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The chapter argues for a storytelling framework for sustainable problem-based learning (PBL). An important aspect of PBL is to learn how to be responsible and answerable. Such competences can only be learnt if students interact with the world. This ethical purpose is, however, often forgotten in PBL rhetoric. We propose to address this. The 17 UN development goals are seen as a political materialization of the highest principle of all being, which is identified as the eternal recurrence and hence natality. This ethical principle is radical and implies multi-species storytelling, that is, a politics of the earth instead of the human all-to-human dominance that has caused the Sixth Extinction event that we are currently living through. The challenge of PBL in regard to sustainability is to work out new institutional, economic and material practices in which the UN goals can be enacted. We propose a terra-political framework, which implies regrouping and prioritizing the UN development goals. Terra-politics is a multi-species storytelling, which can be organized as concrete problems of the earth, which are always inherent and entangled with the problems that students identify through self-directed collaborative learning processes. A terra-politics is in this sense at the heart of almost any problem that students are dealing with. We suggest that a model of true storytelling can be extended to a multi-species storytelling that we describe in four phases and seven principles. True storytelling becomes a model that can bridge strategies, communities, spaces, geographies, nature and people. Stories are seen as collective, relational and material and require the community of a Terrapolis in which being-togetherness in time-space is a guiding principle for shaping a sustainable future.



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Storytelling Sustainability in Problem-Based Learning

Kenneth Mølbjerg Jørgensen and David M. Boje

Introduction

We live in the Holocene Epoch, within the longer geological timescale (GTS) of the Quaternary Period, and the even longer GTS of the Cenozoic Era, in the even longer Phanerozoic Eon. Because the GTS is longer than a human lifespan, it is difficult to grasp the current extinction situation, and the consequences that are the most likely result of “business-as-usual” in politics, management and organization. In the first five extinctions that mark the geological timescale (GTS), it was mainly marine invertebrate species that died-off in great numbers, but in the Sixth Extinction, it is all species that are endangered including many of

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15 the 7.4 billion human beings currently living on the earth. The six
16 extinction-level events are as follows:

- 17 1. *End Ordovician Extinction* (2nd period of the Paleozoic era, between
18 the Cambrian and Silurian periods, within the Phanerozoic Eon): 439
19 million years ago, 60% of marine invertebrate species went extinct
20 when sea levels fell drastically in glaciation.
- 21 2. *Late Devonian Extinction*: 367 million years ago, while colonization of
22 land by plants and insects was well underway several extinction events
23 happened, mainly affecting marine life; 57% of marine invertebrate
24 species went extinct.
- 25 3. *End Permian-Triassic Extinction*: (on boundary of Permian & Triassic
26 Periods) 252 million years ago, the great die-off of 96% of all marine
27 species and 57% of all biological families went extinct. There is evi-
28 dence of several phases, including a large meteor impact, sea level ris-
29 ing, massive volcanism and ensuing coal/gas fires and explosions.
- 30 4. *End Triassic-Jurassic Extinction*: 208 million years ago, 53% of marine
31 invertebrate species went extinct due to global cooling or some say
32 oceanic volcanism.
- 33 5. *End Cretaceous-Paleogene Extinction*: 65 million years ago, 47% of the
34 marine invertebrate species went extinct (including the dinosaurs)
35 because of what is believed to be a large meteor impact.
- 36 6. *Sixth Extinction is in the newly designated Anthropocene Epoch of the*
37 *Holocene Period in which we are now living*: It is here and now an ongo-
38 ing extinction event. It is the direct result of our human activity, such
39 as destruction of habitats, over-consumptions of animal resources,
40 elimination of plant/marine/animal species humans view as competi-
41 tors, and the Carboniferous Capitalism since the Industrial Revolution.
42 It is predicted that this will be an extinction of 50% of earth's higher
43 life forms and an extinction of species estimated between 100 and
44 1000 times higher than the background extinction rate of mammals,
45 birds, amphibians, reptiles, plants and arthropods. It is estimated to
46 be 10–100 times higher extinction than the five previous mass extinc-
47 tion events.

Scientists are calling for the United Nations and governments around the world to enact something other than “business-as-usual” policies and practices. For example, in November 2017, 15,364 scientists from 184 countries sent a statement “World Scientists’ Warning to Humanity: A Second Notice” asserting “we have unleashed a mass extinction event, the sixth in roughly 540 million years, wherein many current life forms could be annihilated or at least committed to extinction by the end of this century.” Since the dawn of humankind, 80% of wild mammals, 80% of marine mammals, 50% of plants and 15% of fish have gone extinct. Humankind replaced the 60% of wild mammals with livestock, and 70% of wild birds with domesticated poultry.

The ecological collapse in the Sixth Extinction was accelerated by the emergence of the Industrial Revolution fuelled by Carboniferous Capitalism, a term used by sociologist Lewis Mumford (1934). Big agriculture developed competition on the basis of monocrop production by using mass quantities of petrochemicals, with unintended mass extinction consequences. With current accelerations of global warming, there is climate change, including increasingly unstable weather patterns, increases in annual mean temperature, melting of glaciers, lack of new snow pack, shortages of freshwater, droughts, water shortages and Arctic forest fires. Historians of technology refer to the period following World War II as The Great Acceleration (Headrick 2009; Schatzberg 2018). Bio-technology, quantum physics, computerization and digitalization are contemporary inventions that speed up this acceleration, and have opened new dangerous ways of acting-into-nature (e.g., Arendt 1998).

Haraway (2016) uses the term “Capitalocene” to describe the contemporary world. She uses Arendt’s case of Eichmann (Arendt 2006) and her framing as the banality-of-evil as the description for a giant and collective inability to think embedded in our blind habits of participation in contemporary economic, political and business practices (Haraway 2016, p. 36). The missing ability to think is not just about being obedient but is also about not presuming and claiming responsibility for the consequences of our actions even if we are well-aware that these habits cause mass extinction and threaten our children, their children, their children, the whole life cycle of all species on the earth, bio-diversity. Through the missing ability to think we have become strangers to ourselves. We walk

84 around like sleepwalkers doing our daily routines and enact business-as-
85 usual. We need an activist management education framework, which can
86 alter the destructive movements of capitalism. We find that in a multi-
87 species terra-political storytelling framework for PBL.

88 **Natality and Multi-Species Storytelling**

89 We believe that sustainable PBL management education must be founded
90 on the principles that we identify as natality and multi-species storytell-
91 ing, which we will describe by means of Arendt's (1998) and Haraway's
92 (2016) philosophical contributions. Such principles are radical in the
93 world of management and organization. Our current cycles of produc-
94 tion and consumption suspend the concern for nature's life cycles on the
95 grounds of maintaining or improving competitive advantage, gain mar-
96 ket shares and increase material wealth. We have misunderstood what
97 technological development is all about. However, there is nothing wrong
98 with technology per se. Human history has from its dawn been entangled
99 with the use of technologies. Technologies are simply defined here as
100 practices characterized by the use and production of material objects and
101 artifacts (Schatzberg 2018, p. 2). Arendt's notion of technology is cap-
102 tured under the name "work." She argues (1998, p. 7) that it is through
103 work that we build a durable and relatively permanent human world on
104 earth. She refers to this part of the human condition as worldliness. Work
105 is the human process by which we try to separate ourselves from nature.

106 The Capitalocene is, however, not characterized by production for
107 durability but rather for consumption. Shorter product life cycles,
108 consume-and-throwaway cultures and subsequent over-consumption of
109 earth resources and production of waste have become essential elements
110 of our modern lifestyle. Companies buy and harness resources that are
111 essential conditions of life. Such resources include water, life in the water
112 (e.g., fishing quotas and rights), life on land (e.g., big factories of cows,
113 pigs and hens), and there is an exchange market for quotas for carbon
114 dioxide emissions. Furthermore, through technologies that act-into
115 nature, we move further and further away from the earthly condition we
116 were born into. Flying to the moon, space travel, airline travel, global

trade, production and supply chains are examples that coming from and belonging to a particular “place” does not mean the same anymore.

Thus, Arendt suggests that development of technologies has severed the cultural and economic development from our organic and biological development. She asks if “the emancipation and secularization of the modern age, which began with a turning away, not necessarily from God, but from a god who was the Father of men in heaven, end with an even more fateful repudiation of an earth who was the mother of all living creatures under the sky?” (Arendt 1998, p. 2) Such a condition of being is “fake” and results in what we call “fake” storytelling. “Fake” describes first the condition of climate denial, which seems to be an inherent condition of Capitalism (Latour 2018). “Fake” also describes the banality-of-evil condition (Arendt 2006) of not thinking and therefore of not claiming responsibility for one’s action. In contrast, true storytelling and action implies responsibility. Corporate social responsibility (CSR), circular economy and other parts of the sustainability discourse of today only in rare cases live up to this criterium.

Storytelling is “fake” as long as it is severed from what Haraway (2016) calls multi-species storytelling. Haraway suggests that the challenge of today is to find ways of living with and in companionship with the multiple species of the earth. She agrees with Arendt, that despite all our technological advances and innovations, Mother Earth is the condition of our own becoming as well as she is the condition of all life on earth. The mutual interdependence of the plurality of life-forms (Arendt 1971) and hence multi-species storytelling are the conditions of life on earth and of our own becoming. For the same reason, Haraway does not like the term Anthropocene. She argues that it implies a “fake” story of human centredness, which does not characterize the ontological condition of being and becoming. However, we keep the term Anthropocene. The Anthropocene is for us a violent relationship of human and cultural practices in relation to the other non-human critters of the earth, while our ontological understanding of becoming implies the interdependence, intra-activity and intra-connectedness (e.g., Barad 2007) that Haraway tries to describe with the new term Chthulucene. We will discuss this term next and argue for the need for a terra-politics, a politics of the earth.

The Chthulucene, Natality and a Terra-Politics

153 Haraway defines the Chthulucene as a kind of “...timeplace for learning
154 to stay with the trouble of living and dying in response-ability on a dam-
155 aged earth” (Haraway 2016, p. 2). She uses it as an ontological under-
156 standing of being-together-with, always in relation and entanglement
157 with the multiple species of the earth. The name Chthulucene is inspired
158 from a spider with many tentacles where “tentaculum” means feeler. She
159 uses this metaphor to describe a condition of multiple attachments and
160 detachments, cuts and knots, making differences and weaving paths and
161 consequences but not determinism (Haraway 2016, p. 31). Thus, the
162 Chthulucene is a metaphor for a “feeling” relationship of making kin
163 with all the critters in a damaged, vulnerable and wounded world
164 (Haraway 2016, p. 10).

165 Haraway is using the metaphor of the “Terrapolis” here. Likewise,
166 Bruno Latour (2018) calls for “terrestrial politics” for protecting Gaia.
167 Sixty-one years ago, Arendt (1998) called for a politics of natality—a
168 politics of rebirth and new beginnings. Thus, Arendt, Haraway and
169 Latour all call for a politics of the earth. We choose the term terra-politics.
170 This politics is importantly not only grounded in an ethics of individual
171 responsibility. Politics is something different. Politics is a collective activ-
172 ity and takes place among people (Arendt 1961). A terra-politics puts the
173 eternal recurrence of life in the centre of attention. This implies multi-
174 species storytelling.

175 This link between politics and storytelling is not new. Arendt (1998,
176 p. 50) argues that we become political actors through storytelling. She
177 argues (1998, p. 50) that people disclose their uniqueness and difference
178 through stories. We become different and stand out through stories.
179 Furthermore, to be unique means being responsible and answerable. For
180 her, storytelling is much more than meaning-making and interpretation.
181 To reduce storytelling to a tool through which people disclose their psy-
182 choanalytical and psychological qualities is even more questionable
183 because people’s uniqueness is reduced to a classification or a particular
184 recognizable characteristic for groups of people. Stories are just there.
185 “They say exactly what they do” (de Certeau 1984, p. 80). They cannot

be reduced to power, discourse, psychoanalysis or psychology. Instead, 186
 storytelling is a unique way of living in, or actually as Haraway would put 187
 it, “living with and together with the world” instead of against it. By link- 188
 ing politics and natality, “true” storytelling is a politics of the earth. 189

Arendt links politics and natality explicitly through her considerations 190
 of living a happy life. This requires that we have the possibility and cour- 191
 age to appear before others with our own voices, intentions and interests. 192
 Furthermore, it requires responsibility and answerability for the life we 193
 live as mentioned above. Vatter explains (2006, p. 140–141) that for 194
 Arendt happiness is a memory of the possible existence of a happy life 195
 that exists in pure consciousness prior to all existence. It is a memory of 196
 “a past that never was.” This memory is in other words a basic and pre- 197
 social condition of human existence. It guarantees that we can recognize 198
 the happy life whenever we encounter it. This “memory of a past that 199
 never was” was in the early days of Arendt’s authorship the memory of 200
 God as our Creator. However, in *The Human Condition* (Arendt 1998), 201
 the memory of God is replaced by another creator, namely the memory 202
 of being born from a world in all its multiple variations and species that 203
 we all depend on. 204

Arendt argues that we were born from this world and that this is a 205
 world that we have in common and which we cannot escape. Therefore, 206
 our whole human condition is interdependence. We are only here as tem- 207
 porary inhabitants. We have “borrowed” the world and we are obliged to 208
 deliver this world back to the “newcomers” so that they can begin again. 209
 Natality specifically rests on the multiple conditions we were born into in 210
 terms of differences in race, species, eco-systems, flora and so forth. This 211
 multi-species storytelling is a universal and hence pre-social ethical con- 212
 dition of human life that we cannot violate (Butler 2015). This principle 213
 of natality is the very condition and beginning of answerability, responsi- 214
 bility and of being human in the first place. Arendt thus notes (1998, 215
 p. 97) that “the eternal recurrence” is the highest principle of all being. A 216
 philosophy of management and education that does not take this prin- 217
 ciple into account simply does not know what it is talking about. 218

To enact answerability and responsibility and to be held accountable, 219
 however, require a political space of participation, what Arendt (1998) 220
 calls a public space (Jørgensen, in review). Importantly, this is a collective 221

222 space in which people have the legitimacy to make politics together. This
223 space is not guided by a single great man or, in organizations, a single
224 great leader (e.g., Spector 2016). This public space is a collective and situ-
225 ated space where we can participate and have something in common. The
226 problem for Arendt is that we have lost this sense of a common public
227 space that we all depend on. Instead, the common public space has been
228 outsourced, privatized and sold to the highest bidder in order to make
229 private profit. Furthermore, there are specific material conditions for
230 political participation. People, who live in precarious conditions, with
231 uncertain and limited access to shelter, food, health care (Butler 2006,
232 2015), do not have the same possibilities or incentives to act politically.

233 PBL is enacted through a model of true storytelling, which is extended
234 into a multi-species storytelling by reading through the principle of natal-
235 ity with true storytelling. A terra-politics of storytelling requires in other
236 words changes at the social, economic and political levels. This is what a
237 sustainable PBL management education has to address. The next sections
238 frame a storytelling approach to a problem-based learning management
239 education. We use the 17 UN SDGs as a material translation of the prob-
240 lems of sustainability. The SDGs were launched in 2015, after a failed
241 earlier attempt of eight general goals did not get the attention or commit-
242 ment of nations, nor change the “business-as-usual” mindset of produc-
243 ers and consumers.

244 **A Terra-Political Storytelling Framework** 245 **for Problem-Based Learning**

246 The Aalborg version of PBL was born together with the university in
247 1974. It combines problem-orientation and group work in an approach
248 which, among others, was inspired by John Dewey (1916, 1991) and
249 Paolo Freire (1996). PBL emphasizes taking the starting point in the
250 problems of the world and the different values and stakes that are associ-
251 ated with these problems. Thus, education has to start from the ground,
252 that is, from the historical, spatial and material geographies from which
253 we are born and in which we live. Theorization, rationalization,

conceptualization have nothing to do outside and beyond the sphere of these conditions. PBL thus emphasizes the need to have first-hand built-in experiences with the practices of the world in which we live and is suspicious of how much value—abstract theoretical value—can bring without a tight integration in the practices of the world.

We believe that PBL's value and ideology can be sharpened by integrating it with storytelling simply because PBL is about working with students' stories. Furthermore, PBL is inherently political and ethical (Freire 1996; Jørgensen and Strand 2011; Jørgensen et al. 2012). An important idea in PBL is to learn how to be responsible and answerable. Such competences can only be learnt if students interact with the world. This ethical purpose is, however, often forgotten in PBL rhetoric. Instead, PBL becomes an effective methodology for teaching and learning people theoretical knowledge and competences. For Freire, however, ethics and politics are at the heart of PBL. Freire's "pedagogy of the oppressed" focused on dialogue and problem-orientation as important means for an emancipatory pedagogy because it was through dialogues with people that education became grounded in people's lived experiences.

Walter Benjamin, a fellow Marxist with Freire, did not write about PBL but storytelling. In his classic essay from 1936, Benjamin proclaimed that the modern condition implied the loss of storytelling capability (Benjamin 1999). According to Benjamin, the storyteller is the figure in which the righteous man encounters himself. Benjamin argued that true stories emerge from "the ground," that is, from the relational engagements that people were part of in everyday life—the living stories (Boje 2001, 2008; Jørgensen and Boje 2010). The loss of storytelling capability is for Benjamin caught in the phrase that experience has fallen in value compared to modern rationalistic Western narrative tradition, which is linked to modern consumption and production cycles.

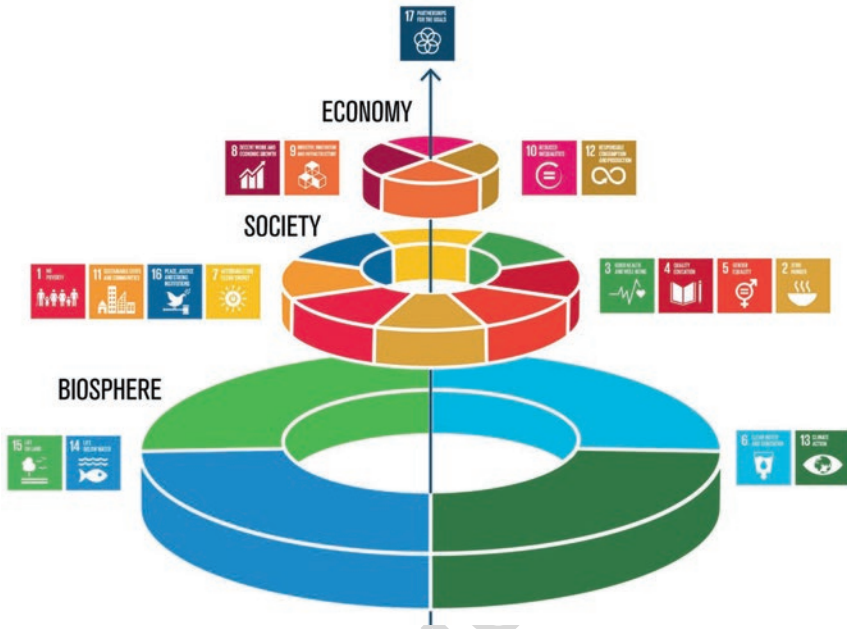
In education, we witness the loss of storytelling capability in the use of what Freire calls the banking concept of education. According to this concept, students are expected to repeat what teachers say instead of being capable of thinking. Instead of sharing experiences in a dialogical relationship where students are recognized as persons, the banking concept of education implies the use of "dead" information exchange (e.g., Benjamin 1999). PBL and storytelling imply a renaissance of the value of

290 local community lives, spaces and embodied experiences in education.
291 The principles of natality and multi-species storytelling described above
292 push us towards embedding management philosophies and relations of
293 production and consumption in nature's life cycles. Today, the
294 Anthropocene constitutes the new challenge for PBL. Through PBL
295 however, ethics can become embedded in concrete conditions and cir-
296 cumstances whereby people can learn how to think, act and judge in an
297 ethical way about the problems of the world (Arendt 1998, 2003). We
298 believe that this is important for business. Without the planet there is no
299 business and there is no capital. Thus, sustainability as witnessed by the
300 17 SDGs is not only part of the agenda. For many companies, it is the
301 agenda. The "fake" storytelling that we witness every day, actually con-
302 firms this picture.

303 **Problem-Based Learning and the UN** 304 **Sustainable Development Goals**

305 A terra-political framework has implications for the ways we look at the
306 UN sustainable development goals (SDG). The SDGs constitute for
307 many organizations and managers a concrete materialization of the sus-
308 tainability problem. They also provide concrete goals, categories and
309 problems around which PBL can be organized. The SDGs, however, have
310 to be reorganized and prioritized to meet the terra-political conditions
311 and the ethics that we have sketched above. The Stockholm resilience
312 centre has, for example, produced a pyramid of the goals where goals
313 related to the biosphere are the ground while social goals are built on top.
314 The economic goals are the third layer that rests on both biosphere goals
315 and social goals. These three layers are tied together with SDG goal 17,
316 Partnership for the goals. Their organization is presented in Fig. 15.1.

317 The difference between such a reorganization of the SDGs and con-
318 temporary discourses on Corporate Social Responsibility is very clear.
319 Carroll's CSR pyramid puts, for example, economic responsibilities as
320 the first priority. The triple bottom line talks about a balance between
321 profit, people and planet (Vallentin 2011). In reality, this means that



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Fig. 15.1 UN sustainable development goals. (Source: Stockholm Resilience Center 2016)

CSR stories are “fake’.” Profit almost always comes first, people come second and planet comes third in CSR discourse. The Stockholm Resilience Centre’s model makes it clear that it is absurd to talk about a balance between profit, people and planet. We cannot claim to be answerable and responsible, if we make a trade-off between profit and clean water, air, life on land and life in the water. Planet is the foundation that we even talk about people and social practices and that we have economic systems.

However, we have some modifications of the Stockholm Resilience Centre model. Below we have done our own reorganization and have structured it according to Arendt’s notions of politics, work (material practices) and natality (biosphere and basic social needs). *No Poverty* (SDG 1) and *Zero Hunger* (SDG 2) are for us on the level of basic necessities and are linked directly to the idea of the eternal recurrence and nature’s life cycles. We believe that the goal concerning *Peace, Justice and*

337 *Strong Institutions* (SDG 16), is on the level of politics along with part-
 338 nerships for the goals. *Gender Equality* (SDG 5) and *Reduced Inequalities*
 339 should also be moved to the political level since participation in the public
 340 space is a right for all people regardless of gender, religion, race and
 341 colour. Finally, we believe that quality education is a basic human right
 342 and benefits political participation and collective wisdom (Fig. 15.2).

343 The scope of most PBL problems identified in management education
 344 is the intention to contribute to SDGs 3 and 11: “Good Health and
 345 Well-being” and “Sustainable Cities and Communities.” Such principles
 346 always rest on the six very basic SDGs, which are urgent for natality and
 347 multi-species storytelling. These six basic SDGs can never be ignored as
 348 they comprise the basic social needs: “No Poverty” and “No Hunger,”
 349 and Biosphere goals, “Clean Water and Sanitation,” “Climate Action,”
 350 “Life Below Water” and “Life on Land.” These ground-level goals are
 351 non-negotiable. The arrows that point towards the basic ground-levels
 352 goals imply that politics and material practices (work) are always answer-
 353 able and responsible to these ground-level goals. We call it first level
 354 answerability.

355 Management students are most often concerned with problems concern-
 356 ing material practices: problems concerning energy (SDG 7), work

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Fig. 15.2 Reorganization of SDGs

and economic growth (8), industry, innovation and infrastructure (9), 357
 and consumption and production (12). Such problems are often seen in 358
 relation to stakeholders, society and institutions. This is the level of poli- 359
 tics in the model. Solving the problems of management implies collabo- 360
 ration with the political level. In order to attain collective wisdom, we 361
 suggest that multiple stakeholders must be involved. Therefore, gender 362
 equality (SDG 5), reduced inequalities (SDG 10) and quality education 363
 (SDG 4) are important means to ensure broad political participation in 364
 the partnerships for the goals (SDG 17) and strong institutions (SDG 365
 16). Management diagnosis and management solutions are in our model 366
 always answerable, directly or in-directly, to the ground-level goals. A 367
 management problem like decent work conditions and economic growth 368
 cannot be solved in isolation, but needs to take ground-level problems 369
 into account. A problem-based learning methodology for management 370
 education must demonstrate first-level answerability to qualify as part of 371
 the “Terrapolis.” We now move towards describing a methodology for 372
 management education. 373

A Methodology for Management Education 374 in the Terrapolis 375

A politics of natality and of multispecies storytelling involves the integra- 376
 tion of natural, cultural, social, political and economic phenomena where 377
 we have a first-level answerability to basic social needs and the biosphere: 378
 water, plants, animals, air, biodiversity, plurality of human lives. Haraway 379
 describes this integration using the term Terrapolis. It has the following 380
 characteristics (Haraway 2016, p. 11): 381

- Terrapolis is a fictional integral equation, a speculative fabulation. 382
- Terrapolis is n-dimensional niche space for multi-species 383
 becoming-with. 384
- Terrapolis is open, worldly, indeterminate and polytemporal. 385
- Terrapolis is a chimera of materials, languages and histories. 386

- 387 • Terrapolis is for companion species, cum panis, with bread, at table
388 together—not “posthuman” but “com-post.”
- 389 • Terrapolis is in place; Terrapolis makes space for unexpected
390 companions.
- 391 • Terrapolis in an equation for guman, humus, for soil, for ongoing
392 risky infection, for epidemics of promising trouble, for permaculture.
- 393 • Terrapolis is the SF (String figures) game for response-ability.

394 In the Terrapolis we stay with the trouble. When we are training man-
395 agement students in the Terrapolis through a PBL methodology, we put
396 them right in the midst of the trouble and want them to stay there to take
397 response-ability. We push the students towards the ground, towards natu-
398 ral, human, social and material geographies. The understanding of how
399 management problems connect to these geographies is the first step in a
400 project. To disentangle this complex web of relations is to realize how the
401 appearances in these geographies are all interconnected and mutually
402 dependent. We are playing Haraway’s game of string figures. When we
403 change in one end, we change the appearance and dynamics of the whole.

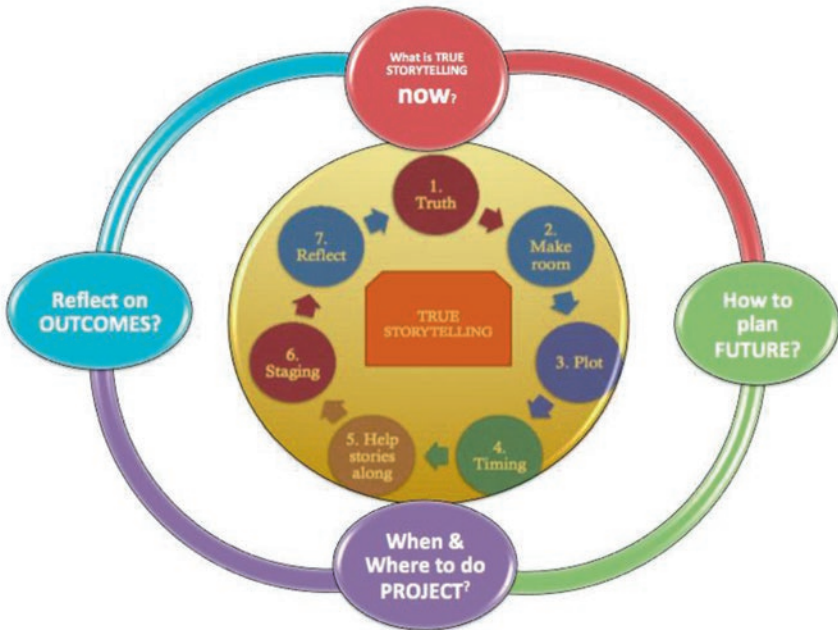
404 In the Terrapolis, these strings are ultimately tied to the “ground”—to
405 a place of waterfalls, tides, forests, birds, trees, sand, mud, air, animal and
406 human lives. These strings are also attached and tied to the creation of an
407 artificial world, to the use of technologies, to interactions, to the creation
408 of material inequalities, to the possible accumulation of profits and capi-
409 tal at one end and to deprivation and exploitation at the other end. We
410 are not only trying to map these relations. We are also trying to figure out
411 where the weak spots are, especially seen in relation to the highest prin-
412 ciples of natality and multi-species storytelling. Only through this kind
413 of diagnosis can we together produce long-term sustainable solutions.
414 Finding such solutions is of course much more complex because multiple
415 strings are entangled in complex webs where some are more visible than
416 others. The production of possible solutions, or **antinarratives** (Boje
417 2001, 2008), affects the whole. Therefore, the road towards final solu-
418 tions is a continuous learning process where solutions should crystallize
419 and mature in conversation and dialogue with multiple, diverse stake-
420 holders. Below we convert a model of true storytelling (Boje et al. 2016)

into stages for playing string figures with the purpose of finding and identifying sustainable solutions. 

True Storytelling

The model for problem-based learning with the four phases and seven principles is illustrated in Fig. 15.3. The model has four phases in a circular process: (1) what is true storytelling now; 2) how to plan: future; 3) when and where to do: project; and 4) reflect on outcomes. Furthermore, the model has seven principles:

1. Truth: You yourself must be true and prepare the energy and effort for a sustainable future.



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Fig. 15.3 True storytelling. (Source: Boje et al. 2016)

- 431 2. Make room: True storytelling makes spaces respecting the stories
432 already there.
- 433 3. Plot: You must create stories with a clear plot creating direction and
434 help people prioritize.
- 435 4. Timing: You must have timing.
- 436 5. Help stories along: You must be able to help stories on their way and
437 be open to experiment.
- 438 6. Staging: You must consider staging including scenography and
439 artefacts.
- 440 7. Reflection: You must reflect on the stories and how they create value.

441 PBL management education can use these phases and principles to
442 realize the UN SDGs; we discuss each phase and principle below.

443 **Phase 1: What Is True Storytelling Now?**

444 *Truth: Be true and prepare the energy and effort for a sustainable future:* Play
445 the SF game with the purpose of mapping relations, attachments and
446 knots, and address the weak points in the complex web of relations. It is
447 these webs, relations and networks that need to change in order to pro-
448 duce a sustainable future. In Fig. 15.4, we have given an example of what
449 questions are appropriate for a project under the SDG 12, Responsible
450 Consumption and Production. We have deliberately grouped problems
451 concerning poverty, hunger, health, work conditions and inequality in
452 the area concerning supply chains, resource use and global production
453 processes because the whole history of Western Capitalism has involved
454 exploitation of cheap labour (sometimes even child labour) and cheap
455 resources in so-called third world countries. Globalization only seems to
456 have accelerated such problems. The SF game identifying the strings of
457 relations in responsible consumption and production might move beyond
458 national borders and across continents. What we do in a company in
459 North Jutland might affect air, water, work. To be true and prepare our-
460 selves for a sustainable future is to take response-ability for such relations.

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Fig. 15.4 Mapping the strings of relations concerning responsible consumption and production

Make Room: The Storytelling Makes Spaces Respecting the Stories Already There

The second principle is to identify the knots of actors and strings of social relations and what role they play and can play in a Terrapolis. We take response-ability for a damaged world. The social and material infrastructure embedded in the dynamics of that damaged world is the historical, spatial and material conditions of the problem that we cannot deny but rather must embrace in facing the problem. This principle implies identifying dominant narratives as well as marginalized voices and stories and to get them to work together towards a holistic and sustainable solution. The SDGs 16, Peace and Strong Institutions, and 17, Partnerships for the Goals, imply collaboration across companies and actors can take response-ability for and where the boundaries go vary with each problem, but we cannot in any case deny our response-ability when we claim to be true storytellers. This principle involves delving deeply into cultural, social and material relations in local communities to figure out what stories are there and how we can build on these stories to move towards sustainable communities and good health and well-being.

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Phase 2: How to Plan the Future?

Plot: Planning the future, the plot, involves firstly to play an **antinarrative** SF game. **Antinarratives** are for Boje (2001) before narrative closure and they are furthermore *bets* on the future. **Antinarratives** are more loose and fragmented, and contain a vision rather than a clear plot. An **antinarrative** game would be to pull the strings at different points in the webs of relations identified in principle 1. Ideally, this step would invite different stakeholders to take part in the **antinarrative** SF game. The purpose of pulling different strings, for example, transportation or the span of the product life cycle, is to identify possible consequences and scenarios for the dynamics of the Terrapolis and the roles that each actor plays and will play if certain dimensions of the Terrapolis are changed. This principle describes an **antinarrative** learning performance, where different scenarios are identified and where certain solutions should begin to crystallize as possible and realistic future scenarios. The multi-stakeholder involvement is important for negotiating and making new alliances across the board but again the principles of natality and multi-species storytelling are in the end non-negotiable markers where we must make progress. There is no planet B.

Timing: Timing is part of planning the future. The Terrapolis is poly-temporal as noted by Haraway. This difference and plurality are at once a part of the development and dynamics of the Terrapolis and will always be there. On the other hand, we try to create a holistic symphony where the different strings become somewhat aligned. Time is important here. Water, air, life, flora and fauna are temporal phenomena. In an important sense, natality and the eternal recurrence is a question of time. We have to adjust planning, production processes, resource use, product life cycles and so forth to the more physical notion of time, which is embedded in the principle of natality. Lifestyles have to change as well. This principle is radical. It means aligning human time with physical time. The Capitalocene has severed this connection and has caused the Anthropocene as we discussed in the beginning of the paper. Current economic relations of consumption and production work according to a notion of time, which is beyond this world and accelerates the extinction rates further.

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Therefore, it is urgent to work out new sustainable production processes, 513
new business **modes**, expand product life cycles in order to create a new 514
kind of economy. 515

Phase 3: When and where to Do Projects? 516

Help stories along: This phase helps stories along by enabling collabo- 517
ration between stakeholders across borders. We confront all the problems 518
in practice in this phase. In other words, we begin to pull the strings and 519
change the whole network of relations. Storytelling conversations, dia- 520
logues, coaching, negotiation, experiments, human resource manage- 521
ment tools and concepts are all parts of the toolbox that management 522
students may try to use in practice in this phase to keep the process going 523
and to adjust when sustainability projects face problems. There are some 524
important principles. Like in all phases, management students have to be 525
present in time and space and virtually feel (i.e., the tentaculum meta- 526
phor) all the relations and forces on their own bodies. To a realistic degree, 527
they must try to be part of showing the way forward rather than just say- 528
ing it or writing it. Leading is being part and doing. For management 529
students it is important to try to be part of leading. Then they understand 530
that management is action and not analysis. 531

Staging This principle is another part of action. In this principle, we 532
need to stage the socio-material setup in terms of specifying new material 533
practices, systems, architectures, objects, artefacts and other kinds of rei- 534
fications of desired stories in action, new collaborative relations, new 535
habits and communicative patters, new systems of control and surveil- 536
lance of organizational practices. This stage helps stiffen the new practices. 537

Phase 4: Reflect on Outcomes 538

This is where PBL and true storytelling integrate to keep the cycle of 539
learning happening. Reflecting on the ability of small movements to 540
become big socio-economic and ecological movements that shift away 541
from the Sixth Extinction is critical. 542

Conclusions: Becoming more Dialogical

544 We need to get away from learning methods that are anti-dialogical. The
 545 storytelling conversations in all phases of the true storytelling model are
 546 both dialogical and dialectical. Through the model we can work system-
 547 atically towards interventions that bring out the dialogical, and overcome
 548 the anti-dialogical and the anti-dialectic. This key difference is found in
 549 the work of Paulo Freire's pedagogy of the oppressed (Freire 1996). He
 550 uses the term "*Conscientização*" inquiry into the situation of the entangle-
 551 ment of oppressor and oppressed. "*Conscientização*" is a "critical consci-
 552 ousness" that addresses "fear of freedom" a "search for self-affirmation
 553 and thus avoids fanaticism" by placing the status quo in question (Freire
 554 1996, p. 36). "*Conscientização*" is a methodology in generative storytell-
 555 ing conversations of self-correcting by a "deepening attitude of awareness
 556 that is characteristic of all emergence" (Freire 1996, p. 109). Freire's
 557 model is an interrogation method of "non-communicative" (Freire 1996,
 558 p. 109) "oppressor action" with the "aim of concurring them." Dialogical
 559 conversational storytelling is liberation by back-and-forth co-inquiry
 560 into "liberating action."

561 Now, in Denmark a politician is burning the Koran. In the United
 562 States, a president withdraws from the Paris Climate Change accords and
 563 engages in climate denial. At a time when we need to be dialogic, and
 564 dialectical in a constructive way, we have only anti-dialogical and anti-
 565 dialectical politicians. People are manipulated by what Freire (1996,
 566 p. 147) calls the "series of myths" to accept and confirm myths of
 567 "unequivocal interest of the dominant elites." The tragedy that Freire
 568 exposes is the oppressors are caught in their own trap, elevating dominant
 569 elites, hierarchy, and hegemonic Othering instead of finding "true organ-
 570 ization" by action of critical consciousness arrived at by the *conscientiza-
 571 ção* methodology into praxis. Much of the theoretical tools in management
 572 education belong to the tool and apparatus of cultural invasion conquest,
 573 colonization and manipulation that entrap both oppressor and oppressed.

574 As Linda Hitchin (2014) points out it keeps the "untold story" in a cell
 575 of silence, or in fear of "living story" liberation. Bakhtin (1981) calls it
 576 polyphonic dialogism, to be fully in one's own dialogical standpoint,
 577 while in a sacred space of listening, sharing, but not persuading by

interrogation. Bakhtin (1993) was anti-dialectical, but had great sense of ethical answerability for being the one person informed and aware that had the obligation to intervene. Freire (1996) is dialectical and dialogical in seeking to transform the work “in the dialectic of these relationships, the *thous* which become two I’s” in the “dialogical theory of action” (Freire 1996, p. 167). Freire opposed the “banking model of education” the expert depositing knowledge into the empty mind of students. Part of the problem is that anti-dialogical and anti-dialectical methodology dominates the social sciences. Conversational storytelling science finds concrete and grounded existence by co-sharing-, co-inquiry in the act of reflection in the double movement of dialectical and dialogical self-correcting co-inquiry. It can become the basis of resituated rejoining of the deconstructions unveiled in self-correcting storytelling.

AU7 *Conscientização* methodology can be an important part of true storytelling PBL methodology. It is a way of demythicizing of colonial agents’ subversion of critical consciousness, by flights way from ground into abstraction. *Conscientização methodology* put into *praxis* can be a quest for not only humanizing that reality but revering ecology, and how both oppressor and oppressed are subjects of social constructions that mask structural inequalities that are not only crimes against humanity but crimes against Mother Nature. Deconstructing ideologies of oppression in education begins with *conscientização methodology* put into *praxis* in the classroom. This requires courage. Paul Freire was tailed in 1964 for helping illiterates find literacy, which greatly offended the Catholic elites in Brazil. Freire taught *Conscientização* critical consciousness that disclosed a fear of freedom and a banking method of education privileging the status quo. Freire dared to teach critical thinking as a problem-based learning approach, by inviting students to learn about obstacles to humanization, their own subjection.

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