem-solving competencies

24.4. COURSE OUTLINE

Table 24–4

Structure		Session focus	Homework
Week 1	Project design (4,5 h)	INTRODUCTION • Introduction to the course • Talk about hobbies and previous experiences / backgrounds (soft skills development)	• Reporting interests-related information • List of concepts
Week 2	Project design (4,5 h)	PROJECT KICK-OFF • Subject content • Project definition • Examples • Creating team working groups (5–6 team members) for group tasks, discussion workshops and assignments • Team members will each receive a self-evaluation document and at the end of each meeting	• List of concept • Design
Week 3	Project development (4,5 h): unit 1	PRODUCT AND PRICE RELATED DECISIONS • Readings about Project Based Learning (PBL) methodology • Real cases MARKETING RELATED DECISIONS • Concrete examples; marketing channel • Incompatibilities between channels • Searching for examples (individually) to identify management processes	Examples sharing and choosing the best one
Week 4	Project development (4,5 h): units 1,2 & 3	PRODUCT AND PRICE RELATED DECISIONS • Working together • Application in the project MARKETING RELATED DECISIONS • Presentation of the chosen examples / processes • Visit two firms: choosing firms	Problem-based case

Structure		Session focus	Homework
Week 5	Project development (4,5 h): units 2 & 3	PRODUCT AND PRICE RELATED DECISIONS • Reading: product levels and classification • Discussion about the reading • Comparing characteristics with other competing firm • Puzzle: services marketing MARKETING RELATED DECISIONS • Dossier about visited firms	• Report about competitors • Dossier about visited firms: summary and differences (mandatory)
Week 6	Project development (4,5 h): units 2 & 3	PRODUCT AND PRICE RELATED DECISIONS • Test (individual) • Applying learnings into the project MARKETING RELATED DECISIONS • Test (individual)	
Week 7	Project development (4,5 h): units 2, 3 & 4	PRODUCT AND PRICE RELATED DECISIONS • Specialization in product portfolio • Meeting with experts • Searching for information about competitors' product portfolio MARKETING RELATED DECISIONS Retailing mix: video and map	Carrying out exercises about product (mandatory) • Exercise about concept map
Week 8	Project development (4,5 h): units 2, 3 & 4	PRODUCT AND PRICE RELATED DECISIONS • Comparing the information about competitors' product portfolio MARKETING RELATED DECISIONS • Buying experience	Completing a report about product portfolio.
Week 9	Project development and fine tuning (4,5 h): units 2, 3 & 4	PRODUCT AND PRICE RELATED DECISIONS • Oral presentations • Project implementation • Final activity: discussion about coherence MARKETING RELATED DECISIONS • Final activity: co-assessment and improvement proposals	Completing an exercise about product and submitting a co-assessment report.
Week 10	Project development and fine tuning (4,5 h): units 4 & 5	PRODUCT AND PRICE RELATED DECISIONS • Final project preparation MARKETING RELATED DECISIONS • Final project preparation	Working on the final project.

Structure		Session focus	Homework
Week 11	Developing further units (4,5 h): units 5 & 6	PRODUCT AND PRICE RELATED DECISIONS • Explanations of lecturers MARKETING RELATED DECISIONS	
Week 12	Developing further units (4,5 h): units 5 & 6	PRODUCT AND PRICE RELATED DECISIONS • Explanations of lecturers (price decisions related views) MARKETING RELATED DECISIONS	Working on the report and poster.
Week 13	Developing further units (4,5 h) units 5, 7 & 8	PRODUCT AND PRICE RELATED DECISIONS • Further exercises about prices. MARKETING RELATED DECISIONS	
Week 14	Developing further units (4,5 h): units 5 & 8	PRODUCT AND PRICE RELATED DECISIONS • Comparing price strategies of two competing firms MARKETING RELATED DECISIONS	
Week 15	Developing further units (4,5 h) : units 5, 6, 8 & 9	PRODUCT AND PRICE RELATED DECISIONS • Exam about price decisions MARKETING RELATED DECISIONS • Final activity: best project	

24.5. TEACHING APPROACHES AND METHODS

This course combines different types of teaching approaches, namely active learning, experiential learning and collaborative learning. Combining different approaches has proven to have a positive effect on students' perceptions and attitudes in management-related courses (Burton et al., 1991). The chosen approaches are oriented towards students' satisfaction and learning (Mesny et al., 2021). Furthermore, by applying a system approach, a more holistic and rational understanding of firms and the challenges they face is obtained (Kennedy et al., 2021).

Active learning is widely applied in sustainable education (Kalamas Hedden et al., 2017; MacVaugh & Norton, 2011). This course helps students shape the future by making them environmentally emancipated. This project-based course offers students the chance of challenging the status quo and address the complex nature of sustainability-related topics. For example, by brainstorming

in class, students learn to identify sustainability-related problems and identify potential solutions which would be reflected in a project.

The students are provided with an explanation of an inspiring real sustainable environmental case. Moreover, some papers are given to them to enable the understanding of the different concepts of the field. Those articles offer an introduction to basic concepts of ecological marketing such as circular economy, green marketing, reverse logistics, sustainability, and Sustainable Development Goals (SDGs), among others.

Experiential learning is also applied. The students share their experiences — both in formal and non-formal settings — and engage in real-life problems and examples. This approach is often used when developing students' sustainability competencies (Savage et al., 2015). In this course, this approach is applied since the very first sessions, as it also works as an "icebreaker" and fosters collaborative group learning.

Collaborative learning is used to develop the specific projects. At this stage students participate in small-group activities and share their knowledge and experience in corporate sustainability tools and processes. In fact, within the education for sustainability framework, creating collaborative learning spaces is effective to bridge learning and action (Schnitzler, 2019; Wals, 2010).

Similarly, in this course a system of several teaching methods is suggested. As a warm-up, first the *flipped classroom* procedure is applied at some stages in order to explain some basics before the sessions begin. Some readings are provided so that students gain some basic notions. Flipped classroom is an effective way through which students take over their learning (find a review of its advantages and disadvantages in Akçayır & Akçayır, 2018). Furthermore, flipped classroom helps improving higher education students' satisfaction (Bergmann & Sams, 2012; Martínez-Jiménez & Ruiz-Jiménez, 2020). This approach would be aligned with SDG 4 "education for sustainability".

Since some students might already have some working experience, they have especially valuable information to share and to discuss with each other. That is why using *case studies* or short paper readings for promoting *group discussions* is a useful and effective method for management teaching (Patton & Appelbaum, 2003); students are provided information about business ethics issues, such as the different stakeholders' needs, management's decision-making principles and processes, and the relative importance of SDGs in several business sectors, among others.

For discussions and debates in-class role play is developed. Occasionally the *role playing* as a teaching method is also used to generate *debate* and get a 360º degree perspective and different approach to the same case in complex realities. Actually, some studies demonstrate that students taught using role-playing simulation activities achieve better marks (e.g., Barrera et al., 2021) and

higher levels of motivation, creativity and collaboration (e.g., Moreno-Guerrero et al., 2020) compared to students who do not. For example, one could use the stakeholder approach when discussing the appropriateness of building a road/highway, which clearly would generate for and against views.

24.6. EXERCISES

Personal Interest and Motivations

Students are asked to talk about their interests and describe what they do outside the university. The main goal of this exercise is knowing what students' starting point is. It is important to know students' previous experiences. Hence, creating an informal environment in which students share their initial views would be appropriate. This exercise helps getting in touch with students' motivations and to assess which are their personal interests. This way, lecturers get a general view of students, which allows a better alignment with their needs.

Real Case Development

During the first weeks of the course, before the group work begins, a real case of a company with a social and environmental purpose will be presented in class. This would be used as a food-for-thought for students. Preferably students would choose an organization that has had some difficulties before entering the market in order to really exemplify the complexity of entrepreneurship. If possible, alumni or people with links to the university will be involved. This task will be used as a reference and basis for the development of the project throughout the course. To this end, a session will be set up in which the case will be presented orally and students will be given the opportunity to interact with the speakers. In the next face-to-face session in classroom, a workshop will be set up in order to draw conclusions in small groups from the previous talk. This would lead to creating the guidelines to be used in the development of the projects.

Group Video Edition

Once the groups have been activated, each team is asked to describe its idea by editing a video that will be shown in the classroom. Beforehand, an example of a sustainable business case will be shown, also in video format. The *Elevator Pitch methodology* (Margherita & Verrill, 2021) will be presented in order to guide the editing of the videos and to establish a time limit, setting a maximum of three minutes. One of the sessions is designed for students to establish a draft

with the argument and the sequences to be recorded, while another session is designed to the recording, encouraging students to go outdoors to choose the best framework to represent their business idea.

24.7. ASSESSMENT

Team Project

Student teams are asked to develop and present a project which will be assessed afterwards. The project must have a positive impact on society and will be assessed according to its contribution to generating social and environmental value. The concepts and theoretical knowledge about green marketing (Arseculeratne & Yazdanifard, 2014; Calomarde, 2000) acquired during the course must be used in an applied way throughout the project. SDGs will be used as a framework of analysis and reference to approach the work. During the course students have the chance to get better and learn by achieving a set of different milestones. This will allow and guide the development of the group work, the basis of which lies in the generation of a solution to a previously detected socio-environmental problem. The team project weights 60 % of the overall mark. Students need to write and present a report of the project. Both the written part (75 % of the mark) and the oral part (25 % of the mark) are assessed both form and content wise.

Case Application

There is an additional assessment based on an examination of sustainable marketing concepts applied to real cases previously explained in the classroom thanks to the case development methodology. The theoretical concept application weights 20 % of the overall module mark. When assessing the case, lecturers need to take into account the theoretical soundness of the concepts and their applicability to real life.

Oral Presentation

Oral presentation of the workshop results will be held at the end of the course. Students create digital presentations using video editing software and share the presentations with the class using a video platform. This project development approach creates a space for autonomous and creative learning. In this way, the groups will have the opportunity to discuss and structure the projects. The assessment is based on the ability to apply the theoretical concepts studied

throughout the course and the ability to present the results obtained orally. The oral presentation weights 20 % of the overall module mark.

24.8. PREREQUISITES

- Required prior knowledge of students:
  - Basics of business management and marketing: main concepts, characteristics of products/services, theories, frameworks and techniques[35].
  - Basics of sustainability related concepts (e.g., 2030 Agenda and Sustainable Development Goals).
  - Familiarity with the following concepts is advisable: circular economy, design thinking, green marketing and reverse logistics.
- Required instructors and their core competencies:
  - Lecturers: subject content and related topics.
  - Teachers: soft skills for facilitating group work and previous experience with Project Based Learning (PBL) methodology to guide project work[36].
  - Industry expert: real-life business expertise.
- Required tools
  - Online education platform (e.g., Moodle) and communication platform (e.g., Zoom, Microsoft Teams, Webex Meeting)
  - Video editing software (e.g., Filmora) and video sharing platform (e.g., YouTube)

24.9. RECOMMENDED RESOURCES

Soft skills:

- Caggiano, V., Schleutker, K., Petrone, L., & Gonzalez-Bernal, J. (2020). Towards identifying the soft skills needed in curricula: Finnish and Italian students' self-evaluations indicate differences between groups. *Sustainability*, *12*(10), 4031.

35 Hutt and Spet (2021) propose a methodological guide for the integration of these concepts as a framework for business marketing management.

36 A book specifically designed to apply the Project Based Learning (PBL) methodology can be recommended. Besides theoretical content, books offer suitable compilation of exercises and recommended readings to ensure the methodology's implementation in an efficient way.

- Deep, S., Salleh, B. M., & Othman, H. (2019). Study on problem-based learning towards improving soft skills of students in effective communication class. *International Journal of Innovation and Learning, 25*(1), 17–34.
- England, T. K., Nagel, G. L., & Salter, S. P. (2020). Using collaborative learning to develop students' soft skills. *Journal of Education for Business, 95*(2), 106–114.
- Vogler, J. S., Thompson, P., Davis, D. W., Mayfield, B. E., Finley, P. M., & Yasseri, D. (2018). The hard work of soft skills: augmenting the project-based learning experience with interdisciplinary teamwork. *Instructional Science, 46*(3), 457–488.

Green marketing:

- Duffett, R., Edu, T., Haydam, N., Negricea, I. C., & Zaharia, R. (2018). A multi-dimensional approach of green marketing competitive advantage: a perspective of small medium and micro enterprises from Western Cape, South Africa. *Sustainability, 10*(10), 3764.
- Sáez de Cámara E, Fernández I, Castillo-Eguskitza N. (2021) A Holistic Approach to Integrate and Evaluate Sustainable Development in Higher Education. The Case Study of the University of the Basque Country. *Sustainability, 13*(1),392.

24.10. GENERAL TIPS FOR TEACHERS

Education for Sustainability (EfS) in the management field and marketing requires an upstream approach to address business decisions taking into consideration the limits of growth to meet the challenges of environmental sustainability in a rigorous way. In order to address these issues, it is suggested to consider the students in an integrated way, taking into account their hobbies, motivations and previous knowledge; in other words, students' life beyond the classroom is relevant. Teachers should, therefore, create a friendly working environment that fosters debate in the classroom while it allows working within small groups in a systematic way.

REFERENCES

Akçayır, G., & Akçayır, M. (2018). The flipped classroom: A review of its advantages and challenges. *Computers & Education*, *126*, 334–345.

Arseculeratne, D. & Yazdanifard, R. (2014). How Green Marketing Can Create a Sustainable Competitive Advantage for a Business. *International Business Research,7*(1), 130–137. Doi: 10.5539/ibr. V7n1p130.

Barrera, F., Venegas-Muggli, J. I., & Nuñez, O. (2021). The impact of role-playing simulation activities on higher education students' academic results. *Innovations in Education and Teaching International, 58*(3), 305–315.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day*. International society for technology in education.

Burton, S., Johnston, M. W., & Wilson, E. J. (1991). An experimental assessment of alternative teaching approaches for introducing business ethics to undergraduate business students. *Journal of Business Ethics, 10*(7), 507–517.

Calomarde, J. (2000). *Marketing Ecológico*. Madrid, España: Editorial Pirámide.

Castillo-Apraiz J. (2021a) Spain. In: S. Bustamante, F. Pizzutilo, M. Martinovic, S. Herrero Olarte (Eds.) *Corporate Social Responsibility and Employer Attractiveness. CSR, Sustainability, Ethics & Governance*. Springer, Cham. https://doi.org/10.1007/978-3-030-68861-5_19

Castillo-Apraiz J. (2021b) CSR in Latin Europe: An Overview. In: S. Bustamante, F. Pizzutilo, M. Martinovic, S. Herrero Olarte (Eds.) *Corporate Social Responsibility and Employer Attractiveness. CSR, Sustainability, Ethics & Governance*. Springer, Cham. https://doi.org/10.1007/978-3-030-68861-5_16

Daou, A., Mallat, C., Chammas, G., Cerantola, N., Kayed, S., & Saliba, N. A. (2020). The Ecocanvas as a business model canvas for a circular economy. *Journal of Cleaner Production, 258*, 120938.

Duffett, R., Edu, T., Haydam, N., Negricea, I. C., & Zaharia, R. (2018). A multi-dimensional approach of green marketing competitive advantage: a perspective of small medium and micro enterprises from Western Cape, South Africa. *Sustainability, 10*(10), 3764.

Hutt, M., & Spet, T. (2021). *Business Marketing Management*: *B2B*. South Western CENGAGE Learning.

Kalamas Hedden, M., Worthy, R., Akins, E., Slinger-Friedman, V., & Paul, R. C. (2017). Teaching sustainability using an active learning constructivist approach: Discipline-specific case studies in higher education. *Sustainability, 9*(8), 1320.

Khan, E. A., Royhan, P., Rahman, M. A., Rahman, M. M., & Mostafa, A. (2020). The impact of enviropreneurial orientation on small firms' business performance: The mediation of green marketing mix and eco-labeling strategies. *Sustainability, 12*(1), 221.

Kennedy, S., Grewatsch, S., Liboni, L., & Cezarino, L. O. (2021). A Systems Approach to Business Sustainability Education. In *Academy of Management Proceedings* (Vol. 2021, No. 1, p. 15644). Briarcliff Manor, NY 10510: Academy of Management.

MacVaugh, J., & Norton, M. (2011). Introducing sustainability into business education contexts using active learning. *International Journal of Sustainability in Higher Education, 13*(1), 72–87.

Margherita, A., & Verrill, D. (2021). Elevator Pitch Assessment Model: A Systematization of Dimensions in Technology Entrepreneurship Presentations. *IEEE Transactions on Professional Communication, 64*(4), 304–321.

Martínez-Jiménez, R., & Ruiz-Jiménez, M. C. (2020). Improving students' satisfaction and learning performance using flipped classroom. *The International Journal of Management Education, 18*(3), 100422.

McCarthy, J.E. (1971). *Basic Marketing: A Managerial Approach*, Richard D. Irwin, Homewood, IL.

Mesny, A., Pastoriza Rivas, D., & Poisson-de Haro, S. (2021). Business school professors' teaching approaches and how they change. *Academy of Management Learning & Education, 20*(1), 50–72.

Moreno-Guerrero, A. J., Rodríguez-Jiménez, C., Gómez-García, G., & Ramos Navas-Parejo, M. (2020). Educational innovation in higher education: Use of role playing and educational video in future teachers' training. *Sustainability, 12*(6), 2558.

Osterwalder, A., & Pigneur, Y. (2010). *Business model generation: a book for visionaries, game changers, and challengers (Vol. 1)*. John Wiley & Sons.

Patton, E., & Appelbaum, S. H. (2003). The case for case studies in management research. *Management Research News, 26*(5), 60–71.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and trends in education for sustainable development* (pp. 39–59). UNESCO Publishing.

Savage, E., Tapics, T., Evarts, J., Wilson, J., & Tirone, S. (2015). Experiential learning for sustainability leadership in higher education. *International Journal of Sustainability in Higher Education 16*(5), 692–705.

Schnitzler, T. (2019). The bridge between education for sustainable development and transformative learning: Towards new collaborative learning spaces. *Journal of Education for Sustainable Development, 13*(2), 242–253.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wals, A. E. (2010). Mirroring, Gestaltswitching and transformative social learning: Stepping stones for developing sustainability competence. *International Journal of Sustainability in Higher Education 11*(4), 380–390.

Elena Senatorova

Chapter 25. Not Just Numbers – Understanding Company Financial and Non-Financial Data for Sustainability

25.1. COURSE SUMMARY

Table 25–1

Audience and level of studies	Students (Master)	
Group size	26–50	
Course duration	14 weeks	
Credits	4 ECTS	
Workload	Presence: 48h Self-study: 104h	Total: 152h
Contents/primary topics	• 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	
Main course objectives	• Provide a framework within which students can develop an understanding of the determinants and uses of financial, social and environmental reporting data • Equip students with the knowledge and skills to disclose and interpret financial and sustainability information • Familiarize students with the sustainability practices that help them to make responsible decisions and take a sustainable course of action to solve problems	
Main teaching approaches	• Active learning • Collaborative learning • Experiential learning	
Main teaching methods	• Group discussion • Case study • Sustainability-related research project	
Learning environment	Hybrid classroom (face-to-face and online learning)	

Link to Sustainable Development Goals	SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation

Table 25–2

Impact assessment:	**(None) Low/Medium/High**	**Explanation**
1. Degree of student participation / activeness	High	Students are conducting their own work in a project. It allows them to identify complicated issues, get individual explanations from the teacher, and clearly understand the new material.
2. Degree of student collaboration / group work	High	Most of the course activities are in the form of teamwork where students are expected to work together towards a common goal. Students are also taking part in a team project during the whole semester.
3. Degree of student emotional involvement	High	Students are gaining first-hand experiences in a project and are discussing the emotional aspects of these experiences in class. While working on the projects, students focus on emotional aspects of learning, relating to values and attitudes.
4. Degree of inter-/transdisciplinarity	High	Students are working in group projects where they have to take knowledge of several disciplines into consideration and combine it in order to create a new and holistic solution. Students use their knowledge of financial and non-financial accounting and reporting, business ethics and sustainable development issues. Moreover, people from different disciplines are involved.
5. Degree of student (self-) reflection	Medium	Students are working on a project about sustainability reporting and are discussing it in class. They are critically reflecting on their personal sustainability-related knowledge, experiences, assumptions, beliefs as well as values.
6. Degree of experience of real-life situations	High	Students gain a first-hand experience in a real project. In addition, students participate in excursions to sustainable companies.
7. Degree of nature-related experiences	(None)	

8. Degree of stakeholder integration	High	Students are doing a project titled "Financial and non-financial statements analysis". In this project, they are analysing financial and non-financial statements of public companies, identifying different stakeholders and collaborating directly with them, and conducting their conclusions concerning sustainability and financial reporting.
9. Degree of integration between theory and practice	High	Theory and practical elements concerning sustainability and finance issues interact intensively. In different sessions of the course, theory is provided which needs to be directly applied within a practical project.

25.2. COURSE INTRODUCTION

The course provides students with an understanding of the broad sustainability and accounting principles, concepts, and the role of financial and non-financial information in the decision-making process. According to Sustainable Development Goals Target 4.7 all students gain skills and knowledge needed to contribute to sustainability. This demands a transformative approach "…with change for sustainability as an explicit outcome in addition to subject knowledge" (Greig & Priddle, 2019, p. 1). The sustainability module is particularly valuable because it broadens the student's perspective (Wyness & Dalton, 2018). Moreover, learning is useful only if knowledge can be applied to real-world economic, ecological and social issues (Apostolou et al., 2019). The class will include a discussion of integrated reports of famous multinational companies and articles on related topics. Upon successful completion of this course, students should be able to prepare financial and non-financial statements, analyse sustainability and accounting information, and draw conclusions for sustainable decisions. The course is specifically interesting because of its interdisciplinary character. Furthermore, the teacher plays the role of a coordinator, and the provided material requires students to work independently and rely on their problem-solving skills.

25.3. LEARNING OBJECTIVES

Table 25–3

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework of Rieckmann (2018)**
Cognitive	Ability to reflect on the key environmental and social challenges that occur in a variety of socio-economic and cultural contexts and understand their major causes and impacts	Systems thinking competency
	Ability to identify important environmental and social issues and major research concerning sustainable technology	Anticipatory competency
	Ability to prepare financial and non-financial statements	Systems thinking competency
	Ability to analyse sustainability and accounting information and interpret integrated reports	Systems thinking competency
Socio-emotional	Interpersonal skills and empathy	Collaboration competency
	Ability to convey information to others in a convincing way	Collaboration competency
	Ability to create an own vision for the future	Anticipatory competency
	Ability to critically examine views, norms and practices and reflect on personal perceptions, values and behaviour	Critical thinking competency
Behavioural	Ability to articulate the formal, technical, and theoretical attributes of the own work and the work of others	Anticipatory competency
	Ability to deal with risks and changes concerning financial and non-financial reporting disclosures	Anticipatory competency
	Ability to design and put sustainability-promoting actions into practice	Strategic competency
	Ability to handle group conflicts and enable a collaborative and participatory problem-solving process	Collaboration competency
	Ability to apply different problem-solving frameworks to complex sustainability reporting problems and create solutions that promote sustainable development and sustainability reporting – while integrating the above-mentioned competencies	Problem-solving competency

25.4. COURSE OUTLINE

Table 25–4

Structure		Session focus	Homework
Week 1	Session 1 (4h)	Introduction to the course and teaching methods	Getting acquainted with the course and methods used
Week 2	Session 2 (4h)	Scope and meaning of financial and sustainability reporting	Getting acquainted with reporting standards
Week 3	Session 3 (4h)	Financial statements	Preparing financial statements
Week 4	Session 4 (4h)	The statement of cash flows	Dividing into groups and choosing a company for the group project titled "Financial and non-financial statements analysis"
Week 5	Session 5 (4h)	Financial statement analysis	Reading the case study "Identify the industry – Analysis of financial statement data" (Rankine, 2014; see subchapter "Recommended Resources")
Week 6	Session 6 (4h)	Applied financial statement analysis. Case study: "Identify the industry – Analysis of financial statement data" (Rankine, 2014; see subchapter "Recommended Resources")	Working on the group project: "Financial and non-financial statements analysis", part 1 (see subchapter "Recommended Resources")
Week 7	Session 7 (4h)	Sustainability reporting process, external assurance	Solving exercises
Week 8	Session 8 (3h)	Excursion to a sustainable company	Working on the group project "Financial and non-financial statements analysis", part 2 (see subchapter "Recommended Resources")
Week 9	Session 9 (4h)	Integrated reporting	Solving exercises and reading the case study "Transaero: Turbulent times" (Senatorova et al., 2018; see subchapter "Recommended Resources")
Week 10	Session 10 (4h)	Advanced analysis of financial and non-financial statements. Case study: "Transaero: Turbulent times" (Senatorova et al., 2018; see subchapter "Recommended Resources")	Working on the group project: "Financial and non-financial statements analysis", part 3 (see subchapter "Recommended Resources")
Week 11	Session 11 (3h)	Excursion to a sustainable company	Writing a short essay

Structure		Session focus	Homework
Week 12	Session 12 (2h)	Group project, presentations	Solving exercise (see subchapter "Recommended Resources", Exercise 1)
Week 13	Session 13 (2h)	Group project, presentations	Solving exercises
Week 14	Session 14 (2h)	Review of the material covered in the course	Material covered in the course

25.5. TEACHING APPROACHES AND METHODS

Effective accounting and reporting teaching is challenging because it is strictly rule-dominated and mathematics-oriented, and teachers may be tempted to make the course boring for the students. Therefore, it is very important to motivate the students straight from the start by providing them with an understanding of the importance of sustainability for their future. Moreover, it is necessary to support the students' interest in the material and help them to comprehend that sustainability and reporting are related to very important and interesting issues: sustainability and financial information.

As mentioned in the course summary, the module combines different types of teaching approaches and methods. The main teaching approach is active learning, through which students are actively engaged in the learning process (Prince, 2004). Besides, collaborative and experiential learning are used throughout the course. The dominant teaching methods applied are group discussions, case studies and the conduct of a sustainability-related research project (for definitions of the mentioned approaches and methods see chapter 1 in the book). In addition, students participate in two field trips in the form of visiting sustainable companies.

In line with the dominant approaches, in-class work frequently consists of the following main parts:

- The teacher starts the classes by involving the students in the subject with a discussion of the material that was assigned as homework.
- The students do practical exercises including new material to best involve and understand the practical implementation of accounting and sustainability principles.
- The teacher provides lectures on the key theoretical aspects of the new topic.
- The students participate in creative group work aimed at searching possible solutions for difficult situations. This allows them to identify complicated issues, get individual coaching from the teacher, and grasp the new material.

The dominant approaches and methods are furthermore exemplified in the implementation of activities such as working on case studies (i.e. Rankine, 2014; Senatorova et al., 2018; see subchapter "Recommended Resources") and conducting different group exercises including a group project. The group project is titled "Financial and non-financial statements analysis". Teams of students choose multinational companies and conduct a detailed analysis of the company's financial and non-financial statements (for more information see subchapter "Exercises"). The project work is carried out in stages throughout the course. An important part of the project is a competitor analysis that considers the specific features of each industry that the companies operate in. The results are defended in the form of a PowerPoint presentation and a written report. The student projects are of applied nature and are expected to deepen the professional knowledge of students within the fields of sustainable development, financial analysis, accounting and auditing. During the projects, students also gain outcomes related to teamwork, the formation of sustainable thinking, and communication skills. The project also motivates students to successfully apply theoretical concepts to real-world situations. As students perform complex analyses in their group projects "…by drawing on knowledge from several disciplines at the same time" and are "...concerned with the links and the transfer of knowledge, methods, concepts, and models from one discipline to another" (Greig & Priddle, 2019, p. 3), the projects facilitate the application of another learning approach, that was recommended in literature as being suitable and effective for sustainability teaching, namely interdisciplinary learning (Annan-Diab & Molinari, 2017; Evans, 2019). Interdisciplinarity is furthermore supported by the material of the course which the teacher develops based on concepts from finance, accounting, and sustainability (Bajada & Trayler, 2013).

One very important teaching issue in the course is bilateral feedback. The most important parts of the feedback are in-class discussions as well as emails and forums. To improve feedback, it makes sense to start every lecture in the interactive format to understand what aspects of the material students do not understand clearly and explain them in another way (see also above). In addition, it is essential to encourage students to contact the lecturer through email and forums as well as to communicate with the lecturer in person during office opening hours. As effective bilateral feedback should include explicit measures, students are given, from time to time, short quizzes to refresh their memory of the material covered during the previous classes and to provide feedback on their performance. Additionally, the quizzes permit the teacher to evaluate the effectiveness of teaching methods and the level of understandability of the material.

Overall, the teaching process should focus, to be effective, on the ability of students to understand the material, apply their knowledge in their careers and

for their personal development, and become more sustainable individuals. Successful learning depends in this course on some important factors that include students' engagement in learning, bilateral feedback, effective course content, and sustainability thinking. After completing the course, students should not only be able to analyse financial and non-financial information, but also apply their knowledge in their professional and personal development and change their own behaviour, thus becoming more sustainable individuals. The course thereby ultimately contributes to "…empowering and motivating learners to become active sustainability citizens who are capable of critical thinking and able to participate in shaping a sustainable future" and therefore the goals of education for sustainable development (UNESCO, 2017, p. 54).

25.6. EXERCISES

Exercise 1: Interpreting Sustainability Reports

Part of Course: Week 12.

Goal: To interpret sustainability reports.

Format: Group project. All students are to be divided into groups comprising of up to four people.

Instructions for the Project: Students are to analyse the sustainability report of a public company and answer the following questions:

- What are the key concepts, theories and issues covered?
- What are the top 10 indicators that show performance data?
- What are the key trends?
- What are the main conclusions?

Exercise 2: Group project "Financial and Non-Financial Statements Analysis"

Part of Course: Weeks 4–13.

Goal: To analyse financial and non-financial statements for sustainable decision making.

Format: Group project. All students are to be divided into groups comprising of up to four people.

Instructions for the Project: Students should choose a public company and obtain its most recent annual reports, non-financial statements and consolidated financial statements. Moreover, students need to choose two competitors. The analysis consists of calculations and presentations organized according to the following outline:

Part 1. Company History and Industry Situation

- Company history and main geographic area of activity
- Description of the company's principal products or services
- Description of the industry and its outlook
- Company's future plans and ESG strategy based on what the students learned from the reports and their other research

Part 2. Financial Statements

- Income statement: determine gross profit, income from operations, and net income for the last two years and comment on the increases or decreases in these amounts.
- Balance sheet (statement of financial position): determine the most important items for the last two years and comment on the increases or decreases in these amounts.
- Statement of cash flows: Indicate whether the company's cash flows from operations for the past two years are more or less than the net income. Indicate whether the company is expanding through investing activities. Identify the company's most important source of financing. Overall, has the cash increased or decreased for the past two years?
- Ratio analysis: for the past two years, calculate and discuss the ratios for the company and competitors. In the presentation, students should focus on the interrelationships of the ratios and the broad picture as to whether the company is improving in each category.

Part 3. Sustainability Reports and Conclusions

- Analysis of non-financial information about the company using recent sustainability reports, annual reports and the students' other research.
- Main conclusions and recommendations.

25.7. ASSESSMENT

The overall score is based on the work activity (WA), the project (P), and the written exam (WE) score with the following weights:

$$\text{Overall score} = 0{,}2 * WA + 0{,}4 * P + 0{,}4 * WE$$

Work activity during seminar hours is controlled with attendance records and scoring involvement in discussions and teamwork as well as the quality of exercise performance during seminars. Higher participation grades will be giv-

en for insightful comments or questions that relate to class material; minimal grades will be assigned for simple questions of clarification. Attendance in class is an important priority as it is not possible to understand and grasp the fundamentals being taught in later topics unless the earlier topics have been mastered. Projects will be checked in class with presentations. Prior to checking the project, the teacher reviews all working papers for completion. Submission deadlines are specified in the instructions of the group project. Written exam is a closed-book exam with a 10-step grading scale. To pass the course, students have to receive at least 20 points out of 50 in the final written examination and perform a group project.

25.8. PREREQUISITES

Prior knowledge required from the students:

- Basics of financial accounting and reporting
- Basics of sustainable development

Required instructors and their core competencies:

- Lecturer (competencies: financial and sustainability reporting)
- Industry expert (competencies: real-life business expertise)

Required tools:

- Online collaboration platforms: video communication (e.g. Zoom), education (e.g. Moodle) and document editing (e.g. Google docs)

25.9. RECOMMENDED RESOURCES

Atrill, P., & McLaney, E. (2019). *Accounting and finance for non-specialists* (11th ed.). Pearson Education.

Busco, C., Granà, F., & Izzo, M. F. (2018). *Sustainable development goals and integrated reporting* (1st ed.). Routledge.

Rankine, G. (2014). *Identify the industry—Analysis of financial statement data.* Ivey Publishing. https://www.iveypublishing.ca/s/product/identify-the-industry-analysis-of-financial-statement-data/01t5c00000CwrGhAAJ

Senatorova, E. A., Erenburg, G., & Strickland, R. A. (2018). *Transaero: Turbulent times*. Harvard Business Review. https://store.hbr.org/product/transaero-turbulent-times/W18439

25.10. GENERAL TIPS FOR TEACHERS

Conducting the collaborative exercises will provide the necessary tools to teach students about financial and sustainability reporting in the classroom. Additionally, using active, collaborative, and experiential learning and effective teaching methods (group discussions, case studies, and student projects) will help to achieve high-quality learning outcomes. To make the content of the course more effective, it is important to use practical examples, which help the students to better understand the sustainability and reporting thematic.

REFERENCES

Annan-Diab, F., & Molinari, C. (2017). Interdisciplinarity: Practical approach to advancing education for sustainability and for the Sustainable Development Goals. *The International Journal of Management Education, 15*(2), 73–83. https://doi.org/10.1016/j.ijme.2017.03.006

Apostolou, B., Dorminey, J. W., Hassell, J. M., & Hickey, A. (2019). Accounting education literature review (2018). *Journal of Accounting Education, 47*, 1–27.

Bajada, C., & Trayler, R. (2013) Interdisciplinary business education: Curriculum through collaboration. *Education + Training, 55*(4/5), 385–402.

Evans, T. L. (2019): Competencies and pedagogies for sustainability education: a roadmap for sustainability studies program development in colleges and universities, *Sustainability, 11*(19), 5526.

Greig, A., & Priddle, J. (2019). Mapping students' development in response to sustainability education: A conceptual model. *Sustainability, 11*(16), 4324.

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

Rankine, G. (2014). *Identify the industry — Analysis of financial statement data.* Ivey Publishing. https://www.iveypublishing.ca/s/product/identify-the-industry-analysis-of-financial-statement-data/01t5c00000CwrGhAAJ.

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

Senatorova, E. A., Erenburg, G., & Strickland, R. A. (2018). *Transaero: Turbulent times*. Harvard Business Review. https://store.hbr.org/product/transaero-turbulent-times/W18439.

UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO Publishing.

Wyness, L., & Dalton, F. (2018). The value of problem-based learning in learning for sustainability: Undergraduate accounting student perspectives. *Journal of Accounting Education, 45*, 1–19.

Bimal Arora†, Tony Henshaw, Divya Jyoti & Achilleas Karayiannis

Chapter 26. The Role of Business for a Sustainable Future: Critical Perspectives

26.1. COURSE SUMMARY

Table 26–1

Audience and level of studies	Students (Master)	
Group size	26–50	
Course duration	10 weeks	
Credits	7.5 ECTS	
Workload	Presence: 30h Self-study: 120h	Total: 150h
Contents/primary topics	• Megatrends and squeezing operating space • Analysis and management of social and ecological vulnerabilities • Responsible business stewardship	
Main course objectives	• Preparing current and future business leaders and managers for addressing grand challenges and wicked problems of business sustainability by developing their systems-thinking as well as their anticipatory, normative, strategic and interpersonal competences.	
Main teaching approaches	• Active learning • Inter-/transdisciplinary learning • Collaborative learning	
Main teaching methods	• Group discussions • Lectures • Self-reflection tasks/exercises	
Learning environment	Classroom (face-to-face learning)	

Link to Sustainable Development Goals	SDG 1 | No Poverty | End poverty in all its forms everywhere SDG 5 | Gender Equality | Achieve gender equality and empower all women and girls SDG 8 | Decent Work and Economic Growth | Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all SDG 9 | Industry, Innovation and Infrastructure | Build infrastructure, promote inclusive and sustainable industrialization and foster innovation SDG 10 | Reduced Inequalities | Reduce inequality within and among countries SDG 12 | Responsible Consumption and Production | Ensure sustainable consumption and production patterns SDG 13 | Climate Action | Take urgent action to combat climate change and its impacts SDG 17 | Partnerships for the Goals | Strengthen the implementation and revitalize the global partnership for sustainable development (While the above eight SDGs will be more directly discussed and integrated, deliberations and reflections on megatrends will also touch upon SDG 3: Good Health and Well-being; SDG 6: Clean Water and Sanitation; SDG 7: Affordable and Clean Energy; SDG 11: Sustainable Cities and Communities; SDG 14: Life Below Water; SDG 15: Life on Land; SDG 16; Peace, Justice and Strong Institutions)

Table 26–2

Impact assessment:	**(None) Low/Medium/High**	**Explanation**
1. Degree of student participation / activeness	High	Students conduct own research and then share with peers by and through reflecting on the deliberations.
2. Degree of student collaboration / group work	High	Students work in groups to share their own findings, reflect on the issues discussed in the module, analyse different perspectives, develop arguments, identify a common ground and work towards a common goal.
3. Degree of student emotional involvement	Medium	Students reflect on readings, lectures and group work (including a stakeholder role play) to develop empathy and articulate their own position.
4. Degree of inter-/transdisciplinarity	Medium	Interdisciplinary teaching team and content drawing on environmental sciences, finance, strategy, operations and psychology.
5. Degree of student (self-) reflection	High	Reflexive thinking and writing exercises embedded throughout the module.
6. Degree of experience of real-life situations	Low	Throughout the module students research, examine and analyse case studies based on real-life events and reflect on contemporary challenges.
7. Degree of nature-related experiences	(None)	

Impact assessment:	(None) Low/Medium/High	Explanation
8. Degree of stakeholder integration	Medium	Module requires students to undertake a role play where they conduct own research on different stakeholders and their demands, articulate their own position on a contentious issue from perspective of a specific stakeholder, simulate a stakeholder negotiation in class which is facilitated by an industry expert and then reflect on the experience of this activity.
9. Degree of integration between theory and practice	High	Module consists of lectures offering theoretical perspectives and insights followed by activities, debates and a role play involving direct application of the theoretical ideas.

26.2. COURSE INTRODUCTION

The world today is faced with grand challenges or wicked problems in the progression towards a sustainable future – these include issues such as poverty, inequality, modern slavery, climate change induced migration and water shortage, biodiversity loss and water table destruction, and the challenges of creating sustainable consumption and production (Reinecke & Ansari, 2016; Ferraro et al., 2015). Given the large-scale industrial use of natural resources on one hand, and their expertise, presence, resourcefulness, mobility and ability to scale-up on the other hand, private sector businesses are repeatedly called upon to deal with societal grand challenges and contribute to sustainable development (Witte & Dilyard, 2017). Whether and how this can happen, however, remains less clear in practice. There is, therefore, an urgent need to develop awareness, knowledge and skills of current and future leaders and decision makers who can act responsibly and contribute to our combined sustainable futures (Corcoran & Wals, 2004; Sachs et al., 2016). This will require developing appreciation for the unprecedented and complex depth and nuances of legal, regulatory and voluntary self-imposed restrictions that must inevitably be placed on a business if we are to achieve a sustainable future for the world. This is an ambitious task, for it requires developing the knowledge, skills and competencies of students who are expected to be future ‘‘problem solvers’’, ‘‘change agents’’, and ‘‘transition managers’’ (Orr, 2002; Loorbach & Rotmans, 2006; Rowe, 2007; McArthur & Sachs, 2009; Willard et al., 2010) to make the world a better and “sustainable” place for humankind to continue to occupy (Dyllick, 2015). Adoption of a learner-centered instructional practice (Bonk & King, 2012) could aid development of students’ abilities to solve current and future

problems with the application of newly acquired knowledge (Biggs & Tang, 2007).

The module aims to prepare current and future managers and leaders to enact business as a force for good by helping them develop the abilities to analyse the challenges of sustainable development and to anticipate, envision and shape a sustainable planetary future. In order to do so the module has been designed with a focus on helping students develop five key competences. These include according to Wiek, Withycombe and Redman (2011) *systems-thinking competence*: "ability to collectively analyze complex systems across different domains … and scales" (p. 207); *anticipatory competence*: ability to collectively analyze, evaluate images of the future; *normative competence*: "ability to collectively map, specify, apply, reconcile, and negotiate sustainability values, principles, goals, and targets" (p. 209); *strategic competence*: "ability to collectively design and implement interventions, transitions, and transformative governance strategies toward sustainability" (p. 210) and *interpersonal competence*: "ability to motivate, enable, and facilitate collaborative and participatory sustainability research and problem solving" (p. 211).

26.3. LEARNING OBJECTIVES

Table 26–3

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework of Wiek et al. (2011)**
Cognitive	Ability to recognise the key social and environmental issues and trends influencing and shaping the business landscape	Systems-thinking competence
	Ability to identify and analyse the impacts of business on the environment and society	Systems-thinking competence
	Ability to identify the projected impacts of the environment and society on business	Anticipatory competence
	Ability to reflect on the role and form of business and the form of a sustainable society and the interconnection between the two	Normative competence
	Ability to evaluate the relationship between taught material, research and personal experiences and offer ideas for the future	Strategic competence

Learning objective dimension (UNESCO, 2017)	**Learning objective**	**Competency referred to framework of Wiek et al. (2011)**
Socio-emotional	Ability to develop interpersonal skills and empathy	Interpersonal competence
	Ability to convey information to others in a convincing way	Interpersonal competence
	Ability to develop problem-solving abilities	Interpersonal competence
	Ability to reflect on the taught material from an individual/personal standpoint	Normative competence
Behavioural	Ability to articulate the implications of a rapidly changing business environment in the wake of sustainable development challenges	Systems-thinking competence
	Ability to summarise the rationale for businesses to contribute to sustainable development	Normative competence
	Ability to produce recommendations for how businesses may contribute to sustainable development	Strategic competence

26.4. COURSE OUTLINE

Table 26–4

Structure		**Session focus**	**Exercises (out of class)**
Week 1	Lecture (2 hours): Module Introduction	• Code Red for Humanity: the urgency of building a sustainable world and the role of business • Module overview, structure, assignment, study plan • Key concepts and definitions	Exercise 1 "The Module and the Self": Sharing of expectations and worries about the module and the topic
	Seminar (1 hour): Introductions & Ice Breaker	• Introductions • Ice breaker – favourite ice cream and a quirky/interesting fact about the self	

Structure		Session focus	Exercises (out of class)
Week 2	Lecture (2 hours): The Sustainability Imperative	• Global megatrends and their societal, firm and individual level impacts and implications • A safe and just operating space for humanity – planetary boundaries and doughnut economics, funnel model	
	Seminar (1 hour): Analysing the Impact of Megatrends	Group work – Exercise 2 (see subchapter "Exercises", during the seminar instructions)	See subchapter "Exercises" – Exercise 2, after the seminar instructions
Week 3	Lecture (2 hours): Business and the Sustainability Imperative: Squeezing Operating Space	• Understanding business as a 'system' operating within a planetary system facing challenges to retain legitimacy and social license to operate, in the wake of changing societal expectations • Understanding survival risks and vulnerabilities (regulatory; market – investor, consumer; operational – supply chain, organisational design and psychology)	Choosing an industry between automotive and sugar-based food and beverage industry and reading about the trends, challenges, stakeholder demands and changing regulations
	Seminar (1 hour): Understanding the Squeezing Operating Space	Group work – Exercise 3: Discussing the issues raised by consumers, investors, activists and the responses of industry and government in the selected industries to reflect on whether and how the industry can adapt	
Week 4	Lecture (2 hours): Regulatory Vulnerabilities	• Government as a driver for business responsibility • Understanding regulation – public and private regulations • Role of judiciary, campaigners, lobbyists, enforcement agencies and citizens	See subchapter "Exercises" – Exercise 4, before the seminar instructions
	Seminar (1 hour): Mapping the Changing Regulatory Landscape	Group work – Exercise 4 (see subchapter "Exercises", during the seminar instructions)	
Week 5	Lecture (2 hours): Market Vulnerabilities	• Changing investor demands, increasing ESG considerations (Guest Lecture) • Consumer demands as a driver for business responsibility and sustainability	See subchapter "Exercises" – Exercise 5, before the seminar instructions
	Seminar (1 hour): Examining the Market Risks	Group work – Exercise 5 (see subchapter "Exercises", during the seminar instructions)	See subchapter "Exercises" – Exercise 5, after the seminar instructions

Structure		Session focus	Exercises (out of class)
Week 6	Lecture (2 hours): Operational Vulnerabilities	• Organisational design and psychology: challenges and limitations • Political, technical, institutional and other challenges in supply chains	Reading Padmanabhan et al. (2015) before the seminar
	Seminar (1 hour): Understanding Operational Vulnerabilities	Group work – Exercise 6: Analysing the case of Rana Plaza factory disaster from the perspective of a multinational company	
Week 7	Lecture (2 hours): Business Responsibility and Stewardship	• Why should business take responsibility? – normative, instrumental, political arguments • Can and should business set new norms and be stewards of sustainable development?	Watching videos (Commonwealth Club of California, 2016; Harvard Business Review, 2021; ThePrincesA4S, 2012) and doing own research on Jochen Zeitz (Puma), Paul Polman (Unilever) and Yvon Chouinard (Patagonia) before the seminar
	Seminar (1 hour): Strategies and Practices of Responsible Stewardship	Group work – Exercise 7: Analysing the strategies and decisions of Jochen Zeitz (Puma), Paul Polman (Unilever) and Yvon Chouinard (Patagonia) and how they enabled their companies to become Responsible Stewards. Use the videos and conduct own research.	
Week 8	Lecture (2 hours): Future Proofing	• Scenario planning • Business model innovation • Rethinking organisational design	See subchapter "Exercises" – Exercise 8, before the seminar instructions
	Seminar (1 hour): My Industry in 2050	Group work – Exercise 8 (see subchapter "Exercises", during the seminar instructions)	See subchapter "Exercises" – Exercise 8, after the seminar instructions
Week 9	Lecture (2 hours): Strategic Stakeholder Engagement and Accountability	• Stakeholder identification • Stakeholder engagement • Stakeholder management • Reporting and disclosure	See subchapter "Exercises" – Exercise 9, before the seminar instructions
	Seminar (1 hour): Role Play on Forest Felling in the Amazon	Group work – Exercise 9 (with an industry expert) (see subchapter "Exercises", during the seminar instructions)	See subchapter "Exercises" – Exercise 9, after the seminar instructions

Structure		Session focus	Exercises (out of class)
Week 10	Lecture (2 hours): Critical Reflections	Envisioning a Sustainable Future: critical perspectives and reflections, scenario planning • Part 1 – The sustainability imperative and what can business do (module summary) • Part 2 – Can business be a force for good and can it survive within systemic and human limitations and if so, in what form?	
	Seminar (1 hour): Can a Business be a Force for Good? If not, can it survive?	Class debate – Exercise 10	Writing a personal reflective piece on what competences personally needed to develop/strengthen to be able to become a business leader capable of shaping a sustainable future, after the seminar (sharing optional)

26.5. TEACHING APPROACHES AND METHODS

Corporate responsibility and sustainability is a topic that requires much critical thinking (Kearins & Springett, 2003). Therefore, for this module, the authors take 'classroom' as an important site for criticality, critical engagements and reflections (Perriton & Reynolds, 2018) and draw upon the pedagogical approaches and teaching methods developed/adopted by the critical management education (CME) scholars. They begin by introducing to the students the notion of "Narrative Economics" developed by the 2013 Nobel-laureate economist Prof. Robert James Shiller (2020), which draws attention to the contagion that occurs when narratives constructed by humans go viral, and the power and extent of associated actions, behaviours and their resulting impacts.

Contemporary narratives promote and support acceptance of consumption and growth as a necessity for society (Raworth, 2017). In the broader context of these economics induced logics and the contemporary mainstream management education landscape that predominantly rely on techno-rational managerialist pedagogies and management solutions (Cunliffe, 2020), the module is opened with the IPCC Report (2021). This report alerted the world to "Code Red for Humanity" and students are asked to deliberate and reflect upon the ideas of Rockström et al.'s (2009) "Planetary Boundaries", Raworth's (2017) "Doughnut Economics", Henshaw´s "Funnel" and Aditya Birla´s "Sustainable Business Report" (Aditya Birla Group, 2018) as well as van Zanten and van Tulder's (2021) "Sustainability Imperatives".

With widely prevalent and accepted narratives of consumption, growth, luxury and brands as normal ideals and practice, alongside a "burgeoning racist and anti-intellectual public sphere that reduces the public space" (Perriton & Reynolds, 2018, p. 522) for discussing sustainability as an imperative and a social necessity, the lived experience of students will most likely be antithetical to the ideas discussed in the classroom. This dilemma has been aptly identified by Giroux (1981) who argues that educators will have to express those ideals in a context that undermined the possibilities for doing so. Giroux (1981) also argued that the "educational approaches and practices always arise in tension with institutional and social structures" (Perriton & Reynolds, 2018, p. 522). Drawing on Giroux (1981) and Shiller (2020), the authors recognise that educational content and processes are open to dismantling the tutor's power, acknowledging and exploring differences in classrooms, and widening the lens on both *marginalised individuals* (Perriton & Reynolds, 2018) as well as *marginalised ideas and narratives*. The authors argue that adopting such a critical pedagogical approach is likely to better facilitate and support student's learning on corporate responsibility and sustainability in classrooms.

In order to encourage these alternate narratives, by drawing upon Giroux, traditional modes of transmission are replaced with learner-tutor relationships in which students are able "to challenge, engage, and question the form and substance of the learning process" (Giroux, 1983, p. 202). While key topics are introduced through lectures, students have to work in groups to draw upon and understand the content and make it relatable. Participative pedagogies based on group work is a way of demystifying the "traditional, manipulative role of the teacher" (Giroux, 1988, p. 39). Therefore, group work is a predominant feature of this module. The activities in this module recognise that the meaning is not something imparted or transmitted from teacher to learner but it is something that learners have to create for themselves and therefore the role of the instructor/module leader/tutor is to act as a catalyst for sustainability related learning (Biggs, 2014). The module, through group work and class discussions, encourages the learner and the teacher to act as co-creators of value, using each other's experience and knowledge to consolidate module's objective to develop current and future leaders for a sustainable future (Cobb, 1994; Prahalad & Ramaswamy, 2004; Yang et al., 2011). Class discussions and debates also facilitate critical thinking and application of the content learnt by framing one's position and articulating opposing arguments on an issue (Cotton & Winter, 2010).

Unlike the critical management education (CME) approaches followed by some educators this module does not merely substitute mainstream, normative teaching material with critical theoretical or interpretive texts and other content. Rather, the approach here is more aligned to the overall critical movement and

CME approaches developed in early 1990s, i.e. applying critical perspectives to the classroom practice of management education including the roles, values and beliefs of management educators – whereby a theory and practice of process critical CME approach is followed (French & Grey, 1996; Burgoyne & Reynolds, 1997; Currie & Knights, 2003). Every topic is first introduced through lectures alongside key concepts (Bligh & Cameron, 2000) to provide background information and prepare students to engage with individual and collective learning activities (Horgan, 1999). Critical reflections are then encouraged and facilitated both individually and in groups to encourage a deeper level of understanding of corporate responsibility and sustainability issues and challenges to reinforce the intended learning objectives (D'Andrea, 1999; Prosser & Trigwell, 1999) which themselves align with five key competences for sustainability (Wiek et al., 2011). Such reflections, besides facilitating critical thinking and application of learning also contribute to students developing appreciation of plurality of views on the role of business in sustainable development.

Appreciation of plurality is furthered by involving guest lecturers (on finance) and inviting industry experts (to comment on stakeholder role play) which will enable the students to explore topics from multiple perspectives (Robinson & Kakela, 2006; Aragon-Correa et al., 2017; Lozano et al., 2017) and also add variety and spice to the classroom (Nourse, 1995). Such an appreciation is also furthered by class activities which require students to construct scenarios for their company and specific industry and compare and evaluate expected consequences (Alcamo, 2008). Appreciation on the challenges of corporate responsibility and sustainability require widening the remit of one's horizon and therefore the activity of strategic stakeholder engagement as an in-class role play will enable students to act out the role of a stakeholder in a given situation (Rao & Stupans, 2012; Dingli et al., 2013) and in so doing encourage them to develop their own experience of the issues. Individual and class reflections have been in-built throughout to allow students to forge their own relationship with the issues (Griffiths, 1999). The assessment has also been designed to allow students to reflect on key issues and to apply their learning to a specific company/conceptual debate.

26.6. EXERCISES

In the following, different exercises are presented in the way given to students in class.

Analysing the Impact of Megatrends on Business (Exercise 2)

During the seminar, in individual groups, analyse the impact of a chosen megatrend on the specific industry (Water for the finance and banking industry or Growing social inequality for the apparel industry). Nominate a group member to provide feedback to the class discussion which the tutor will facilitate.

When mapping the impact in groups, consider the following issues:

- How will the megatrend alter the legal and hence operating environment of the industry? Is raw material availability/inflows likely to be impacted? How?
- Who (which stakeholders) may be impacted? How?
- Which business processes are likely to be impacted? How?
- How significant may the impact be?

After the seminar, reflect on how social inequality may impact your own industry (where you are currently working or wish to work in).

Mapping the Changing Regulatory Landscape (Exercise 4)

Before the seminar, choose a company; either Uber or Facebook.

- For Uber, conduct desk-based research on the case Uber BV v Aslam and others in the UK. You may review the court order, summary of the order and media articles.
- For Facebook, conduct a desk-based search and identify what recent laws and policies have been passed for social media companies like Facebook in the UK.

During the seminar, in your groups, discuss the following questions and nominate a group spokesperson to provide feedback to the class discussion which the tutor will facilitate.

- How has the regulatory landscape changed for Uber and Facebook over the last five years?
- What have been the key issues of contention?
- What do the recent court orders and rulings indicate to you?
- How do you see the regulatory landscape evolving for both platform companies as climate change worsens?

- In respective groups, reflect on the following:
  - In February 2021, the Supreme Court in the UK unanimously ruled that the Uber drivers are workers. Uber complied with the 2021 court order but refused to include Uber eats drivers – why?
  - A law on online harm was passed in the UK but social media companies revised guidelines globally – why?

Examining the Market Risks (Exercise 5)

Before the seminar, read and gather information about Boohoo.com and its growth trajectory over the years including the scandals it has been caught up in.

During the seminar, discuss the questions below and nominate a group spokesperson to provide feedback to the class discussion which the tutor will facilitate.

Boohoo group PLC is a UK based online retailer. In July 2020 its shares fell drastically and the experts predicted its growth could halve. In your groups discuss:

- What happened in July 2020 and why?
- How was Boohoo's market performance in December 2020?
- Was what happened in July 2020 reflective of a broader trend or an aberration?
- What lessons can companies learn about ESG related risks from this case?

After the seminar, identify the best and the worst performing companies on the stock exchange and examine its ESG credentials.

My Industry in 2050 (Exercise 8)

Before the seminar, choose a company between Google and Tesla and read about it. Reflect on the organisational design of Google and what makes its processes/culture different or reflect on the business model innovation of Tesla.

During the seminar, in your company specific groups discuss the following questions and nominate a group spokesperson to provide feedback to the class discussion which the tutor will facilitate.

- What is distinctive about the organisational design/business model of the company?
- To what extent does this company reflect a sustainable company of the future?
- What characteristics would you expect from a sustainable company in 2050? Why?

After the seminar, draw on group work readings and deliberations and in class-seminar discussions and write a reflective piece on My Firm/My Favourite Company in 2050 and email it to the module tutor.

Class Role Play on Forest Felling in the Amazon (Exercise 9)

Before the seminar, conduct a desk-based review and read about the Amazon forests and the growing concern about deforestation.

During the seminar, each group will be representing a different stakeholder group to share views on Forest Felling in the Amazon to set up a cattle ranch. Please choose from one of the following:

i. the company / family setting up the cattle ranch;
ii. community representative of the tribal population residing in the area;
iii. the representative of the Ministry of Economic Development of Brazil;
iv. the environmental campaigning group working to save the Amazon rainforest;
v. youth representative of the nearby cities who are actively seeking employment;
vi. scientists researching the global importance of biodiversity in the Amazon.

In your groups:

- Outline your position – will you or will you not support this decision to deforest the Amazon to set up a cattle ranch?
- Discuss why or why not?
- Develop points in support of your position and for convincing those on the other side.

The class will then attempt to arrive at a consensus and each group will try to convince the other groups in a discussion facilitated by an industry expert. This may or may not happen as each stakeholder is committed to not shift its position. At the end the Ministry of Economic Development of Brazil must decide (with or without consensus) to issue a license for the cattle ranch or not.

After the seminar, reflect on your emotions and experiences during and after the exercise. Think about what allowed/or may have enabled the group to arrive at a consensus and share your thoughts with the rest of the class.

26.7. ASSESSMENT

The summative assessment in this module aims to foster the key competences and draws on the learner-centered REACT (Relating, Experiencing, Apply-

ing, Cooperating, Transferring) teaching strategies (Crawford, 2001) which enable students to develop knowledge through social and cognitive interactions (Schunk, 2009). It is designed to enable students to apply their knowledge to their current and future engagements as professionals within organizational settings (Ichii & Ono, 2018). This is done by offering students the choice to submit an essay of 3500 words on either a conceptual/analytical perspective or an applied case study:

- "Operating space for businesses is increasingly reducing: Challenges and Opportunities". Discuss this statement in light of business responsibility and sustainable development debates that have been discussed in class. You are expected to engage in analytical discussion by using relevant theories, empirical studies, data and examples to substantiate your arguments. You are expected to discuss at least two specific challenges and at least two specific opportunities.
- Choose a company and analyse its approach to sustainable development. You are expected to draw on relevant theory to comment on the challenges facing the company, the strategies it has adopted and to offer at least two feasible recommendations for future proofing to be implemented by 2030.

Both options contribute to the module's teaching approach by enabling students to reflect on the challenge of sustainable development for business, engage with the module content/theory and apply the knowledge gained by examining the challenges for business and identifying opportunities/offering recommendations for businesses.

26.8. PREREQUISITES

- Required prior knowledge from students: None
- Required instructors and their core competencies:
  - Lecturer (competences: sustainability/corporate social responsibility, strategy/operations)
  - Guest Lecturer (Finance expert – part 1 of market vulnerabilities)
  - Industry expert (competences: real-life business expertise and experience of stakeholder management and the concept of building sustainable businesses)
- Required tools: Online collaboration platform (e.g. Moodle/Blackboard)

26.9. RECOMMENDED RESOURCES

Lecture 1: Module Introduction

Lozano, R. (2012). Towards better embedding sustainability into companies' systems: an analysis of voluntary corporate initiatives. *Journal of Cleaner Production, 25*, 14–26.

Shiller, R. J. (2020). *Narrative Economics: How stories go viral and drive major economic events*. Princeton University Press.

Porritt J. (2013). *The world we made: Alex McKay's story from 2050 London.* Phaidon Press.

Patel, R., & Moore, J.W. (2017). *A history of the world in seven cheap things: a guide to capitalism, nature, and the future of the planet*. University of California Press.

IPCC Sixth Assessment Report (n.d.). https://www.ipcc.ch/report/ar6/wg1/#SPM

Lecture 2: The Sustainability Imperative

Lubin, D. A., & Esty, D. C. (2010). The Sustainability Imperative. *Harvard Business Review, 88*(5), 42–50.

Mittelstaedt, J. D., Shultz, C. J., Kilbourne, W. E., & Peterson, M. (2014). Sustainability as Megatrend: two schools of macromarketing thought. *Journal of Macromarketing, 34*(3), 253–264.

von Groddeck, V., & Schwarz, J. O. (2013). Perceiving megatrends as empty signifiers: a discourse-theoretical interpretation of trend management. *Futures, 47*, 28–37.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin III, F.S., Lambin, E., Lenton, T. M., Scheffer, M. C., Folke, H., Schellnhuber, B., Nykvist, C. A. De Wit, T., Hughes, S., van der Leeuw, H., Rodhe, S., Sörlin, P. K., Snyder, R., Costanza, U., Svedin, M., Falkenmark, L., Karlberg, R. W., Corell, V. J., Fabry, J., Hansen, B., Walker, D., Liverman, K., Richardson, P., Crutzen, P. & Foley, J. (2009). Planetary boundaries: exploring the safe operating space for humanity. *Ecology and Society, 14*(2).

Raworth K. (2017). *Doughnut Economics: seven ways to think like a 21st century economist*. London: Penguin Random House.

Raworth, K. (2017). A doughnut for the anthropocene: humanity's compass in the 21st century. *The Lancet Planetary Health, 1*(2), 48–49.

Scott, K., Martin, D. M., & Schouten, J. W. (2014). Marketing and the new materialism. *Journal of Macromarketing, 34(*3), 282–290.

Ozdamar Ertekin, Z., & Atik, D. (2015). Sustainable Markets: Motivating factors, barriers, and remedies for mobilization of slow fashion. *Journal of Macromarketing, 35*(1), 53–69.

van Zanten, J. A., & van Tulder, R. (2021). Analyzing companies' interactions with the Sustainable Development Goals through network analysis: Four corporate sustainability imperatives. *Business Strategy and the Environment, 30*, 2396–2420.

Lecture 3: Squeezing Operating Space for Businesses

Frig, M., & Sorsa, V. P. (2020). Nation branding as sustainability governance: a comparative case analysis. *Business & Society, 59*(6), 1151–1180.

Lucas, P., & Wilting, H. (2019). *Towards a safe operating space for the Netherlands: using planetary boundaries to support national implementation of environment-related SDGs.* PBL Netherlands Environmental Assessment Agency. The Hague. https://www.pbl.nl/sites/default/files/downloads/Towards_a_safe_operating_space_for_the_Netherlands_-_3333.pdf

Brondoni, S. (2010). Intangibles, global networks & corporate social responsibility. *Global Networks & Corporate Social Responsibility*, 6–24.

Lecture 4: Regulatory Vulnerabilities

Steurer, R. (2013). Disentangling governance: a synoptic view of regulation by government, business and civil society. *Policy Sciences, 46*(4), 387–410.

Dentchev, N. A., Haezendonck, E., & van Balen, M. (2017). The role of governments in the business and society debate. *Business & Society, 56*(4), 527–544.

Matten, D., & Moon, J. (2008). "Implicit" and "explicit" CSR: a conceptual framework for a comparative understanding of corporate social responsibility. *Academy of Management Review, 33*(2), 404–424.

Crane, A., & Matten, D. (2016). *Business Ethics: Managing corporate citizenship and sustainability in the age of globalization*. Oxford University Press.

Jourdan, D., & Wertin, J. (2020). Intergenerational Rights to a Sustainable Future: Insights for climate justice and tourism. *Journal of Sustainable Tourism, 28*(8), 1245–1254.

Giabardo, C. V. (2021). Climate change litigation, state responsibility and the role of courts in the global regime: towards a' judicial governance' of climate change? *Environmental Loss and Damage in a Comparative Law Perspective, Cambridge: Intersentia*, 393–403.

Pérez-Pineda, J. A. (2020). Corporate social responsibility: the interface between the private sector and sustainability standards. In *Sustainability standards and global governance* (pp. 83–98). Springer: Singapore.

Lecture 5: Market Vulnerabilities (Investor/Consumer)

Devinney, T. M., Auger, P., Eckhardt, G., & Birtchnell, T. (2006). The other CSR. *Stanford Social Innovation Review, 4*, 29–37.

Smith, N. C. (2008). Consumers as drivers of corporate social responsibility. Chapter 12 in Crane, A., McWilliams, A., Matten, D., Moon, J. & Siegel, D. S. (Eds.), *The Oxford book of corporate social responsibility*. Oxford books.

Akenji, L. (2014). Consumer scapegoatism and limits to green consumerism. *Journal of Cleaner Production, 63*, 13–23.

Sanne, C. (2002). Willing consumers-or locked-in? Policies for a sustainable consumption. *Ecological economics, 42*(1–2), 273–287.

Shaw, D., Newholm, T., & Dickinson, R. (2006). Consumption as voting: an exploration of consumer empowerment. *European Journal of Marketing, 40*(9/10), 1049–1067.

MacLeod, M., & Park, J. (2011). Financial activism and global climate change: the rise of investor-driven governance networks. *Global Environmental Politics, 11*(2), 54–74.

Gasperini, A. (2020). Principles for responsible investment (PRI) and ESG factors. *Climate Action*, 737–749.

Lecture 6: Operational Vulnerabilities

Keay, S., & Kirby, S. (2018). Defining vulnerability: from the conceptual to the operational. *Policing: A Journal of Policy and Practice, 12*(4), 428–438.

Seidl, R., Rammer, W., & Lexer, M. J. (2010). Climate change vulnerability of sustainable forest management in the Eastern Alps. *Climatic Change, 106*(2), 225–254.

Padmanabhan, V. M., Baumann-Pauly, D., & Labowitz, S. (2015). The hidden price of low cost: subcontracting in Bangladesh's garment industry. *Available at SSRN 2659202*.

Lecture 7: Business Responsibility & Stewardship

Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review, 22*(1), 20–47.

Hoffman, A. J. (2018). The next phase of business sustainability. *Stanford Social Innovation Review, 16*(2), 34–39.

Enqvist, J. P., West, S., Masterson, V. A., Haider, L. J., Svedin, U., & Tengö, M. (2018). Stewardship as a boundary object for sustainability research: linking care, knowledge and agency. *Landscape and Urban Planning, 179*, 17–37.

Stubbs, W., & Cocklin, C. (2008). An ecological modernist interpretation of sustainability: the case of Interface Inc. *Business Strategy and the Environment, 17*(8), 512–523.

Matten, D., & Moon, J. (2020). Reflections on the 2018 decade award: the meaning and dynamics of corporate social responsibility. *Academy of Management Review, 45*(1), 7–28.

Lecture 8: Future Proofing

Baungaard, C, Kok, K. P. W., den Boer, A. C. L., Brierley, C., van der Meij, M. G., Gjefsen, M. D., Wenink, J., Wagner, P., Gemen, R., Regeer, B. J., & Boerser, J. E. W. (2021). FIT4-FOOD2030: Future-proofing Europe's Food Systems with Tools for Transformation and a Sustainable Food Systems Network. *Nutrition Bulletin, 46*(2), 172–184.

Johnson, G., & Simon, J. (2018). Future-proofing institutional research skills in an evolving digital institution. *New Directions for Institutional Research, 2018*(178), 11–26.

Weaver, K. C. (2020). Research at the academy-societal interface: a response to future-proofing open communication in the communication disciplines in Australia and New Zealand. *Communication Research and Practice, 6*(4), 331–341.

Lecture 9: Strategic Stakeholder Engagement

Gray, R. (2010). Is accounting for sustainability actually accounting for sustainability…and how would we know? An exploration of narratives of organisations and the planet. *Accounting, Organizations and Society, 35*(1): 47–62.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. *Academy of Management Review, 22*(4), 853–886.

Harrison, J. S., Phillips, R. A., & Freeman, R. E. (2020). On the 2019 Business Roundtable "Statement on the Purpose of a Corporation". *Journal of Management, 46*(7), 1223–1237.

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: concepts, evidence, and implications. *Academy of Management Review, 20*(1), 65–91.

Sundaram, A. K., & Inkpen, A. C. (2004). The corporate objective revisited. *Organization Science, 15*(3), 350–363.

Freeman, R. E., Wicks, A. C., & Parmar, B. (2004) Stakeholder theory and "the corporate objective revisited". *Organization Science, 15*(3), 364–369.

Freeman, R. E., Phillips, R., & Sisodia, R. (2018). Tensions *in Stakeholder Theory*. *Business & Society, 59*(2), 213–231.

McPhail, K., & Ferguson, J. (2016). The past, the present and the future of accounting for human rights. *Accounting, Auditing & Accountability Journal, 29*(4), 526–541.

Lecture 10: Critical Reflections

Riera, M., & Iborra, M. (2017). Corporate social irresponsibility: review and conceptual boundaries. *European Journal of Management and Business Economics, 26*(2), 146–162.

Kölbel, J. F., Busch, T., & Jancso, L. M. (2017). How media coverage of corporate social irresponsibility increases financial risk. *Strategic Management Journal, 38*(11), 2266–2284.

Nunes, F. M., & Park, L. C. (2016). Caught red-handed: the cost of the volkswagen dieselgate. *Journal of Global Responsibility, 7*(2), 288–302.

Lange, D., & Washburn, N. T. (2012). Understanding attributions of corporate social irresponsibility. *Academy of Management Review, 37*(2), 300–326.

Murphy, P. E., & Schlegelmilch, B. B. (2013). Corporate social responsibility and corporate social irresponsibility: introduction to a special topic section. *Journal of Business Research, 66*(10), 1807–1813.

Lin-Hi, N., & Müller, K. (2013). The CSR bottom line: preventing corporate social irresponsibility. *Journal of Business Research, 66*(10), 1928–1936.

Hamann, R. (2019). Dynamic de-responsibilization in business-government interactions. *Organization Studies, 40*(8), 1193–1215.

26.10. GENERAL TIPS FOR TEACHERS

- Guest lecturers and industry experts may be invited depending on their availability.
- Clearly outline the purpose of group exercises, encourage students to submit through email/blackboard/online portal.
- It is also important to stay flexible about the group exercise: all groups may not always complete but most will do and the purpose is to encourage conversation and discussion using the exercises to highlight key ideas/theories discussed.
- Link discussions and lectures to contemporary events, news articles, documentaries and movies.

- The course can also be delivered in a block teaching format.
- Assessment word count can be adapted according to the student assessment workload guidance at the own institution but ideally it should not exceed 4000 words.
- The mode of homework submission can be adapted to class size – for instance, if more than 30 students, then instead of emailing to tutor, online platform can be used for submissions.

REFERENCES

Aditya Birla Group (2018). *Building sustainable businesses fit for a sustainable world. An Aditya Birla Group commitment.* sustainability.adityabirla.com/group-sustainable-business-report/Group-Sustainable-Business-report.pdf

Alcamo, J. (Ed.). (2008). *Environmental futures: the practice of environmental scenario analysis*. Elsevier B.V. Amsterdam: The Netherlands.

Aragon-Correa, J. A., Marcus, A. A., Rivera, J. E., & Kenworthy, A. L. (2017). Sustainability management teaching resources and the challenge of balancing planet, people, and profits, *Academy of Management Learning & Education, 16*(3), 469–483.

Biggs, J. (2014). Constructive alignment in university teaching, *HERDSA Review of Higher Education, 1*, 5–22.

Biggs, J., & Tang, C. (2007). *Teaching according to how students learn. Teaching for quality learning at university* (4th ed.). Berkshire, England: Open University Press, 15–30.

Bligh, D, & Cameron, B. J.. (1985). What's the use of lectures? *The Canadian Journal of Higher Education, 30*(1), 192–196.

Bonk, C. J., & King, K. S. (2012). Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In *Electronic collaborators* (pp. 61–86). Routledge.

Burgoyne, J., & Reynolds, M. (Eds.) (1997). *Management learning: integrating perspectives in theory and practice*. SAGE.

Commonwealth Club of California (2016, November). Yvon Chouinard: Founding Patagonia & Living Simply (Full Program) [Video]. YouTube. https://www.youtube.com/watch?v=ZQlu95rzUTM

Corcoran, P. B., & Wals, A. E. (2004). *Higher Education and the Challenge of Sustainability*. Dordrecht: Kluwer Academic Publishers.

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.

Crawford, L. (2001). *Teaching contextually: research, rationale and techniques for improving student motivation and achievement*. Texas: CCI Publishing Inc.

Cunliffe, A. L. (2020). Reflexivity in teaching and researching organizational studies. *Revista de Administração de Empresas, 60*, 64–69.

Currie, G., & Knights, D. (2003). Reflecting on a critical pedagogy in MBA education. *Management Learning, 34*(1), 27–49.

D'Andrea, V-M. (1999). Organizing teaching and learning: outcomes-based planning. In H. Fry, S. Ketteridge, & S. Marshall (Eds.) *A book for teaching & learning in education*, London: Kogan Page Limited.

Dingli, S., Khalfey, S., & Leston-Bandeira, C. (2013). The effectiveness of incentive-driven role-play. *European Political Science, 12*(3), 384–398.

Dyllick, T. (2015). Responsible management education for a sustainable world. *Journal of Management Development, 34*(1), 16–33.

Ferraro, F., Etzion, D., & Gehman, J. (2015). Tackling grand challenges pragmatically: robust action revisited. *Organization Studies, 36*(3), 363–390.

French, R., & Grey, C. (1996). *Rethinking management education*. SAGE.

Giroux, H. A. (1981). *Ideology, Culture and the Process of Schooling*. Temple University Press.

Giroux H. A. (1983). *Theory and resistance in education*. London: Heinemann.

Giroux, H. A. (1988). *Teachers as Intellectuals: Towards a Pedagogy of Learning*. New York: Bergin & Garvey.

Griffiths, S. (1999). Teaching and learning in small groups. In H. Fry, S. Ketteridge, & S. Marshall (Eds.). *A book for teaching & learning in education*, Kogan Page Limited: London.

Harvard Business Review (2021, November). Former Unilever CEO Paul Polman Says Aiming for Sustainability Isn't Enough. The Goal Is Much Higher [Video]. YouTube. https://m.youtube.com/watch?v=oJAc9-huRWs&feature=emb_logo

Horgan, J. (1999). Lecturing for Learning. In H. Fry, S. Ketteridge, & S. Marshall (Eds.). *A book for teaching & learning in education*, Kogan Page Limited: London.

Ichii, R., & Ono, A. (2018). Business students' reflection on reflective writing assignments. In D. Wache, & D. Houston (Eds.), *Research and development in higher education: (re)valuing higher education*, *41*, 102–110.

Kearins, K., & Springett, D. (2003). Educating for sustainability: developing critical skills. *Journal of management education, 27*(2), 188–204.

Loorbach, D., & Rotmans, J. (2006). Managing transitions for sustainable development. In X. Olshoorn, & A. J. Wieczorek (Eds.) *Understanding industrial transformation: views from different disciplines* (pp. 187–206). Springer, Dordrecht.

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), 2–15.

McArthur, J. W., & Sachs, J. (2009). Needed: a new generation of problem solvers, *Chronicles of Higher Education, 55*(40), A64–A66

Nourse, M. E. (1995). Tapping campus talent for the collegiate business communication course, *Business Communication Quarterly, 58*(2), 25–28.

Orr, D. (2002). Four challenges of sustainability. *Conservation Biology, 16* (6), 1457–1460.

Padmanabhan, V. M., Baumann-Pauly, D., & Labowitz, S. (2015). The hidden price of low cost: subcontracting in Bangladesh's garment industry. *Available at SSRN 2659202*.

Perriton, L., & Reynolds, M. (2018). Critical management education in challenging times. *Management Learning, 49*(5), 521–536.

Prahalad, C. K., & Ramaswamy, V. (2004). *The future of competition: cocreating unique value with costumers*, Boston, Harvard Business School Press.

Prosser, M., & Trigwell, K. (1999). *Understanding learning and teaching: the experience in higher education*. McGraw-Hill Education (UK).

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.

Raworth, K. (2017). *Doughnut economics: seven ways to think like a 21st-century economist*. Chelsea Green Publishing.

Reinecke, J., & Ansari, S. (2016). Taming wicked problems: the role of framing in the construction of corporate social responsibility. *Journal of Management Studies, 53*(3), 299–329.

Robinson, C., & Kakela, P. (2006). Creating a space to learn: a classroom of fun interaction and trust. *College Teaching. 54*(1), 202–206.

Rowe, D. (2007). Education for a Sustainable Future. *Science, 317*(5836), 323–324.

Sachs, J., Becchetti, L., & Annett, A. (2016). *World Happiness Report 2016*, Special Rome Edition. New York: Sustainable Development Solutions Network.

Shiller, R. J. (2020). *Narrative economics: how stories go viral and drive major economic events*. Princeton University Press.

Schunk, D. H. (2009). *Learning theories: an educational perspective* (5th ed.). Pearson Prentice Hall: New York.

ThePrincesA4S (2012, December). Jochen Zeitz, CEO Sport and Lifestyle Group, CSO of PPR and Chairman of the Board of PUMA [Video]. YouTube. https://m.youtube.com/watch?v=mPFVIv-32G8

UNESCO (2017). *Education for sustainable development goals. Learning objectives*. UNESCO publishing.

van Zanten, J. A., & van Tulder, R. (2021). Analyzing companies' interactions with the Sustainable Development Goals through network analysis: Four corporate sustainability imperatives. *Business Strategy and the Environment, 30*, 2396–2420.

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development, *Sustainability Science, 6*(2), 203–218.

Willard, M., Wiedmeyer. C., Flint, R. W., Weedon, J. S., Woodward, R., Feldmand, I., & Edwards, M. (2010). *The Sustainability Professional: 2010 Competency Survey Report*. https://www.sustainabilityprofessionals.org/sites/default/files/ISSP%20Special%20Report_3.10_final_0.pdf

Witte, C., & Dilyard, J. (2017). Guest editors' introduction to the special issue: the contribution of multinational enterprises to the sustainable development goals, *Transnational Corporations, 24*(3), 1–8.

Yang, C., Yong, Z., & Dong, X. (2011). An information structuring approach for group discussion. *Procedia Engineering, 15*, 1261–1265.

Marina Schmitz, Ellen Saltevo, Silke Bustamante & Martina Martinovic

Looking Ahead – Sustainability and Responsibility in Management Education

Advancing on the transformation pathway towards sustainable development in a world, which has become more volatile, uncertain, complex and ambiguous (VUCA) is one of the biggest societal developmental challenges of the 21st century. The complexity and interrelatedness of social, ecological and economic systems require actors with systemic and interdisciplinary thinking capabilities, who employ critical thinking and creative problem-solving skills, cooperate and empathise, have a sense of responsibility towards community and environment, ethically weigh today's actions against the possible long-term consequences, and ultimately take knowledgeable and morally guided actions (Rieckmann, 2018; Wiek et al., 2011).

Higher Education Institutions (HEIs) are considered to play a crucial role in developing students into sustainability change-makers (UNESCO, 2017) who – upon leaving academic or educational institutions and entering the working life – are equipped with the knowledge, abilities, values, and motivation needed to become responsible actors and leaders creating more sustainable futures.

Linking the goals of education (learning objectives) to the right tools (pedagogical approaches/methods) is key in directing and influencing desired behavioural change. Effective teaching and learning require knowledge about (pedagogical and other) variables that influence the learning process and the internal predictors of responsible and sustainable behaviour. Persisting with the same old seems to be not an option if educators want to avoid the conformity trap of trying to solve today's problems with yesterday's tools (Major et al., 2020). Instead, they must take an active approach to tackle these challenges and develop, implement, test, and validate new and innovative ways of teaching (and learning) (Walder, 2014).

The first part of the book suggested a number of teaching approaches (e.g. experiential, active and transdisciplinary learning) and methods (e.g. self-reflection tasks/exercises, gamification or service learning) considered as appropriate. From these, a list of "pedagogical impact variables" was derived, that are assumed to positively influence the attainment of learning objectives and goals (e.g., degree of emotional involvement or experience of real-life

situations). A survey with educators throughout the world (N=45) furthermore provided insights about which teaching approaches and methods are commonly used by teachers, who indicate that they are innovative in their teaching. It showed a slight predominance of collaborative and active learning accompanied by lecture inputs, while self-directed learning was an approach used by least of the respondents (N=21). Looking at methods, respondents considered group discussions, self-reflection tasks and case studies as most relevant for their courses, while service learning, gamification and vision building exercises seem to be the least relevant for their classes.

Teaching approaches and methods need to be linked to learning objectives, but also fit to course contents and learning environments. Besides, appropriate exercises and resources are important for teaching effectiveness. The second part of the book, therefore, provided descriptions of innovative teaching formats, linking learning objectives with contents, learning approaches, methods and exercises and giving insights into the course structure as well as resources.

In the introduction, we suggested to understand pedagogical innovation as ”teaching approaches and practices that are new or different in a particular context, and which are designed to purposefully and responsively benefit student experiences and outcomes in that context” (Major et al., 2020). Drawing on the contributions in this book and the inclusivity principle of the SDGs (United Nations, n.d.), we furthermore propose the following commonalities regarding sustainability-oriented teaching innovation:

1. the intentional implementation in formal education of (education)
2. any method/approach, instrument or subject (type),
3. that is equally available and applicable (inclusivity),
4. that brings additional value (innovation)
5. to effectively facilitate cognitive, socio-emotional and behavioural learning objectives that underline behavioural predictors and competencies (effectiveness)
6. for the specific purpose of fostering change agents of sustainable development (sustainability change).

The contributions in this book cover a wide array of pedagogical advances applied at different types of HEIs in 13 countries across the globe. Regardless of the approach/method implemented, a few commonalities among the teaching formats could be identified. First, teaching formats often try to couple knowing with feeling, focusing on ways to increase each student’s commitment, emotional involvement and motivation towards respective issues. Second, many formats are action oriented, going beyond conducting analyses and providing the opportunity for students to become actual developers, solvers, and creators. Joining these three aspects (knowing, feeling and acting) is also referred to as

the "head, heart and hand approach" (Gazibara, 2013). Third, abstract concepts of sustainability are transformed into tangible elements and linked to practice for increasing employability prospects. Fourth, educators, as facilitators and co-learners, break down typical status roles between teachers and students for a more equal and open teaching and learning experience.

Many of the formats described in the book included digital education instruments, which might be also a consequence of the period in which the contributions were collected, where teaching was affected by the Covid-19 pandemic. Even if face-to-face teaching offers many advantages that are difficult to attain with online teaching, experimenting and enriching face-to-face teaching with digital elements leads to new ways of doing things and provides the potential to incorporate the best of both worlds.

Interestingly, very few teaching formats presented in this book used a sustainability-related research project as one of the primary teaching methods. Community-oriented research projects provide the potential for student involvement and co-creation of research (UNESCO, 2017). They might also be a good method for "decolonialising" sustainability knowledge and represent growth potential for a very impactful way of teaching. In addition, as reflected in the survey and in the collection of teaching formats in this book, virtual reality simulation and peer teaching is only seldom used.

The teaching materials suggested in the different chapters of the book ranged from films/documentaries, podcasts and photography over games to social media formats. This richness of teaching material offers fertile ground to increase the diversity and inclusivity of teaching by drawing on the incorporation and utilization of diverse media material going beyond literature.

Based on the gathered contributions, we want to encourage educators to integrate holistically economic, social and environmental aspects in their teaching and to widen perspectives beyond the mere business case to reflect on the pluralism in the sustainability debate by drawing on different readings, interpretations and normative connotations of the debate (e.g. sufficiency, post-growth, degrowth, etc.).

Emerging development directions that could find increasing application in teaching formats are inter-, and transdisciplinary teaching being taken a bit further towards truly open, integrative, and anti-disciplinary teaching (Ito, 2014); embodiment and activation of multiple senses, which goes beyond listening and seeing (e.g. through arts disciplines incorporating dance, theatre, music, painting, etc.) (Kelan, 2011; Leigh, 2018; Quinn & Maddox, 2022); and hands-on community projects or nature-based experiences (e.g. out-of-classroom learning and immersive experiences) (Albrecht, 2020).

Additionally, we believe that innovativeness could move further, departing from the focus on the sources of teaching innovation towards a focus on

increasing its impact across institutions, geographies and communities (see table 27–1). The sources of teaching innovation that were presented in this book exclusively cover learning cohorts within classrooms with an emphasis on the domain of novel teaching approaches and methods yet complemented by aspects of digital tools and contemporary topics, bringing forth innovative teaching formats. Thus, we encourage educators to come forward with even bolder steps in driving teaching innovation.

Table 27–1: Classification of educational innovation

Sources of teaching innovation	Impact on stakeholders		
	Within classrooms	Across institutions and geographies	Across communities and regions
Novel teaching methods or approaches (e.g. experiential learning)	Innovative teaching	Leading pedagogy innovations	Revolutionising education programmes globally
Adoption of new technologies in education (e.g. virtual reality)	Innovative integration of technology	Leading EduTech innovations	Technology platform innovations
Adoption of contemporary topics in the classrooms (e.g. new topics in the field of sustainability)	Future-ready teaching	Teaching materials for front-runners in sustainability	Shaping sustainability thinking (e.g. decolonising sustainability, regenerative cultures)

Source: Adapted from Dieleman et al. (2022) to fit the sustainability context

Educators need to courageously share, benchmark, develop and implement innovative teaching formats in support of pedagogies for sustainable development and keep an active discourse of what innovative sustainability teaching should entail with all the key stakeholders – educators, researchers, HEIs and students. Sharing the results and best practices more broadly among the educational and scientific community would be strongly beneficial in the name of an open science and practice approach (sharing of, e.g., best practices, materials, exercises, and experiences). This will enable educators to more quickly and efficiently create and mould pedagogies towards the needed direction. For example, the collection of innovative teaching formats represented in this book can be used by teachers to draw inspiration from and to build on the experience and insights of others – eliminating the need to reinvent the proverbial wheel in classrooms far and near. It is crucial to stay curious and continuously cultivate change by disseminating teaching innovation (Gannaway et al., 2013).

Gaining insights on the impact of different teaching approaches and methods on (future) sustainable behaviour is key in guiding the institutionalization

of the most effective means. The controlling tool developed in the EFFORT project[37] is an instrument for testing the effectiveness of CSR-, (business) ethics- and sustainability-related courses. It is based on a theoretical model that comprises several variables (knowledge, awareness, attitudes, values, affects, and norms) that potentially influence the responsible and sustainable behaviour of future leaders. Therefore, it can be used to measure the teachings' impact and directly inform further development of teaching formats. The controlling tool consists of two standardized questionnaires (a pre-course and a post-course questionnaire), that should be conducted by students before and after participation in a course.

As teaching formats are embedded in the HEIs in which they are taught, the institutional context is also expected to play an important role in the effectiveness of those formats. Therefore, co-development and alignment between teaching formats and institutions is highly recommendable. The self-evaluation tool developed in the EFFORT project[37] can be used to assess the state of sustainability in institutions and courses and to determine development needs. It evaluates social responsibility and sustainability maturity according to three dimensions (culture, mission and people) and their respective subcriteria (Pizzutilo & Venezia, 2021).

Overall, as indicated by the results of the survey and the diverse collection of teaching formats, there seems not to be a "one-size-fits-all" solution. However, as at the beginning of every innovation journey, one must bear the uncertainty of not yet knowing all the answers and only gradually, through experimentation and accepting the inevitable risks and rewards associated to this iterative process, being able to accrue a true understanding of the most suitable pedagogies for sustainability.

Throughout this book, the role of teachers for implementing effective teaching for sustainability has been emphasized. To conclude, however, educators might want to think about focusing on the importance of students as an integral part of this process. Supported by the educational community, institutions and newest research, teachers can only drive this sustainability reformist educational agenda until a certain point. Beyond that, teachers need to bridge the last gap by communicating, learning and co-creating fitting learning spaces with students and by doing so, enable students to take an active role themselves in shaping and channelling their learning towards the actualization of a more sustainable future.

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

REFERENCES

Albrecht, N. J. (2020). Nature-based mindfulness and the development of the ecological self when teaching in higher education. In O. Ergas, & J. K. Ritter (Eds.), *Advances in research on teaching. Exploring self toward expanding teaching, teacher education and practitioner research* (pp. 157–177). Emerald Publishing Limited. https://doi.org/10.1108/S1479-368720200000034010

Dieleman, M., Šilenskyte, A., Lynden, K., Fletcher, M., & Panina, D. (2022). *Impactful international business education: A novel typology of teaching innovations*. [Unpublished manuscript]. AIB 2022 Conference Presentation.

Gannaway, D., Hinton, T., Berry, B., & Moore, K. (2013). Cultivating change: disseminating innovation in higher education teaching and learning. *Innovations in Education and Teaching International*, *50*(4), 410–421. https://doi.org/10.1080/14703297.2013.839334

Gazibara, S. (2013). "Head, Heart and Hands Learning" – A challenge for contemporary education. *The Journal of Education, Culture, and Society*, *4*(1), 71–82. https://doi.org/10.15503/jecs20131-71-82

Ito, J. (2014). Antidisciplinary. Joi Ito's Web. Advance online publication. https://doi.org/10.31859/20141002.1939

Kelan, E. (2011). Moving bodies and minds—the quest for embodiment in teaching and learning. *Higher Education Research Network Journal*, *3*, 39–46.

Leigh, J. (Ed.). (2018). *Routledge Research in Higher Education. Conversations on Embodiment Across Higher Education: Teaching, Practice and Research* (First edition). Routledge. https://doi.org/10.4324/9781315266664

Major, J., Tait-McCutcheon, S. L., Averill, R., Gilbert, A., Knewstubb, B., Mortlock, A., & Jones, L. (2020). Pedagogical innovation in higher education. *International Journal of Innovative Teaching and Learning in Higher Education*, *1*(3), 1–18. https://doi.org/10.4018/IJITLHE.2020070101

Pizzutilo, F., & Venezia, E. (2021). On the maturity of social responsibility and sustainability integration in higher education institutions: Descriptive criteria and conceptual framework. *The International Journal of Management Education*, *19*(3), 100515. https://doi.org/10.1016/j.ijme.2021.100515

Quinn, B. P., & Maddox, C. B. (2022). The body doesn't lie: Yoga and embodiment in the higher education classroom. *Teaching in Higher Education*, 1–17. https://doi.org/10.1080/13562517.2022.2066467

Rieckmann, M. (2018). Learning to transform the world: Key competencies in education for sustainable development. In A. Leicht, J. Heiss, & W. J. Byun (Eds.), *Issues and Trends in Education for Sustainable Development* (pp. 39–59). UNESCO Publishing.

UNESCO. (2017). *Education for the Sustainable Development Goals: Learning Objectives*. UNESCO publishing.

United Nations (n.d.). *Transforming our world: the 2030 Agenda for Sustainable Development*. https://sdgs.un.org/2030agenda.

Walder, A. M. (2014). The concept of pedagogical innovation in higher education. *Education Journal, 3*(3), 195–202. doi: 10.11648/j.edu.20140303.22

Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: a reference framework for academic program development. *Sustainability Science*, *6*(2), 203–218. https://doi.org/10.1007/s11625-011-0132-6