*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<br>Self-study: 54h | Total: 75h |
| Contents/primary topics | • Sustainable development<br>• Wicked problems and systems thinking<br>• 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<br>• Reflecting on own learning experience and the creative and strategic solutions development process of the group to enhance one's futures literacy<br>• Applying creativity techniques for brainstorming and ideation/prototyping | |
| Main teaching approaches | • Active learning<br>• Experiential learning<br>• Collaborative learning | |
| Main teaching methods | • Group discussion<br>• Vision-building exercises<br>• 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 partici-pation / activeness | High | Students are working on their business sector visions/futures during each of the sessions |
| 2. Degree of student collab-oration / 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 emo-tional 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-/transdis-ciplinarity | 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 solu-tions 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® Seri-ous Play®, the students are only exposed to exercises and theoretical reading assignments |
| 7. Degree of nature-related experiences | (None) | |
| 8. Degree of stakeholder in-tegration | Medium | Students are invited to conduct interviews with representatives of one stakeholder group to enrich their sector futures |
| 9. Degree of integration be-tween 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 sustainabil-ity/sustainable management within the broader field of management education. Against the backdrop of VUCA (volatility, uncertainty, complexity, and ambi-guity) 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 (Crow-ley & 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.<br>Students are asked to read the following texts to prepare for the "critique phase."<br><br>• Bregman, R. (2017). *Utopia for Realists: And How We Can Get There.* Bloomsbury. [Chapter 1: The Return of Utopia]<br>• Gidley, J. (2017). *The Future. A Very Short Introduction.* Oxford University Press. [Chapter 6: Grand global futures challenges]<br><br>For the journaling exercise, students should reflect on the content of week 1 by sharing their thoughts on the following questions:<br><br>• What might be done in your context to pay attention to *different* futures?<br>• Are they as *diverse* as they could be?<br>• 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." <br><br> • Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. [Chapter 5: New Figures for a New Era] <br> • *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] <br><br> 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? <br> 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. <br> For their journaling contemplation, they should reflect on the content of week two by answering the following questions: <br><br> • Which exercises helped you to inform and develop your model further? How? What were the challenges you encountered? <br> • 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: <br><br> • 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] <br> • Zeddies, L. (2021). *Utopia 2048* [Chapter: Epilogue and Afterword (pp. 274–283)] <br><br> They should also share their thoughts on the following questions (1–2 pages): <br><br> • What could be a potential day in the life in 2100 that you can imagine for your industry/sector? <br> • 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?<br>Students should read the following texts to prepare for the "critique phase."<br>• 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.<br>• Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, 10(1), 4–21.<br>For their journaling exercise, they need to reflect on the content of week 4 by sharing their thoughts on the following questions:<br>• What do your desirable future(s) look like for your industry, and how can this help guide and initiate transformation?<br>• 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."<br>• Bregman, R. (2017). *Utopia for Realists: And How We Can Get There. Bloomsbury.* [Chapter 9 & 10, pp. 203–250]<br>• 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]<br>For their journaling exercise, they should reflect on the content of week 5 by sharing their thoughts on the following questions:<br>• If you would transfer the principles of your utopia to the present, how would you behave in your industry? How have the exercises helped?<br>Please write a future manifesto. Imagine being a player in the industry/sector you are working on.<br>• 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 |
|---|---|---|---|
| Imple-men-tation Phase | Week 6* | Prototyping your scenario/ solution with Lego® Serious Play® (LSP workshop with external facili-tator) | 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):<br><br>• What can methods such as Lego Serious Play add to the develop-ment of sector scenarios/visions (in general terms and specifically for your scenario/vision)?<br>• In which phases of the process do you find the LSP method particu-larly useful? Conversely, during which phases do you think it could be problematic or not helpful? Why?<br>• How did the problem reversal/inversion technique (*Kopfstandmeth-ode*) help you to shape your scenario? |
| | Week 7* | Debrief and Fi-nal Presenta-tions | |

*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 improve-ment. 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 sus-tainable 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 the-atre. 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<br>• 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<br>• Candy, S., & Dunagan, J. F. (2016). The Experiential Turn. *Human Futures*, 26–29.<br>• Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. (Chapter 1)<br>• 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.<br>• Crowley, K., & Head, B. W. (2017). The enduring challenge of 'wicked problems': Revisiting Rittel and Webber. *Policy Sciences*, 50(4), 539–547.<br><br>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/10.117 7/2053019614564785 (data dashboard: http://www.igbp.net/news/pressreleases/pressreleases/planet arydashboardshowsgreataccelerationinhumanactivitysince1950.5.950c2fa1495db7081eb42.html)<br><br>• Bergheim (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 6)<br>• Sachs, J. D. and Sachs, L. E. (2021). Business Alignment for the Decade of Action. *Journal of International Business Policy*, 4, 22–27.<br>• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 11)<br>• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 9)<br>• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 10)<br>• Harari, Y. N. (2015). *Sapiens: A Brief History of Humankind*. Harper.<br>• Harari, Y. N. (2016). *Homo Deus: A Brief History of Tomorrow*. Harvill Secker.<br>• Harari, Y. N. (2019). *21 Lessons for the 21st Century*. Vintage.<br>• Bregman, R. (2017). *Utopia for Realists: And How We Can Get There*. Bloomsbury. (Chapter 5)<br>• 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)<br>• Zeddies, L. (2021). *Utopia 2048*. (Chapter: Epilogue and Afterword (pp. 274–283))<br>• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 7)<br>• 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<br>• Bergheim, S. (2021). *Futures Open to Variety: A Manual for the Wise Use of the Later Than Now*. Zgf Publishers. (Chapter 8)<br>• Cooperrider, D. L., & Whitney, D. K. (2005). *Appreciative Inquiry: A Positive Revolution in Change*. Berrett-Koehler.<br>• Hayward, P., & Candy, S. (2017). The Polak Game, or: Where do you stand? *Journal of Futures Studies*, 22(2), 5 14.<br>• 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.<br>• 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.<br>• 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.<br>• Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, 10(1), 4–21. |

| Topic | Resources |
|---|---|
| Implemen-tation 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/45 08513

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-to ols/

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.