

Anthropocene – Humanities and Social Sciences

Cécile Renouard · Frédérique Brossard Børhaug
Ronan Le Cornec · Jonathan Dawson
Alexander Federau · David Ries
Perrine Vandecastelle · Nathanaël Wallenhorst

Pedagogy of the Anthropocene Epoch for a Great Transition

A Novel Approach of Higher Education

With additional contributors

 Springer

Anthropocene – Humanities and Social Sciences

Series Editors

Nathanaël Wallenhorst, Université Catholique de l'Ouest (UCO),
Angers, France

Christoph Wulf, Anthropologie und Erziehung, Freie Universität Berlin,
Berlin, Germany

This series is the first collection to address the subject of education within the Anthropocene. The inspiration behind the series is a dialogue between Earth system science (ESS) and human and social sciences (which, when their object of study is the socio-political implications of our entering the Anthropocene are now officially called the environmental humanities). The series offers perspectives from a variety of disciplines. The *raison d'être* of this new collection is to draw together high quality studies dealing with the gravity of today's environmental situation whilst also viewing the concept of the Anthropocene from a critical perspective by expanding on work engaged in in human and social sciences over recent years.

The main objectives of this series are to:

- bring together studies from Earth system science and the environmental humanities in the same collection, from an educational angle
- engage with the question of the future and how to prepare for it in a time of uncertainty

This series welcomes topics including, but not limited to:

- pedagogy
- didactics in the Anthropocene
- health education
- education for governance and democracy
- addressing the challenges of contemporary societies and ecological changes
- transforming agricultural production methods
- preparing for the future

The collection would make a valuable contribution to the academic world and research, which is currently seeking new editorial spaces for us to publish scientific works on the implications of entering into a new geological epoch.

Works published in this series include monographs, edited volumes, and handbooks and textbooks.

The series is intended for researcher working on the Anthropocene with all its socio-political implications and also students in different disciplines following courses on environmental issues. It may, however, also be of interest to all social stakeholders interested in environmental questions, who are becoming increasingly numerous including, but not limited to, policy makers, activists, entrepreneurs.

We aim to make a first decision within 1 month of submission.

In case of a positive first decision the work will be provisionally contracted: the final decision about publication will depend upon the result of the anonymous peer review of the complete manuscript. We aim to have the complete work peer-reviewed within 3 months of submission.

Proposals should include:

- A short synopsis of the work or the introduction chapter
- The proposed Table of Contents • CV of the lead author(s)
- List of courses for possible course adoption

The series discourages the submission of manuscripts that are below 75,000 words in length.

For more information, please contact publishing editor, christi.lue@springer.com

Cécile Renouard • Frédérique Brossard Børhaug
Ronan Le Cornec • Jonathan Dawson
Alexander Federau • David Ries
Perrine Vandecastelle • Nathanaël Wallenhorst

Pedagogy of the Anthropocene Epoch for a Great Transition

A Novel Approach of Higher Education

Cécile Renouard
ESSEC Business School, Centre Sèvres,
Mines Paris and Campus de la Transition
Forges, France

Ronan Le Cornec
University of Rennes 1
Rennes, France

Alexander Federau
Mobilitéé
Geneva, Switzerland

Perrine Vandecastelle
Campus de la Transition
Forges, France

Frédérique Brossard Børhaug
VID Specialized University
Stavanger, Norway

Jonathan Dawson
Schumacher College
Totnes, UK

David Ries
Campus de la Transition
Forges, France

Nathanaël Wallenhorst
Université Catholique de l'Ouest
Angers, France

ISSN 2731-6343

ISSN 2731-6351 (electronic)

Anthropocene – Humanities and Social Sciences

ISBN 978-3-031-39365-5

ISBN 978-3-031-39366-2 (eBook)

<https://doi.org/10.1007/978-3-031-39366-2>

© The Editor(s) (if applicable) and The Author(s), under exclusive license to Springer Nature Switzerland AG 2023, corrected publication 2024

This work is subject to copyright. All rights are solely and exclusively licensed by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors, and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Paper in this product is recyclable.

Contents

1	Introduction	1
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst	
Part I Educational and Pedagogical Foundations for a Great Transition		
2	Educational Contextualization: How Does Higher Education Face the Ecological Challenge?	9
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst	
3	Educate for the Transition by Connecting Head, Heart, Body – An Educational Vision for the Anthropocene	25
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst	
4	Levers to Operate in Order to Practice a Transition Pedagogy	39
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst	
5	Mobilizing Wisdom to Live Sustainably by Way of Education	55
	Herner Saeverot and Glenn-Egil Torgersen	
6	Learning to Live with Emotions for Transition	63
	Caroline Verzat and Julie Lecoq	
7	Taking Into Account Cognitive Biases to Implement an Adapted Transition Pedagogy: Interview with Thibaud Griessinger	75
	Cécile Renouard, Ronan Le Cornec, Frédérique Brossard Børhaug, Perrine Vandecastele, Eläine Vetsel, and Thibaud Griessinger	

8	Four Families of Skills for Ecological and Social Transformation	83
	Gérald Majou de la Debutrie	
9	From Knowledge to Skills: Training for Transition Jobs – Interview with Alain Grandjean	91
	Cécile Renouard, Rémi Beau, Elaine Vetsel, and Alain Grandjean	
Part II Taking Charge of Transition Pedagogy in Higher Education: Experiences Located in Europe and in Africa, Practical Tools and Actors to Be Mobilized		
10	Three Examples of Universities Offering an Integrated Approach to Teaching the Great Transition	99
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastelle, and Nathanaël Wallenhorst	
11	What Transition to Teach? Interview with Dominique Bourg	107
	Cécile Renouard, Rémi Beau, and Dominique Bourg	
12	Learning to Engage with Complexity Through the Transformative Learning Approach of the Sustainability Institute in South Africa	113
	Tom Renault and Reinhold Mangundu	
13	Alternative Pedagogies: Interview with Mark Swilling	125
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, and Mark Swilling	
14	Challenges and Opportunities in Norwegian Higher Education in the Anthropocene Epoch	131
	Frédérique Brossard Børhaug	
15	Scaling Up Alternative Pedagogies in Eco-communities: The Case of Arterra Bizimodu and the “EU4Transition” Project	141
	Genny Carraro, Mauge Cañada Zorrilla, and Léa Eynaud	
16	The Campus de la Transition Pedagogical Project. The Case of the Oikonomia Summer School (In Partnership with ESSEC Business School)	155
	Pierre-Jean Cottalorda and Cécile Renouard	

17	Some Practical Tools and Methods to Carry Out Transition Pedagogy in Higher Education Institutions	177
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastelle, and Nathanaël Wallenhorst	
18	“Work That Reconnects”, A Powerful Tool for Transformative Learning	193
	Michel Maxime Egger	
19	A Few Avenues to Support the Actors Concerned in the Transformation of Higher Education	211
	Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastelle, and Nathanaël Wallenhorst	
	Correction to: Learning to Engage with Complexity Through the Transformative Learning Approach of the Sustainability Institute in South Africa	C1
	Tom Renault and Reinhold Mangundu	

Chapter 1

Introduction



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst

Abstract This introduction draws on Charles Dickens’ analysis of schooling in England during the industrial revolution to highlight the connection between the Anthropocene epoch we currently live in and education. While we outline points for critique, we are far from making a simple judgment. In reaction, we present the *Great Transition Handbook* with its systemic approach based on six gates, and we call on pedagogy to be more holistic in order to integrate all dimensions of humanity. We also clarify our understanding of the Great Transition, as a process interweaving both social and ecological concerns.

In his 1854 book *Hard Times*, Charles Dickens portrays the students of a school run using the methods imposed by MP Gradgrind, “man of facts and calculations.” Bitzer, one of the pupils, when questioned on the definition of the horse, provides the following: “Quadruped. Graminivorous. Forty teeth, namely twenty-four

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l’Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_1

grinders, four eye-teeth, and twelve incisive. Sheds coat in the spring [...].” The pupils are addressed by numbers in the school, ... Dickens takes to the limit the absurdity of a world vision in which a managerial conception of human existence is prevalent, and of the pedagogical methods which stemmed from it, which obscure the students’ own judgment and emotions. What vision of a desirable society for which educational institutions? The problem raised by Dickens, stained by the social suffering linked to the industrial revolution in England, is also ours today, in the epoch of the Anthropocene: we now know that human activity exerts an unbearable pressure on the ecosystems, which can ultimately lead to the destruction of a part of humanity, while already worsening natural and health catastrophes, especially for the most vulnerable. A quantitative and abstract approach to the problems is not only insufficient to arouse individual and group power to act, but it can even prevent the mobilization of other fruitful resources.

The current environmental crises are also the result of our education system. The main culprits are not ignorant people but politicians, engineers, agronomists, economists, philosophers, and scientists. The institutions in our societies allow the deepening and transmission of very sophisticated knowledge. However, they have forgotten how to live sustainably. This is paradoxical when we consider that this knowledge is relegated to the background in Western societies but remains alive in many societies deprived of the resources Westerners have access to (Aldo & Le Clézio, 2000; Citton 2010 in Pache et al., 2016; Arnsperger, 2023). Our collective challenge is therefore at the same time educational, cultural, and political: How do we mobilize this wisdom again? How do we promote student access to resources that allow them to give meaning to their existence and contribute to a desirable future for all societies on the planet? This is the aim of the *Great Transition Handbook*¹ (FORTES collective, 2020), an initiative of the Campus de la Transition supported by the French Ministry of Higher Education and Research, which is supplemented by an ongoing collection of smaller handbooks in French aiming to specify the transformation challenges in different disciplines (economics, law, literature, social science, engineering sciences, public health, etc.). The present publication draws upon the first opus of this collection focussing on the transitions’ pedagogical practices (Renouard et al., 2021). The *Great Transition Handbook* is the fruit of an effort bringing together more than fifty teacher-researchers from different disciplines, as well as some people from the business world and students. It offers an itinerary intended to “teach in order to transform,” passing through six “gates” which indicate six questioning approaches: Oikos or “inhabiting a shared world”; Ethos or “discernment and decision-making for collective and cooperative well-being”; Nomos or “measuring, regulating, governing”; Logos or “interpreting, critiquing, and imagining”; Praxis or “acting on the issues at stake” and Dunamis or “reconnecting with the self, others and nature” (FORTES collective, 2020). The *Handbook* is addressed both to students so that they appropriate a process of critical

¹An English summary of the *Great Transition Handbook* is freely available online (FORTES collective, 2021).

questioning based on an informed and considered diagnosis of the state of the world, as well as to teacher-researchers and higher educational institutions teams, in order to draw resources for inter- or transdisciplinary teaching and transformative practices, as well as to meet the major current ecological, economic and social challenges.

In this context, questioning pedagogy is essential. According to the definition of the *Encyclopedia Britannica*, pedagogy refers to “the study of teaching methods, including the *aims* of education and the ways in which such goals may be achieved. The field relies heavily on educational psychology, which encompasses scientific theories of learning, and to some extent on the philosophy of education, which considers the *aims and value* of education from a philosophical perspective” (Peel, 2023, our emphasis). The purpose of this publication is to provide reflection and proposals concerning the integration and implementation of the transition in higher education, in teaching, and in the curricula. What we call in this publication “transition pedagogy” is faced with the challenge of teaching students by giving them access not only to content but also to ways of reasoning, being and doing in all fields, in a context of great uncertainty.

We will not go into the current debates around pedagogical practices in detail but instead seek to identify certain levers in higher education to promote student and institution transition. By focusing on the ecological and social challenges, we offer an educational vision that we believe underlies current efforts at the international level to provide access for all citizens to the resources for a good life. We have chosen to favor an approach consistent with the itinerary proposed in the *Handbook*: this approach aims to link the different dimensions of the person, in his or her relationship with others, human and non-human, in a territory. It is a holistic approach, which addresses not only the intellect but also involves the integration of emotions, corporeality, the sensitive relationship with the living, as opposed to a relationship of exteriority of the subject towards objects of the world which can lead to losing the sense of our immersion in nature and to developing Promethean forms of action which are ultimately destructive for humanity and for ecosystems.

A word about the posture we have adopted: we have chosen to include a chapter on the limits, barriers, and frictions relating to the structuring of ecological questions in higher education. Certain analyses may appear excessive to some. We do not want to deny all the initiatives that are taking place and that indicate spaces for creativity and transformation in universities and other higher education institutions. Neither do we want to take the position of external “lesson givers,” far from the constraints weighing on all those who seek to be actors of the transition. We ourselves are teacher-researchers or practitioners immersed in institutions, and we are the first to be aware of the complexity of implementing the necessary transformation. But we have to recognize, as various recent reports point out (Conférence des présidents d’université and Conférence des grandes écoles, 2016; Vorreux et al., 2019), that not everything adds up. We have therefore chosen to first detail the criticism of the failings of our collective methods and choices, in order to better identify the needs and possible paths.

This book is intended primarily for management and teaching teams in higher education institutions, as well as teacher-researchers. It highlights useful criteria to promote the students' appropriation of knowledge, know-how, and interpersonal skills consistent with the Great Transition. It does not present, other than in an allusive way at the end of the text, the concrete means of supporting change in universities and other higher education institutions: these elements are presented in the handbook on "Transformation of campuses" which is part of the collection that supplements the *Great Transition Handbook* (Dardelet et al., 2021).

Regarding the vocabulary used in these pages, it was chosen to decline the transition's ecological and social issues. Our attention is focused on the transition's purposes, understood as the goal of moving from a non-sustainable society, greedy in resource consumption, to a sustainable society with low greenhouse gasses emissions, which manages to respect biodiversity and planetary limits, and which integrates this fact into its moral system in search of greater harmony with nature and with cultures. Some call it the "Great Transition" – in contrast to the "Great Acceleration" of the Anthropocene (Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023) and echoing the Great Transformation described by Karl Polanyi (1944) – in order to highlight the articulation between ecological, social, economic, cultural, and political dimensions.

The book is divided in two main parts. The first part contains educational and pedagogical foundations for a Great Transition. This part starts with a contextualization that critically analyzes the current situation in higher education with regard to ecological and social issues and outlining shortcomings, before turning toward recent evolutions and incentives that may help moving toward the needed transition. Chapters 3 and 4 describe a pedagogy that seems particularly well suited to tackle the current educational and societal challenges. Chapter 3 emphasizes the importance of taking into account the full development of each individual, before presenting transition pedagogy through the prism of the six gates of the FORTES collective and establishing connections with six majors skills. Chapter 4 outlines seven transversal principles that constitute valuable marks for the itinerary toward transformative pedagogy. In Chap. 5, Herner Saeverot and Glenn-Egil Torgersen offer several reflections to flesh out the critical analysis of the current situation in higher education – interrelation of threats and their deeper causes – and they identify complementary levers for a transition in education – a global curriculum, *Bildung*, reliance on facts resulting from rigorous empirical investigation and the capacity of educational actors to counter dominant pressures. Caroline Verzat and Julie Lecoq expand in Chap. 6 on the connection between transition pedagogy and emotions: helping to become aware of emotions, coping with the negative ones linked to the current ecological and social state, instigating positive ones and favoring reconnection and spirituality. The interview with Thibaut Griessinger in Chap. 7 revolves around cognitive biases and awareness on these mechanism. Thibaud Griessinger also evokes questions relating to evolution, gender, and agency. In Chap. 8, Gérald Majou de la Debutrie outlines how the skills-based approach could help to develop education that enables people to act individually and collectively in the direction of a Great

Transition. The interview with Alain Grandjean (Chap. 9) revolves around the content to be taught in higher education, in general and more specifically in engineering and business schools. The economist also touches upon different ways to engage for the transition, the responsibilities of trade unions as well as NGOs, and the collapse movement.

The second part of the book explores exemplary innovations as well as useful educational tools before outlining the responsibilities of different stakeholders. After describing the efforts undertaken by the University of Lausanne, Chap. 10 presents succinctly the Schumacher College and the Sustainability Institute, two small organizations linked to established universities. In Chap. 11, Dominique Bourg is interviewed about his experiences in transforming higher education, but also about broader topics like public decision-making, obstacles to the transition, and the most important actions to undertake. Chapters 12 and 13 relate to the Sustainability Institute. In Chap. 12, Tom Renault and Reinhold Mangundu describe its complementarity with the Stellenbosch University it is connected to by outlining how the institute gives importance to complexity thinking, place-based learning, emotions, and the community. Besides touching on several points relating to the Sustainability Institute's pedagogical practices, the interview with Mark Swilling (Chap. 13) gives some more institutional insights of the Sustainability Institute and higher education more generally. In Chap. 14, Frédérique Brossard Børhaug introduces the opportunities and challenges that accompany the transformation of education in Norway. Then Genny Carraro and her co-authors give an account of the educational activities of the Arterra Bizimodu ecovillage (Spain) and its participation in the Eu4Transition (Erasmus+) project. In Chap. 16, Pierre-Jean Cottalorda et Cécile Renouard present the Campus de la Transition – an ecovillage, eco-campus, and networked laboratory in France – and the methods it developed in the last 5 years. They also analyze the experience of a 3-week training program it held. Chapter 17 offers certain practical educational tools, taking into account different scales and rhythms by starting with light proposals and moving toward the most ambitious. In Chap. 18, Michel Maxime Egger presents “Work that Reconnect”, a transdisciplinary and holistic tool for transformative education, followed by some advice on its implementation in higher education. Chapter 19 calls on students, teachers, pedagogical staff, and public authorities to play their part in the transformation of higher education.

References

- Aldo, L., & Le Clézio, J.-M. G. (2000). *Almanach d'un comté des sables : suivi de quelques croquis*. Flammarion.
- Arnsperger, C. (2023). Education and indigeneity. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Conférence des présidents d'université and Conférence des grandes écoles. (2016). *Guide “Compétences Développement Durable & Responsabilité Sociétale” – 5 compétences pour un développement durable et une responsabilité sociétale*.

- Dardelet, C., Dambrine, L.-M., Majou, G., de la Debutrie, S., Crouzet, V. B.-B., Chycki, P., Foulon, H., & Chauvin, F. (2021). *Transformation des campus. Petits Manuels de la Grande Transition*. les Liens qui libèrent.
- FORTES collective. (2020). *Manuel de la Grande Transition: former pour transformer*. Les Liens qui libèrent.
- FORTES collective. (2021). *The Great Transition Guide: Principles for a Transformative Education*. Campus de la Transition – Laudato Si' Research Institute. https://campus-transition.org/wp-content/uploads/2021/07/The-Great-Transition-Guide-Principles-for-a-Transformative-Education_0.pdf.
- Pache, A., Curnier, D., Honoré, É., & Hertig, P. (2016). Penser l'avenir de manière créative : un enjeu central de l'éducation en vue du développement durable. *Revue française de pédagogie* 197. Lyon: ENS Editions: 51–62. Cairn.info. <https://doi.org/10.4000/rfp.5152>.
- Peel, E. A. (2023). Pedagogy. *Encyclopedia Britannica*. <https://www.britannica.com/science/pedagogy>.
- Polanyi, K. (1944). *The great transformation: the political and economic origins of our time*. Farrar & Rinehart.
- Renouard, C., Børhaug, F. B., Le Cornec, R., Dawson, J., Federau, A., Vandecastelle, P., & Wallenhorst, N. (2021). *Pédagogie de la transition. Petits Manuels de la Grande Transition*. les Liens qui libèrent.
- Vorreux, C., Berthault, M., Renaudin, A., & Treiner, J. (2019). *Mobiliser l'enseignement supérieur pour le climat – Former les étudiants pour décarboner la société*. The Shift Project.
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.

Part I
Educational and Pedagogical Foundations
for a Great Transition

Chapter 2

Educational Contextualization: How Does Higher Education Face the Ecological Challenge?



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec,
Jonathan Dawson, Alexander Federau, Perrine Vandecastele,
and Nathanaël Wallenhorst

Abstract To meet the ecological challenge, higher education must face many challenges: the educational offer, which is currently limited in many aspects, must evolve by renewing its methods while adapting its content. An “ecological awakening” is necessary to stimulate student awareness and action. This awakening is already present in some establishments which have transformed their educational model as well as their training in order to integrate and incarnate a more holistic vision of the world. These examples are all sources of inspiration that can serve as a basis for reflection to modify university courses in depth. This chapter outlines first the shortcomings of the current educational model – in terms of content and methods – drawing on the authors’ insights, mostly from France. Then, the chapter turns towards recent evolutions, be it structural or transient, as well as incentives at various levels that could contribute to a transition of higher education.

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l’Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_2

2.1 Limits of the Current Educational Offer

The way higher education is currently run does not favor the integration of transition issues by the student. If the existence of initiatives and experiments is remarkable in the Higher Education and Research ecosystem, their generalization is made difficult by two kinds of limits: those relating to the content of teaching, which may be incomplete, disconnected from current issues and too depoliticized; and those relating to overly top-down pedagogical approaches, insufficiently rooted in daily life, without forgetting the existing gaps in the pedagogical training of teachers.

2.1.1 *Incomplete Content That Is Disconnected from Current Issues*

First of all, the content of the courses insufficiently addresses, and in an overly compartmentalized manner, the various issues relating to climate and ecology. Higher education is dependent on a vision of the world which prioritizes a form of techno-scientific rationality, favoring thinking separated from the living world and a compartmentalization of knowledge (Léna et al., 2023). This situation suggests that ecology is only one issue among others, that it could even be optional. Furthermore, some subjects, for example management sciences, law or engineering sciences, have a particular responsibility through the transmission of specific knowledge and practices that may be in direct contradiction with the conditions for preserving our ecosystems and human life on certain parts of the planet. The lack of education in critical thinking does not encourage the questioning of normative education. The political issues that inevitably arise from teaching about global warming are difficult to address for teachers who must find the right stance in the politicizing of their teaching.

2.1.1.1 The Marginalization of Environmental Knowledge

As we face the climate and ecological emergency, it becomes essential to integrate climate and ecosystem knowledge into all higher education learning models, at all levels (Renouard, 2023). Today, we are dealing with a deafening silence on the most vital subject in human history. This is backed up by a recent study (see Table 2.1) on teaching sustainability in 54 university courses at Bachelor's or Master's level in six countries (USA, Canada, Great Britain, Netherlands, Sweden, Japan). Among the main results, the study underlines that the courses contain very few requirements in terms of compulsory learning of natural sciences, which partly explains the poor understanding or even ignorance of planetary issues. The authors also point out the great heterogeneity of the courses and the readings requested, which constitutes an

Table 2.1 Foundational classes offered in sustainability courses in higher education according to O'Byrne et al. (2015)

In their study, O'Byrne et al. (2015)^a analyze the share of compulsory fundamental courses in ten sectoral fields (natural sciences, social sciences, engineering sciences, commercial sciences, arts and humanities) or transversal (general sustainability, applied sustainability, methods, research, applied project). They defined ten categories to classify sustainability courses in higher education; the first five fall under existing classification systems (Australian Bureau of Statistics, 1998; Higher Education Statistics Agency, 2012; National Centre for Education Statistics, 2012), while the other five have been added from an iterative process of reviewing curricula.

Disciplinary category: definition, *subjects*.

Natural Sciences: sciences that focus on the processes of the physical/natural world, as opposed to the human/social world, and mathematics.

Atmospheric sciences, biology, chemistry, earth sciences, ecology, environmental sciences, geology, hydrology, mathematics, physical geography, physics.

Social Sciences: sciences focused on human behavior, structures and social structures.

Anthropology, Communications, Conflict and Peace Studies, Cultural Studies, Demography, Development, Economics, Education, Environmental Sociology, Justice and Equity Studies, Law, Politics and Governance, Psychology, Sociology, Theory social, Urban sociology.

Engineering Sciences: Identified by reference to engineering, design, machines, systems or technology. Distinguished from applied sustainability by referring to those aspects of problems or problems alone, without taking into account the social, environmental, political or other context.

Architecture, sustainability design, energy systems, engineering, information technology, planning, transportation.

Management Science: Distinguishes itself from the social sciences by a focus on human organizations, especially business and management, including decision-making and strategy.

Accounting, assessing, business studies, decision making, finance, leadership, management, marketing, NGOs and advocacy, organizational studies, participatory processes, sustainable business practices.

Arts and humanities: studies on the processes and productions of human culture.

Composition, ethics, history, human sciences, literature, philosophy, religious studies.

General sustainability: identified by the words “sustainability” and “interdisciplinary” and by reference to many disciplines. Often with reference to environmental, social and economic systems.

Introduction to sustainability, sustainable development, systems thinking.

Applied sustainability: identified in course descriptions about environmental, social and economic aspects or impacts. Distinguished from other categories by mentioning at least two of the following: social, ecological, economic, political, technical; and impacts, effects or aspects.

Agriculture, Climate, Ecosystems, Energy, Business, Fishing, Food, Forests, Health, Industry, Land, Pollution, Rurality, Sustainable resource management, Transport, Urban, Waste, Water.

Methods: general learning in research methods, or focus on specific tools and modeling.

Geographic Information Systems (GIS), Life Cycle Analysis (LCA), General Modeling, General Research Methods, Statistics, Quantitative Methods,

Research: Systematic work aimed at producing new knowledge. Often involving the production of an academic article.

Thesis, Research project.

Applied work: Real-world learning opportunities (Brundiens et al., 2010). Distinguishes itself from research by its active engagement with actors, organizations or communities outside the classroom. Focusing on problem solving, not necessarily knowledge generation.

Applied project, field work, internship.

^aSee also Renouard (2023)

additional challenge for building real sustainability curricula that have a common foundation.

This global analysis is in line with the diagnosis made by the think tank *The Shift Project* in its recent study on the place of energy transition courses in French curricula (Vorreux et al., 2018). The authors have mapped the classes related to energy and climate in 36 higher education institutions – universities, business schools, engineering schools, schools receiving civil service engineering students, and schools receiving non-engineer civil servant students. Among the findings, it appears that questions relating to energy and climate change are still considered to be secondary. They are mostly taught in specialized courses and in a technical manner, even if they are increasingly appearing in general education. The study also deplores the over heterogeneous content from one establishment to another, which would benefit from being harmonized.

2.1.1.2 A Compartmentalization of Disciplines in Teaching and Research Which Limits the Systemic Understanding of Ecological Issues

When faced with ecological challenges, many students and teachers refuse to fully believe in educational transition or do not wish to fully participate in its implementation (Swaim et al., 2014). Beyond techno-scientific rationality and robust legal learning, transition pedagogy cannot be built without the human and social sciences (Fløttum, 2017). How can one understand nature without the intervention of literature and poetry? How can one promote empathy if not through the arts such as theater or painting (van Boeckel, 2019)? How can one reflect on the finitude of life without philosophical and/or religious thought, whether one adheres to it or not? There is a real need to highlight and enhance the complementarity between disciplines and between rationalities.

Therefore, the majority of students in higher education can observe a relatively strict division of their timetable where History never really mixes with Languages which themselves find it difficult to rub shoulders with the Sciences – when there are any. However, any discipline would benefit from understanding how its culturally rooted actions interact with its natural environment and the Earth system. It is in this respect that the disciplinary division is problematic. To achieve the transition, a major challenge is to break away from disciplinary silos in order to integrate transversal dimensions relating to the relationships between human beings and their living environments in a structuring way. It is also a matter of reinvesting in each discipline to develop knowledge, techniques or reflection tools in a manner consistent with this perspective. From now on, what matters is not only the appropriation of knowledge by the students, but what they will do with the knowledge they worked on during their learning. As no one has the solution on their own, the promotion of dynamics with different people at different levels and from different backgrounds is increasingly recognized as necessary.

2.1.1.3 The Lack of Education Towards a Pluralist Vision and a Critical Mind (Mezirow, 2000)

A shortage of critical social sciences also appears while these could renew the reading of different aspects of modernity, or even challenge them. For example, the arts and humanities represent on average 1% of a Master's sustainability program. This generalized lack is particularly blatant in areas related to economics and finance (Keen, 2001; Springett, 2005). Hence, the great neoliberal narratives are difficult to deconstruct: they stem from a culture that only considers things which are pragmatic and which contribute to GDP growth, as being serious. The alternative approaches are then perceived as heterodox, marginal and unsuitable for the proper management of the affairs of the polis, and therefore are at best, optional.

Furthermore, the neoliberal economic model is extremely resilient and adaptable. It knows how to grasp emerging themes, isolating the most effective techniques from the ethical and paradigmatic principles underlying them. From concepts that emanate from alternative practices (permaculture, biomimicry, mindfulness, etc.), it knows how to quickly create "innovative products or services". Therefore, permaculture is not just a set of gardening techniques and biomimicry, a set of techniques aimed at optimizing processes or objects. An approach without a strong ethical foundation challenging the logic of growth and extractivism, blurs the tracks and delays paradigm shifts. Rabelais said "Wisdom entereth not into a malicious mind and science without conscience is only ruin of the soul", we could add that technique without ethics is only conformism and ruin of the critical mind.

On the other hand, certain contents relating to ecology can give rise to a "cataloging" of approaches which may appear *new-age*, "kindly eco-friendly", or centered on personal development at the risk of losing the issues' structural and collective dimension. A reflective and critical approach is therefore fundamental to promote the appropriation and personal integration of knowledge.

2.1.1.4 A Subject with Difficult Political Connotations for Teachers to Tackle

In addition to the fairly classic resistance at work in all individual or organizational change processes, we can identify specific obstacles linked to the postures of teacher-researchers. Traditionally required to be "politically neutral", many of them hesitate to approach these topics in class. Presently, the task is not easy for those who wish to put this knowledge to work within the framework of their courses, insofar as it directly raises political questions on lifestyles and the need for radical measures. When dealing with climate issues and the collapse of living organisms, it is difficult or even problematic to want to maintain the axiological neutrality of the teacher. Indeed, the diagnoses of climate and socio-ecological issues directly concern the political question of the common good and the quality of living together. Understanding the gravity of the situation and the urgency of transformative action is inseparable from the concern to adopt coherent attitudes and ways of living at

different scales. From this point of view, learning cannot claim to take place in “a bubble” which would be free of external political choices. This obviously does not mean that the teacher-researcher must impose a vision, but that reflexivity on him or herself as to his or her posture and the content taught is important. This concern is not always present, however. Likewise, the call for a more sober life may seem contradictory to the idea of progress which combines scientific and technical innovation with moral and social progress.

Thinking about and considering the sobriety of our models therefore constitutes a real challenge for the politician who must juggle these factors in order to provide a social and ecological pact that is desirable, acceptable and achievable.

To finish, multiple testimonials from teacher-researchers underline that they are neither trained, nor accompanied, nor supported to seize new ways of teaching. Teacher-researchers are generally left to their own devices, which then leads to a form of isolation within the teaching teams, be it in research or course activities. This can be explained by a lack of human and financial resources, or even by the pre-eminence of the deepening of disciplinary content over pedagogy and transversality.

2.1.2 Insufficient Transformative Teaching Methods

With a few exceptions, the teaching practices themselves are not suited to what is implied by an approach that integrates ecological and social issues in a structured way. On the whole, the classes remain conceived in an isolated fashion with a strong distinction between the subjects taught, which does not favor a broader and more complex vision of reality. The often privileged perspective consists in primarily addressing logical reason and in only focusing the teaching on the acquisition of knowledge, in a downward transmission relationship. Educational innovations resulting from the use of digital technology are rarely used to better take into account different forms of learning related to lived experience, emotions and feelings, and even tend to remove the student more and more from the learning field provided by the real world.

2.1.2.1 A Traditional Approach of Top-Down Transmission of Knowledge, Reproducing Patterns of Domination

The insistence on knowledge often overshadows know-how, soft-skills and projection capacities, which are other keys to understanding how to act. Knowledge acquisition can be detrimental to the exercise of different skills, be it intellectual, aesthetic, relational, practical, etc. A preeminence of *techné* (techno-scientific knowledge) on *epistémè* (integrated, global knowledge) and *phronésis* (practical reason, ethics) is furthermore evident (Swilling, 2020, 303). In addition, the place of soft skills, which

relate more to interpersonal skills in university education, is still weak, with the hard skills/soft skills hierarchy still hollow (Renouard, 2023).

The challenge therefore, is to be able to articulate these complementary dimensions in higher education. Hence, the acquisition of specialized knowledge needs to be put into perspective, so that those who become “experts” in a field link it to other approaches which also shed light on their own field of analysis. The ethical dimension is fundamental because it questions both the purpose of knowledge and the means implemented to know and act in the world.

This priority given to the transmission of knowledge results in often overwhelming teaching methods. These top-down educational approaches are criticized by some educators who are sensitive to the question of the preservation of resources and the environment for four reasons: (1) they can hinder the formation of critical thinking, (2) they pay little attention to the forms of learning of non-Western, non-male or disabled populations, (3) they do not always allow for diversity of goals, (4) they may reflect political agendas that minimize the place of ecological and social issues (Blake et al., 2013).

2.1.2.2 ... and Marginalizing the Role of Emotions in Learning

A recent study by Eilam and Trop (2010) on education for sustainable development found that in the absence of emotional engagement, “cognitive understanding is not enough to foster behavioral changes. Emotions concern what gives meaning to life; they frame, transform and make sense of our perceptions, thoughts and activities” (Eilam & Trop, 2010, 39). In addition to the top-down style of transmission, personal emotions and feelings are neglected or even rejected. However, we cannot address the depth of the issues at stake, namely the sustainability of human life, without naming and sharing what it makes us experience (anger, disgust, sadness, fear, joy, violence, depression, etc.). Learning to listen to them, to express them, to recognize them, and to let them happen is therefore essential. The lack of room – and the contraposition by reaction, that is to say too much room – given to emotions which remain essentially self-centered and with a view to personal development remains an obstacle for the process of change, especially if they are not related to self-responsibility towards others. Recognition of emotions and their sharing are effectively key elements at the heart of the accompaniment of a deep and lasting transition in renewing our connection to others, to all life and the planet we live on. This recognition of emotions contrasts with the injunctions to pedagogical-digital innovation which do not contribute to renewing teaching practices in the sense of this fundamental learning of the recognition of our own vulnerability, of our interdependence with humans and all living things, and the finitude of our existence (Ricoeur, 1988). What should play out in classrooms is nothing more or less than the experimentation of a new way of being human with each other. The lack of knowledge of our own mental models, of our cognitive biases and of those of others, of the heuristics of thought, the absence of the right to make mistakes and handling of the pedagogy of error, can prevent learning in depth.

These conceptions of learning reproduce the systems of collective thoughts and narratives situated in a precise context and dependent on a vision of the world which has been able to generate many injustices; some often call this context, patriarchal, that of the “white Anthropocene”. This vision of the world and this mode of politico-social organization are based on an account of the ecological crisis from a Western imagination erasing or minimizing the deleterious effects of colonization on the planet and the words of “non-whites” in current political and social representations. This situation leads to an effective separation of environmental and post-colonial movements. It also obscures the interdependence of cultural and biological diversity (Skutnabb-Kangas, 2009). It is therefore a question of constructing ecological thinking like critical thinking in order to promote cultures that preserve ecosystems and which are at the service of social justice (Ferdinand, 2019). Education must therefore enable students to become fully aware of the biased narratives in which the ecological and social transition takes place and help them develop a critical and systemic understanding of these issues.

2.1.2.3 An Out of Touch Education

The style of teaching can also help nurture the illusion that certain disciplines and professional practices are disconnected from realities experienced in various regions and contexts. A business or engineering school campus, for example, can be very international but only reflect – in both teaching and practice – the concerns of elites who share many cultural references, beyond the diversity of languages and traditions of origin. Higher education thus often favors a uniform globalization, as opposed to a critical cosmopolitanism (a concept with far more diverse origins than the Western apprehension often restricted to) with its imminent political character and its questioning of moral standpoints (Stornaiuolo & Philip Nichols, 2019). Beyond, abandoning local languages in teaching can reinforce the detachment with local realities and practices (Pennycook, 2010). While international experience during studies is presented as a must-have and universities try to attract students with the most far-away destinations, more should be made of the cultural diversity within the university and it is not only distance covered that counts (Boni & Calabuig, 2017; Pour un réveil écologique, 2022, 13).

Furthermore, the very organization of the campuses is not yet consistent with the diagnoses made regarding the need to transform lifestyles and practices. This starts with the framing of challenges that need to be tackled: do we view them as privations or do we grasp the opportunity to think, teach, learn and live differently? It requires awareness-rising and training for all (Dardelet et al., 2021). A coherent strategy also requires an inventory of the initial ecological footprint, including GHG emissions and waste but also water and other resource consumption along the whole lifecycle of the services and products relied on. Then it needs an “across the board” approach, uniting the will and strength of all, faculty, operational staff and students; where inclusive and fair governance gives everyone the possibility to involve in the conception of solutions. Enrolling all actors in the execution of the decisions

makes them actors and creates unique opportunities for cohesion beyond the circle of people one encounters in day-to-day activities at university (Dardelet et al., 2021). This concerns choices for buildings regarding energy but also resource use and integration of (bio)diversity, as well as the explosion of digital uses, or mobility issues (internal, i.e. between the different locations of the institution; external, i.e. commute, fieldstudy journeys, recruitment and networking, exchange programs, internships, leisure or charity; including air travel, both for students and for teacher-researchers), catering, sourcing and consumption of supplies, management of the green spaces and the living beings on the domain etc.¹

One can also mention the key role of career services (Pour un réveil écologique, 2022, 6). They should be invited to go beyond expected wage indicators when presenting career options and the proximity with companies and organizations whose activities or practices are antinomic with regards to the ecological and social imperatives of our epoch needs to be questioned.

To conclude, the territorial anchoring of establishments is not always a systematic or priority concern of management teams. Even though research projects with local communities might exist, truly impactful partnerships require a fertile relation as a prerequisite and mutual benefits should be at the centre (Schwarz et al., 2019). Viewing communities as partners instead of research objects can additionally enrich and strengthen the legitimacy of science. Further, the involvement of students in such projects can allow them to gain valuable field experience, to contribute by providing their skills to local projects and improve their consideration of ecological and social issues in their immediate environment. As an alternative to student mobility evoked before, local projects can additionally be a valuable intercultural experience when they involve communities that have for example a migration background. With regards to campus greening, work on certain topics (e.g. mobility) or larger infrastructures can hardly be achieved by higher education institutions (HEI) alone; more generally, tackling issues in cooperation with local communities and authorities is more efficient and can have larger impacts. Two valuable contributions that can be highlighted is communities' knowledge of local specificities, as many university students and staff are not necessarily natives, and the continuation of projects over time in face of the high mobility of students and staff. Eventually, involvement in student societies is not a negligible aspect of student life. Thus the Great Transition should become a central theme of these organizations. They should be included in the institution's ecological footprint, transition strategies and encouraged to engage in meaningful activities that range from exploration of the local flora and fauna to cleanups or tutoring/sport/art sessions with less privileged groups in the neighborhood. In this respect, it does not always require new initiatives as the surrounding communities might already be active in numerous areas; HEI can contribute to this dynamics by getting someone to list and promote within the institution virtuous initiatives sprouting around.

¹ See the example of the University of Oslo in Norway for a gradual green reorganization of campus life and teaching, (<https://www.uio.no/english/about/strategy/sustainability/>; <https://www.uio.no/english/about/strategy/sustainability/operations/>)

2.1.2.4 A Digital Transition in Tension with the Ecological Transition

We can also ponder on the current transition of education to digital and distance learning, which have been accelerated by the Covid-19 pandemic. If distance learning makes it possible to reduce travel and the nuisances that come with it, it should however be remembered that digital technology emits as many greenhouse gasses as the entire aviation sector (Malmodin & Lundén, 2018). The digital transition is currently generating a sharp increase in digital technology's energy footprint. This footprint includes the energy used to manufacture and use equipment (servers, networks, terminals). The main factors of this inflation are the explosion of video use and the proliferation of digital devices that are frequently renewed (Ferreboeuf et al., 2018).

Moreover, distance learning tends to isolate us all, while the pedagogy proposed in this chapter aims, on the contrary, to reconnect with others and with nature. Thus, ecological and digital transitions will only be compatible if they are coordinated and carried out in a logic of sobriety. The Covid-19 crisis and social distancing measures have led to an increase in distance learning; the increase in digital use is undoubtedly partially offset by the reduction in the carbon footprint in the transport sector; this exceptional situation invites all the more to reflect on the conditions of courses which articulate ecological and social questions, the reduction of the carbon and ecological footprint, and caring for each person in all its forms.

2.1.2.5 The Insufficient Pedagogical Training of Teachers, Trained and Assessed Around Scientific Competition

An emerging concern, the pedagogical training of teacher-researchers is very often the poor relation of their career path, mainly structured by their involvement in the competitive world of scientific research.

In fact, during their careers, teacher-researchers are almost exclusively assessed on their scientific productions and very little on teaching methods. In addition, teacher-researchers are given goals for which they have not been sufficiently trained, such as that of preparing students for jobs that they very often know little about, and for socio-economic environments that they have had little contact with (companies, communities, associations). Competition remains a central value in the academic world, which helps to explain the insufficient importance given to cooperation in the educational paths of students and particularly in assessments.

Furthermore, higher education's transition towards serving a learning society is complex; it requires the pooling of efforts and collaboration of all actors, and digital technology can only play a limited role in educational innovation. But teachers and researchers, whose affluence is being abused today, are at the heart of these efforts. The teacher-researcher produces knowledge and disseminates it in his or her teaching. The two components mobilize complementary skills that must be taught and assessed: teaching feeds on research, research feeds on teaching. Unfortunately, we can see that university teaching has been neglected and that the assessment of

teacher competences focuses mainly on the research and publications made by the latter. We wish to emphasize a revalorization of university teaching nourished by experimentation, fieldwork, research, dialogue and a balanced assessment in the two fields of competence. Plutarch said the mind is not like a vessel that needs to be filled, it is rather a substance that only needs to be heated. Knowing, knowing how to find knowledge, knowing how to mobilize knowledge and knowing how to transform it into a capacity to act requires a real reappropriation of time and professional gestures in supportive and strong educational communities.

The bundle of constraints with which teachers have to come to terms with while conceiving their courses is also structuring in the educational choices, in particular with regards to the question of assessment – and therefore the motivation of the students – and the relation to time.

The issue of grading systems for obtaining degrees is central to student motivation. How to properly grade what is not just knowledge? Are the grids absolute, that is, in the sense that they would be the same for all students, or relative? How on the one hand does one individualize the courses and on the other hand provide classes and grading for the mass (logic of multiple-choice questions, and of self-correction exercises)? In the absence of practices recognized by the institution on these new grading methods, it remains difficult for a teacher to put the acquisition of interpersonal skills at the heart of his or her teaching and the student's learning strategies.

Moreover, temporality and spatiality complicate education with responsibilities: one should feel responsible for a partly unpredictable future (entering the Anthropocene is discussed and is not perceived in the same way by all human beings) and a space (the planet) that the human being does not entirely inhabit (Hétier, 2023; Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023). Teaching practices are dependent on the requirements for a large amount of knowledge to be acquired in the short term, in a defined discipline, which does not help to broaden awareness of the field of individual and collective responsibility.

To summarize, we can state that one of the main obstacles to a better integration of climate and social issues in higher education is the consequence of the multiple partitions that exist: between disciplines, between discourses and practices, between various spaces. *It is not about renouncing legitimate boundaries between fields and methods of knowledge, but about emphasizing the need to connect knowledge to the dimensions of existence, in order to grasp reality in its complexity, in a dynamic and holistic manner.* This raises the question of knowing how to organize interactions between teacher-researchers from different disciplines while promoting exchange on more integrative pedagogies. If higher education has not structurally gone through its Great Transition, course offers and educational experiments are flourishing on the margins and provide a glimpse of what all the curricula could aim towards if these initiatives were generalized and integrated into a coherent, strategic transition framework for higher education.

2.2 Towards an Ecological Awakening in Higher Education

In many ways, the issue of transition is already contributing to the renewal of the educational dynamic within universities and schools. Many very positive signals exist, both from the point of view of course offers and educational developments provided by several institutions.

2.2.1 *A Multiplication of Dedicated Curricula*

In France, under the impulse of different actors – starting with students, in particular those who signed the Manifesto for an Ecological Awakening², teacher-researchers and teams aware of the emergency –, establishments are making commitments, both from the point of view of training and courses, as well as practical transformations in campus life and taking into account their local roots.

The global health crisis of 2020 also implies changes in teaching methods and practices. While social distancing can make it difficult to (re-) connect to others and acquire knowledge, it can also be approached creatively to accelerate the transformation of practices deemed problematic. Various initiatives have emerged during lockdowns and the shared uncertainty about the effects of the crisis for higher education mobilizes energies to create adapted and interactive online courses, in particular the Campus de la Transition's online course offer (The Resilience and Transition course) for example.³

Faced with the multi-form compartmentalisation mentioned above, more and more actors recognize the essential character of promoting a decompartmentalized, integrative approach, which connects the different dimensions of the person to existence, which articulates knowledge, technical know-how, knowing how to act, being able to act and knowing how to be.

A good many recent educational projects in France and internationally address issues of sustainability or even sustainable development, with a concern for interdisciplinarity, as can be seen by the very titles of these courses: Environmental Sciences and Policies (partnership between Sciences Po Paris and the Sorbonne University), Environmental studies, in Knowledge in society (EHESS), Ecology and Sustainable Development (Lyon 3), Geography, Environment, Planning and Development (Montpellier), etc. Each term needs to be clarified, as the interpretations vary. The *Great Transition Handbook* (FORTES collective, 2020), to which the various smaller and more specialized books of the FORTES project are linked, including the present on pedagogy, details the ambiguities of a political project linked to a neoliberal win-win vision which minimizes the tensions between ecological, economic

²Collectif pour un réveil écologique, (<https://pour-un-reveil-ecologique.org/fr/>)

³Resilience and Transition on-line course developed by the Campus de la Transition, (<https://campus-transition.org/enseignement/parcours-resilience-transition/>)

and social goals. The UN's Sustainable Development Goals (SDGs)⁴ offers a pluralistic approach, inviting all countries to engage in processes that respect humans and ecosystems. However, the impossibility of reaching these objectives while maintaining trajectories compatible with the commitments of COP 21 must also be highlighted (Bourg, 2012, 77; Giraud, 2017). Therefore, resorting to the SDGs seems interesting to us from the point of view of the integrative and interdisciplinary vision that it enables, provided that the ethical and political challenges left open are dealt with. Once these precautions have been taken, the documents linked in particular to goal 4, which aims to “ensure inclusive and fair quality education and promote lifelong learning opportunities for all”, are important resources for renewing teaching practices serving transitions. Several recent frameworks or reports address these issues in the same vein, for example the guide proposed in 2016 by the CGE/CPU (the Grandes Ecoles and University Presidents Conference) (Conférence des présidents d'université and Conférence des grandes écoles, 2016); the UNESCO Incheon Declaration on inclusive and fair quality education (UNESCO, 2015); or the report *A plan to build a learning society together* by Taddei et al. (2018), submitted to the Minister of Labor, the Minister of National Education and the Minister of Higher Education, Research and Innovation, in April 2018. The latter propose to change the educational paradigm to better understand new ways of teaching and thus offer everyone the opportunity to flourish in all manners, be it intellectual, bodily or emotional. It is in this sense that we believe in a pedagogy that connects the head, the heart and the body.

2.2.2 Towards a Learning Society?

Faced with the challenges and uncertainties of the twenty-first century, François Taddei et al. (2018) recommend the advent of a learning society, in which higher education institutions play a central role. To achieve this educational revolution, they suggest the promotion of teacher training, the improvement of student guidance, the promotion of lifelong learning, and putting universities on the top of networks and learning organizations. The Taddei report also proposes a whole series of measures aimed at developing a new pedagogical culture in higher education: the development of university diplomas on educational transition (DU), cooperation with locally anchored labschools and fablabs, the promotion of “challenge-based universities”, the establishment of local digital campuses and a national digital campus federating the contributions of each university, setting up platforms for sharing questions and answers from teachers, as well as a platform for pooling good practices (Taddei et al., 2018, 43–52). In addition, to promote and capitalize on the experiences of the best mentors, it is suggested to create “honoris causa mentors”

⁴United Nations, About the Sustainable Development Goals, (<https://www.un.org/sustainabledevelopment/sustainable-development-goals/>)

awarded to French or foreign teacher-researchers. These will be able, during dedicated sabbaticals, to develop courses and MOOCs to teach all the actors of the learning society in order to develop innovative practices and digital tools facilitating mentoring and participatory research, collected and disseminated by the academy of mentors (Taddei et al., 2018, 59). It would therefore be a question of making learning a celebration where multiple and diverse physical and digital third places open to all would be created, combining interdisciplinary research, discussion between peers and mentors, creation of resources, experimentation and territories (Taddei et al., 2018, 60).

Some proposals deserve further study and debate. Therefore, the use of digital technology must be considered with a low-carbon logic, thus inviting the promotion of different forms of digital sobriety. The Covid-19 health crisis has also illustrated the potentials as well as the limits of digital technology when it tries to substitute close relationships between people who share life experiences and not just knowledge.

Our observation on higher education's capacity to train students to meet the challenges of the twenty-first century is therefore ambivalent. Driven by students, research professors, teachers and a few institutions, initiatives promoting ecological and social transition in establishments are multiplying and converging around a vision and pedagogical principles that we now wish to explain.

References

- Australian Bureau of Statistics. (1998). Australian Standard Research Classification. <http://www.abs.gov.au/ausstats/abs@.nsf/0/2D3B6B2B68A6834FCA25697E0018FB2D?opendocument>
- Blake, J., Sterling, S., & Goodson, I. (2013). Transformative learning for a sustainable future: An exploration of pedagogies for change at an alternative college. *Sustainability*, 5, 5347–5372. <https://doi.org/10.3390/su5125347>
- Boni, A., & Calabuig, C. (2017). Education for global citizenship at universities: Potentialities of formal and informal learning spaces to Foster cosmopolitanism. *Journal of Studies in International Education*, 21, 22–38. <https://doi.org/10.1177/1028315315602926>
- Bourg, D. (2012). Transition écologique, plutôt que développement durable. Entretien avec. *Vraiment durable* 1. Victoires éditions: (pp. 77–96). Cairn.info. <https://doi.org/10.3917/vdur.001.0077>
- Brundiers, K., Wiek, A., & Redman, C. L. (2010). Real-world learning opportunities in sustainability: From classroom into the real world. Edited by Zinaida Fadeeva and Yoko Mochizuki. *International Journal of Sustainability in Higher Education*, 11. Emerald Group Publishing Limited, 308–324. <https://doi.org/10.1108/14676371011077540>
- Conférence des présidents d'université and Conférence des grandes écoles. (2016). *Guide "Compétences Développement Durable & Responsabilité Sociétale" – 5 compétences pour un développement durable et une responsabilité sociétale*.
- Dardelet, C., Dambrine, L.-M., de la Debutrie, G. M., Crouzet, S., Balbo-Bonneval, V., Chycki, P., Foulon, H., & Chauvin, F. (2021). *Transformation des campus. Petits Manuels de la Grande Transition*. les Liens qui libèrent.
- Eilam, E., & Trop, T. (2010). ESD pedagogy: A guide for the perplexed. *The Journal of Environmental Education*, 42, 43–64. <https://doi.org/10.1080/00958961003674665>

- Ferdinand, M. (2019). *Une écologie décoloniale: penser l'écologie depuis le monde caribéen. Anthropocène Seuil*. Éditions du Seuil.
- Ferreboeuf, H., Efoui-Hess, M., & Kahraman, Z. (2018). *Lean ICT – Pour une sobriété numérique : rapport du groupe de travail dirigé par Hugues Ferreboeuf pour le think tank The Shift Project*. The Shift Project.
- Fløttum, K. (2017). Willingness of action. In K. Fløttum (Ed.), *The role of language in the climate change debate* (1st ed., pp. 113–129. Routledge research in language and communication). Routledge.
- FORTES collective. (2020). *Manuel de la Grande transition: former pour transformer*. Les Liens qui libèrent.
- Giraud, G. (2017). Chapitre 11. L'accès de tous à l'énergie est-il un Objectif durable ? (ODD 7). In P. Caron & J.-M. Châtaigner (Eds.), *Un défi pour la planète: les objectifs de développement durable en débat* (pp. 167–184). IRD Éditions ; Editions Quae.
- Hétier, R. (2023). Learning to survive in the Anthropocene. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Higher Education Statistics Agency. (2012). Joint academic coding system v 1.7. http://www.hesa.ac.uk/dox/jacs/JACS_complete.pdf
- Keen, S. (2001). *Debunking economics: The naked emperor of the social sciences*. Zed Books.
- Léna, P., Wilgenbus, D., & Lescarmontier, L. (2023). The role of science education in the Anthropocene. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Malmodin, J., & Lundén, D. (2018). The energy and carbon footprint of the global ICT and E&M sectors 2010–2015. *Sustainability*, 10, 3027. <https://doi.org/10.3390/su10093027>
- Mezirow, J. (2000). *Learning as transformation: Critical perspectives on a theory in progress* (The Jossey-Bass Higher and Adult Education Series) (1st ed.). Jossey-Bass.
- National Centre for Education Statistics. (2012). Classification of Instructional Programs (CIP 2000). <http://nces.ed.gov/pubs2002/cip2000/index.asp>
- O'Byrne, D., Dripps, W., & Nicholas, K. A. (2015). Teaching and learning sustainability: An assessment of the curriculum content and structure of sustainability degree programs in higher education. *Sustainability Science*, 10, 43–59. <https://doi.org/10.1007/s11625-014-0251-y>
- Pennycook, A. (2010). *Language as a local practice* (1st ed.). Routledge.
- Pour un réveil écologique. (2022). *10 mesures pour transformer l'enseignement supérieur face aux enjeux socio-écologiques*. https://pour-un-reveil-ecologique.org/documents/60/Plaidoyer_ESR_PRE_-_Version_complète.pdf
- Renouard, C. (2023). Promoting a radical but not marginal educational innovation at the Campus de la Transition. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Ricœur, P. (1988). *Philosophie de la volonté. 1: Le volontaire et l'involontaire*. Reissue. Philosophie de l'esprit. Aubier.
- Schwarz, K., Cadenasso, M. L., London, J. K., & Cutts, B. B. (2019). Fertile ground for collaboration: Investing in community-university partnerships with soil money. *The Bulletin of the Ecological Society of America*, 100, e01479. <https://doi.org/10.1002/bes2.1479>
- Skutnabb-Kangas, T. (Ed.). (2009). *Social justice through multilingual education* (Linguistic diversity and language rights). Multilingual Matters.
- Springett, D. (2005). 'Educationfor sustainability' in the business studies curriculum: A call for a critical agenda. *Business Strategy and the Environment*, 14, 146–159. <https://doi.org/10.1002/bse.447>
- Stornaiuolo, A., & Philip Nichols, T. (2019). *Cosmopolitanism and education*. *Oxford Research Encyclopedia of Education*. Oxford University Press.
- Swaim, J. A., Maloni, M. J., Napshin, S. A., & Henley, A. B. (2014). Influences on student intention and behavior toward environmental sustainability. *Journal of Business Ethics*, 124, 465–484. <https://doi.org/10.1007/s10551-013-1883-z>

- Swilling, M. (2020). *The age of sustainability: just transitions in a complex world* (Routledge Studies in Sustainable Development). Routledge/Taylor & Francis Group.
- Taddei, F., Becchetti-Bizot, C., Houzel, G., Mainguy, G., & Naes, M.-C. (2018). Un plan pour co-construire une société apprenante – A l'intelligence collective, la planète reconnaissante. Ministère du Travail, Ministère de l'Éducation nationale, Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation.
- UNESCO. (2015). Education 2030: Incheon declaration and framework for action for the implementation of sustainable development goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.
- van Boeckel. (2019, January). *Being present in the present to what presents itself presented at the Nordic Summer University: Global challenges – Rethinking education?*, March 19. University of Bergen.
- Vorreau, C., Berthault, M., Renaudin, A., & Treiner, J. (2018). *L'avenir de la planète dans l'enseignement supérieur – Préparer les Français aux enjeux climatiques*. The Shift Project.
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.

Chapter 3

Educate for the Transition by Connecting Head, Heart, Body – An Educational Vision for the Anthropocene



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec,
Jonathan Dawson, Alexander Federau, Perrine Vandecastele,
and Nathanaël Wallenhorst

Abstract Transition education is a major challenge to be taken up. It is not simply a question of teaching a person a specific area of knowledge – in this case ecological and societal questions – but rather recognizing that individuals are built by their reflections, with their feelings and according to their experiences. None of these dimensions should be left aside if we want to promote the full development of each individual. In this sense it seems important to us to explain the values that underlie our educational offer and the goals pursued by transition education, as well as its founding roots. This chapter thus starts by presenting the pillars for head-heart-body learning, namely a pedagogy that is relational and transformational, integrative and holistic, inter- and transdisciplinary, rooted and open. Secondly, we structure the pedagogy of the transition around six major areas of questioning, corresponding to

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l'Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_3

the six gates of the FORTES approach. Eventually, drawing on the competency-based approach we present the six main transversal skills to be acquired.

In a broad sense, Kierkegaard (1983, 46) believes education to be “the course the individual goes through in order to catch up with himself”.¹ The seventh edition of the Pocket Oxford Dictionary defines the term “educate” as searching to “train or instruct intellectually, morally, and socially” (Allen, 1990, 233). Thus, the objective of transition education is to give the keys to students to allow them to develop intellectual, moral, emotional, psycho-social and also physical qualities so that they can flourish in their unique way in the society in which they live and more broadly, in the epoch in which they evolve, namely the Anthropocene.

The critical analysis of higher education that has been presented in Chap. 2 stems from an educational vision that should now be clarified. We are not the only ones to bring forward proposals to improve pedagogy in higher education; our proposal is articulated with other conceptual frameworks on the question of education in the Anthropocene epoch, and with the integration of the competency-based approach which is at work in higher education.

One of the great difficulties in training for transition is to lay out the pedagogical path so that it is readable, while fully bringing to life the systemic and holistic aspect of the Great Transition. To support teachers in the construction of their course, we mobilize the six gates approach of the FORTES collective and we show how they relate to six major transversal skills.

The educational vision that we present in these pages is conceived above all in order to respond to the current ecological and societal challenges: it is based on the diagnosis made by the *Great Transition Handbook* relating to the incompatibility between hyper-carbon economic growth models based on the consumption of resources and the sustainability of living environments. We believe that head, heart and body learning can reach the transition education goals because it presents an integral approach mobilizing reason, emotions and senses, which, coupled with the FORTES approach,² encourages systemic reflection in the questioning of our lifestyles. It also promotes the development of transversal skills, which are now necessary to be able to tackle the complex issues we are facing.

¹In this view the target is not to shape students based on culture and norms, but rather to give them the opportunity to forge their distinct personality at a “critical distance” from culture (Sæverot, 2011).

²The *Great Transition Handbook* offers an itinerary intended to “teach in order to transform”, passing through six “gates” which indicate six questioning approaches: Oikos or “inhabiting a shared world”; Ethos or “discernment and decision-making for collective and cooperative well-being”; Nomos or “measuring, regulating, governing”; Logos or “interpreting, critiquing, and imagining”; Praxis or “acting on the issues at stake” and Dunamis or “reconnecting with the self, others and nature” (FORTES collective, 2020). An English summary of the *Great Transition Handbook* is freely available online (FORTES collective, 2021).

3.1 Transition Education Goals

An important stake is the recording of the proposals in an overall dynamic having coherence and transforming power (for example, articulating the concern of curriculum reform with campus transition and the valorization of territorial links). It is in this perspective that various initiatives – detailed below – put forward holistic teaching practices,³ integrating a set of the person's dimensions (his or her intelligence, desire, affectivity, body, relationship to nature and to others, history, etc.), as a privileged means of ecological and social transition in the Anthropocene (Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023).

We encourage an education that allows everyone to live inclusively in a friendly community, and to accomplish their unique path by taking care of the living (Biesta, 2013). It is rooted in a relational conception which considers each unique person in relation with others, within natural and cultural living environments, within the eco-sphere. This perspective is in line with UNESCO's work, in particular the Education 2030 declaration or the Incheon declaration: Towards inclusive and fair quality education and lifelong learning for all which affirms that "inclusion and equity in and through education is the cornerstone of a transformative education agenda" (UNESCO, 2015).

Three objectives stem from this:

- Understanding that it is a question of avoiding to pursue and support socio-technical systems – economic models and lifestyles – which are not sustainable in order to design a desirable future.
- Making possible and supporting transformations that meet the challenges by better understanding one's talents and desires, by preparing for a profession and for a citizen engagement that holds meaning and is oriented towards the common good, and their development.
- Opening up to the conditions of living well in times of uncertainty and crossing the crisis with humanity. Living well echoes *buen-vivir* in Latin American, attentive to human and non-human balances, to the philosophical search for "good life, with and for others, within just institutions" (Ricœur, 1992).

The following pages aim to answer the following questions:

- What skills must students master by the end of their course to face the crises that humans and nonhumans are going through, and which effects will necessarily – whatever the choices made and implemented today – amplify in the near future?
- What skills must students master by the end of their course to build a sustainable model of life for all living beings on planet Earth? This model must be ethically founded and shared by the responsible community, that is to say the human species.
- Which educational practices to transmit, disseminate and develop these skills?

³ Johan H. Pestalozzi (1746–1827) spoke of connecting head, hands and heart in his reflections on education.

3.2 Four Pillars for Head-Heart-Body Learning

We are mobilizing a (transition) “head-heart-body learning” to describe an approach consistent with the educational vision that has gained consensus at the international level and which joins up with educational practices and experiences that have proven their worth in different contexts. We insist on four aspects of this pedagogy which correspond to complementary functions of reason, in its relation to emotions, to the body, to living environments and to action: it is relational and transformative, it integrates the different dimensions of the person in a holistic perspective, it is inter- and transdisciplinary and it is rooted in a territory while opening up to the world.

3.2.1 *A Relational and Transformative Pedagogy*

This involves nurturing a relationship adjusted to oneself, to others, to nature, to the senses (what some call transcendence or spirituality). For those who feel that their ecological footprint is too strong, how can we revisit our own cultural and social privileges, change ourselves to aim for structural transformation with a view to social justice for all (Ball, 1999)? Pedagogy is at the service of the quality of the relations, in the shared concern of the good life, justice and freedom for all allowing “to live and to do together” in a responsible and sustainable way (Collectif Paris-Education 2015, 2015).

This pedagogy mobilizes practical reason/ethics: to use the Aristotelian vocabulary already mentioned above, practical wisdom (*phronesis*) is key, beyond technoscience (*techné*) and integrated knowledge (*episteme*) (Swilling, 2020).

3.2.2 *An Integrative and Holistic Pedagogy*

Pedagogy takes into account all the dimensions of the person and his or her existence: intelligence, will, desire, motivations, emotions and body. It mobilizes symbolic reason and not only the logical-mathematical one⁴. Integrative and holistic pedagogy reforms thought by taking on “reality’s complexity challenge” grasping “the links, interactions and mutual implications”, a complexity intrinsically “provisional, random and uncertain” (Morin in Collectif Paris-Education 2015, 2015, 27–28). Pedagogy⁵ is a discipline in its own right which should give rise to rich

⁴See Howard Gardner’s theory of Multiple Intelligences: Linguistic, Logical/Mathematical, Spatial, Intrapersonal, Interpersonal, Bodily-Kinesthetic, Musical, Naturalist, Existential (or spiritual) (Gardner, 1999).

⁵In France it is often referred to as the science(s) of education.

intellectual and methodological reflections asking new, often disturbing questions about the purposes of human existence. It involves a systemic approach where each person with their reasoning, their emotions and their body learns to become aware of their own impact on the whole system, where everything impacts everything and where no one can be or remain helpless, indifferent and passive to change. Indeed, pedagogy must always be able to point out existential questions which bring human beings back to their primary responsibilities, and to shine a bright light on what is of value and what is worthy of interest in all life (Wainwright et al., 2020). Faced with ecological challenges of unprecedented magnitude, the pedagogy of transition must offer an original, integrative and global reflection on education in order to skillfully link the human adventure to human/non-human interdependence.

3.2.3 A Pedagogy Between Inter- and Transdisciplinarity

This pedagogy incites the decompartmentalization of knowledge and worlds. It seeks to enhance the debate and dialogue between the rationalities at work, between cultures, between visions of the world. It takes into account the conflict of interpretations, the relationships between disciplines and transdisciplinary knowledge (van Breda & Swilling, 2019), beyond a multidisciplinary approach that risks juxtaposing disciplinary knowledge on the same subject. The challenges of the Great Transition involve switching from the practice of scientific research for society to scientific research practices engaged with society (Scholz, 2011; Becker, 2012). Therefore, “if interdisciplinarity refers to the links between knowledge and the models proposed in the various disciplines, transdisciplinarity goes further and opens up a new vision, a new experience of learning” to grasp and attempt to solve the complexity of the challenges linked to the Anthropocene in search of innovative answers for new situations (UNESCO cited in Collectif Paris-Education 2015, 2015, 32).

3.2.4 A Rooted and Open Pedagogy

This pedagogy is rooted in living environments (Berque, 2000), in the particularity of contexts, while opening up to the universal, to the diversity of cultures.⁶ It includes intercultural dialogue which promotes the questioning of multiple relations of domination – ancient and contemporary. It opens up to social, cultural and political engagement and links social justice issues to the environmental cause (Ferdinand, 2019).

⁶ See the work of Terralingua in collaboration with WWF and UNESCO.

An important stake is the recording of the proposals in an overall dynamic which has coherence and transforming power (for example, articulating the concern of curriculum reform with campus transition and the valorization of territorial links). It is in this perspective that various initiatives – detailed below – put forward holistic teaching practices, integrating a set of the person's dimensions (his or her intelligence, desire, affectivity, body, relationship to nature and to others, history, etc.), as a privileged means of ecological and social transition.

These four pillars allow us to see how transition pedagogy mobilizes committed and free reason,⁷ thus promoting knowledge, knowing how to do, knowing how to be and knowing how to become (Collectif Paris-Education 2015, 2015, 33). To structure transition courses, whether in the subjects addressed or the objectives that allow the acquisition of knowledge, values, attitudes and skills, we propose to address the issues studied through six grounds for questioning.

3.3 Six Grounds for Questioning

The grounds for questioning flow directly from the six gates detailing the knowledge to be integrated into transition teaching from which the *Great Transition Handbook* is structured (FORTES collective, 2020). We only provide a brief reminder here of the subjects covered by each of these openings, but complete the presentation of our pedagogy by indicating how the use of these six gates also makes it possible to draw educational objectives and transversal skills that we can link to the frameworks provided by UNESCO (2017) and the French Grandes Ecoles and University Presidents Conference (2016) (CGE/CPU) in their respective reports.

For each gate, we highlight ways to mobilize both the intelligence, the body and emotions, according to the following symbols: Head (🧠), Body (👤), Heart (❤️).

3.3.1 *Oikos: Inhabiting a Shared World*

The first gate, Oikos, is that of our habitat. What does it mean to live on Earth? How does one promote planetary consciousness (Pineau et al., 2005)? Our identity has long been defined by our belonging to and our place in a society, in connection with a spiritual conception. With ecological challenges, however, inhabiting Earth now requires us to understand what impact we are having on the planet. This therefore implies asking questions: How does the planet work? What is nature? It is about

⁷The thought of trembling (...) preserves us from system thoughts and systems of thought. It does not imply fear or irresoluteness, it extends infinitely like an unmeasurable bird, its wings sown with the black salt of the earth. It assembles us in absolute diversity, in a whirlwind of encounters. Utopia that never settles and that opens up tomorrow, like a shared sun and fruit. (Glissant, 2005)

understanding the functioning of the planet, grasping its limits in order to respect them and build ways of inhabiting it together.

From a pedagogical point of view, transition learning involves understanding the transformations that are durably affecting the state of the world. This involves raising awareness on the system, providing knowledge on how planet Earth functions and establishing a diagnosis characterizing the current state of the world on the biogeochemical, socio-economic and geopolitical levels.

Educational goals and questions:

- 🧑‍🔬 Knowing the main concepts of complex systems: resilience, dynamic balances, emergence, positive and negative feedbacks, irreversibility, etc.
- 🧑‍🔬 Understanding the basics of how biogeochemical cycles and the greenhouse effect function.
- 🧑‍🔬 Understanding the role of human beings in current environmental dynamics.
- 🦋 Recalling our dependence on natural systems, through the direct and continuous link between our body and its environment: the respiratory system, nutrition, etc.
- ♥ Encouraging the feeling of integration and communion with nature: rejuvenation within nature, empathy towards animals and other living beings, etc.
- ♥ Promoting joint management/administration dynamics of available resources, at different scales.

The Oikos gate directly echoes the “Systemic” CGE/CPU competence. “Systemics is both a method and a state of mind, a knowledge and a practice which allows the study of complexity: that of living organisms, human societies, of artifacts designed by men (be it technical, organizational, economic or social)”. It also corresponds to UNESCO’s “Systemic Analysis” competence. It provides notions on the principles of complex system organization: resilience, dynamic balances, emergence, positive and negative feedbacks, irreversibility, etc.

3.3.2 Ethos: Discerning and Decision-Making for Collective and Cooperative Well-Being

The goal of the second gate, Ethos, is to present and thematize the moral issues linked to environmental changes. It involves discussing the main responsibilities and issues of environmental justice. Understanding that historical responsibilities are differentiated and do not simply boil down to “the human species” (Diamond, 2006). While industrialized countries have emitted a large proportion of greenhouse gasses for two centuries, nearly a sixth of humanity has virtually no historical or current responsibility for climate change. This question of responsibility also arises at the level of each discipline, since the majority of teaching leads to impacts on nature or on our relationship with nature. The responsibility of a discipline is for example engaged when it promotes the use of non-biodegradable materials, to use non-renewable energies, while it only sees nature as a resource to be exploited, or

even when it ignores, minimizes or denies the collateral effects (ecological and sociological) of the actions, works or policies that it teaches.

Educational goals and questions:

- 🧑❤️ Recognizing human responsibility for environmental changes.
- 🧑❤️ Recognizing the differentiated historical responsibilities in environmental change and the role of colonialism.
- 🧑❤️ Having a critical approach to strongly anthropocentric ethical systems.
- 🧑❤️ Discussing environmental ethics, which develop new forms of respect for nature.
- 🧑🧑❤️ Discussing the notion of nature, its place in the history of Western ideas. Presenting non-Western approaches to nature (for example from anthropological work such as those of Philippe Descola).
- 🧑❤️ Critically discussing whether or not we have the right to destroy ecosystems and sustainably disrupt the planet for economic development. Where are the limits?
- 🧑🧑 Recalling our dependence on natural systems, through the direct and continuous connection between our body and its environment: the respiratory system, nutrition, emotional connections, etc.
- 🧑🧑🧑 Apprehending environmental changes through the senses, meaning to make them visible: sea of plastic, glacier retreat, species extinction, etc.
- 🧑❤️ Identifying the risks and dangers of current environmental dynamics, for our health and that of future generations.

These goals allow an axiological contextualization of each discipline. They correspond directly to the CGE/CPU “Responsibility/Ethics” competence, and pursue the same goal as the UNESCO “critical reflection” competence.

3.3.3 *Nomos: Measuring, Regulating and Governing*

The Ethos gate raised the question of the means, but also that of the ends. Based on the observation of a fundamentally unsustainable development model, how does one rethink human development goals? New knowledge is needed, or rather a new way of thinking. It is about questioning our presuppositions, our mental images, what Peter Senge (1994) calls our mental models. These influence our decision-making, restrict the choice of possibilities and guide us towards a predetermined horizon. This is the case, for example, with our economic models, for which the metrics and indicators must be questioned. The production of this knowledge is closely linked to the political governance of the new climate regime. The Nomos gate emphasizes measurement and assessment instruments, rules, instruments and models of governance. From the perspective of the transition, the question of appropriate tools is crucial. Therefore, it is important to connect the questioning of standards to the competence relating to the identification of our mental models and the conditions of change.

Educational goals and questions:

- 👤 Identifying the historically located character of our mental models, showing their limits and blind spots.
- 👤 Raising awareness on the limits of current metrics in the economy. For example, can we speak of enrichment if the GDP increases by destroying natural areas and reducing air quality? What are these instruments lacking?
- 👤❤️ How to defend nature with the law? What instruments are needed? Should we make natural beings and ecosystems subjects of law? How to overcome the person/thing dichotomy of Roman law?
- 👤❤️ Presenting the principles of ecodesign, circular economy. Taking into account the complete life cycle of a product. Teaching the principles of biomimicry.
- 👤👤❤️ What relation to time for the Anthropocene? The scale of environmental change exceeds that of civilizations. How to apprehend it?
- ❤️ Teaching the tools that allow us to overcome inertia to change. What psychological forces prevent us from acting?
- ❤️ Teaching the tools that help curb the feeling of powerlessness in the face of the scale of the problems.

The questioning of our mental models is a key allowing us to apprehend change (“changes” CPU/CGE competence). It is located at an operational level and supports concrete problem solving (UNESCO’s “Normative” and “Integrated Problem Solving” Competences).

3.3.4 *Logos: Interpreting, Criticizing and Imagining*

Mental models are part of a vision of the world and a given development model. However, the current critique of the development model, of the great progressive narrative of modernization and of the tearing away from nature is accompanied by the emergence of new transition narratives, mobilizing different kinds of rationalities and different forms of artistic creativity. The critical examination of these various accounts of the “human adventure” requires interpretive skill.

The Logos gate concerns these rationalities at work. It has an interpretative scope, since it is about helping to design desirable futures, by mobilizing different regimes of rationality as a counterpoint to the dominant technoscientific and logical-mathematical perspective. From a pedagogical point of view, this supposes making room for the humanities, literature and the arts, by crossing this approach with the discernment of scientific and technical means.

Educational goals and questions:

- 👤❤️ Deconstructing progressive narratives: the idea of one development model is really just one of many possible stories.
- 👤 Showing, from ecological crises, the limits of modern discourse on infinite growth, on tearing away from nature, on a strict dualism. Providing narratives that recall the links between humans and the biosphere.

- 👤 Mobilizing the work of anthropologists like Philippe Descola (2011), to show that other divisions of the world are possible.
- 👤❤️ Showing the importance of the arts in the production of new rationalities. Recalling the role played by the imagination.
- 👤❤️ Questioning the assumptions of both progressive and collapse narratives. Starting from historical and ecological collapses, should we take collapsology seriously?
- 👤❤️ Should we abandon the great stories?
- 👤 What role for scientific narratives? Why should we trust scientific discourse? What are the limits? What role for technoscience and for digital technology?
- 👤❤️ What roles for the arts in producing new rationalities? What role for the imagination?
- 👤 Defining our relationship with the body, become aware of our body.
- 👤❤️ What should be our place on Earth?

Through its Logos gate, the transition pedagogy provides concrete tools for the “Prospects” CPU/CGE competence, an approach rooted in a historical and contemporary understanding which aims to prepare today the world of tomorrow based on future scenarios and visions. The Logos gate is speculative, literary and technical, geared towards action and change.

3.3.5 *Praxis: Acting on the Issues at Stake*

Creating transition stories helps define new directions for action. Their implementation involves actors with different capacities for action. The acceleration of the transition can be based on plural modes of action. Social movements reveal the conflict between different groups of actors as well as their possible convergences.

Praxis involves thinking about social and political engagement. From a pedagogical point of view, it is especially a question of thinking about the desirable acquisition of modes of organization, governance, action which allow citizens and the various actors (public authorities, companies, nonprofit organizations, NGOs, etc.) to engage in cooperative transformation processes, in a non-violent way, while taking note of the balance of power and the reality of violence on different levels.

Educational goals and questions:

- 👤 Knowing the various transition actors and their capacities for action.
- 👤❤️ Learning to cooperate and communicate. Presenting the collective intelligence methods that are available.
- 👤❤️ Presenting and discussing the different modes of action leading to the transition. For example, is civil disobedience justified in the context of the transition?
- 👤❤️ How to organize forms of resilience at the collective level?
- 👤❤️ Showing through example: by individual actions, institutional actions, local communities, etc.

🧑❤️ Encouraging lasting contact with nature, in order to get to know it and forge links with it.

🧑❤️ Presenting a typology of conflicts related to ecological transition: environmental conflicts/climate refugees/end of the world vs end of the month/social and environmental justice.

The “Praxis” gate enables the acquisition of the “Collective” CPU/CGE competence, the ambition of which is to co-construct responses adapted to complex problems. This skill aims to make us aware of the limits of our individual capacity to bring solutions. It is about developing plural, territorial and collective intelligences. These responses, held individually or collectively, therefore become pluralist and concerted, highlighting new benchmarks of citizenship, belonging and identity.

3.3.6 *Dunamis: Reconnecting with the Self, Others, and Nature*

Faced with the urgency and scope of the task, individuals are confronted with the question of the meaning of their actions, of the effectiveness of the action. Groups in transition have long faced this crippling anxiety and have developed remedial techniques. More generally, the new narratives of the transition provide keys that enable a reconnection to nature and to others thanks to a renewed social pact.

Educational goals and questions:

🧑🧑❤️ Which reconnections to nature? Need for direct contact with nature, to experience nature. The University is often located in an urban center and describes nature in an abstract way.

🧑🧑❤️ Having a vernacular knowledge of where one lives. Knowing the local flora and fauna and connecting them to the local culture. Knowing how to distinguish a healthy ecosystem from a diseased ecosystem.

🧑❤️ Knowing how to grow edible plants. Role of environmental education in experience, practice (growing vegetables etc.). Presenting positive examples of permaculture.

🧑❤️ Not presenting global warming only in the abstract, cognitive; having the effects observed (for example in the Alps today: melting glaciers, frequent dangerous landslides, etc.).

🧑🧑❤️ How to project oneself into the future? The apocalyptic tales of the end of the world have multiplied. The possibility of projecting oneself into the future seems compromised (apocalyptic stories/science-fiction/spiritualities).

🧑🧑❤️ Mobilizing new resources: eco-psychology, religious and spiritual traditions, etc.

This sixth gate Dunamis joins the competence relating to the reflection and the collective commitment of the CGE/CPU approach, while promoting others, concerning in particular the presence to oneself, to others and to nature.

3.4 Cross-Disciplinary Skills to Be Developed for the Transition

As the dynamics of the implementation of the Competency Based Approach (CBA) in higher education are real, it seemed important to us to make the link between our reflection and this structuring evolution in the design of learning courses.

The notion of skills is polysemous and debated. We retain here the definition proposed by Jacques Tardif, widely known and used: “a skill is a complex knowledge of acting based on the mobilization and the efficient combination of a variety of internal and external resources within a family of situations” (Tardif et al., 2006, 22).

The Competency Based Approach (CBA) conveys multiple intentions that deserve to be clarified. Behind its deployment, a political strategy and therefore a model of society are also being deployed by more and more education actors. The professionalization of courses and the construction of skills repositories are increasingly based on the analysis of ROME files (Operational Directory of Trades and Jobs) and the needs expressed by professional branches that do not historically and structurally have goals towards sustainability or the long term. There is a risk here of compromising the anticipation of non-linear future situations, moreover more and more likely. The fact remains that CBA is an interesting approach, especially when it allows and facilitates the capacity to responsibly and interactively act in a more autonomous way with others. It is therefore a matter of promoting a supply of skills based on “universal” values which serve as safeguards when human societies go astray.

As we have seen, the six grounds for questioning that we propose aim to define both knowledge and ways of proceeding linked to principles and attitudes. It seemed fundamental to us to show that they allow the acquisition of six specific skills, each linked to one of the *Great Transition Handbook* gates:

1. Oikos: learning of systemic thinking.
2. Ethos: ethics and responsibility.
3. Nomos: changing mental models.
4. Logos: shared vision and narratives.
5. Praxis: collective learning and action.
6. Dunamis: presence of the self and reconnection with others.

We have been careful to coordinate our pedagogical approach with similar work carried out in recent years. Specifically, we have aligned ourselves with the French CGE/CPU’s “Sustainable development and social responsibility skills guide, five skills for sustainable development and social responsibility” (Conférence des présidents d’université and Conférence des grandes écoles, 2016) and UNESCO’s goals for education in view of sustainable development (UNESCO, 2017). We also relied on the work of Peter Senge, who invites us to consider five disciplines (according to the Latin etymology *disciplina*: learning) (Arnaud & Ejeil, 2018). Hence, our six gates can be compared to the five CGE/CPU competences as well as the eight UNESCO competences (Table 3.1):

Table 3.1 Correspondance between the six gates, the five CGE/CPU competences and the eight UNESCO competences

Six gates and 6 skills	Five disciplines (Senge)	Five skills (CGE/CPU)	Eight skills (UNESCO)
Oikos: Learning of systemic thinking	Systems thinking	Systemic	Systems thinking
Ethos: Ethics and responsibility	Personal mastery	Responsibility/ethics	Critical thinking
Nomos: Changing mental models	Mental models	Change/nature and governance of change	Normative Integrated problem solving
Logos: Shared vision and narratives	Shared vision	Prospective	Anticipation
Praxis: Collective learning and action	Team learning	Collectives	Collaboration Strategy
Dunamis: Presence of the self and reconnection with others	Co-presence (Goffman, 1967)	Collectives	Self-awareness

References

- Allen, R. E. (Ed.). (1990). *educate. The Pocket Oxford Dictionary*. Clarendon.
- Arnaud, B., & Ejeil, C. (2018). *Le guide de l'organisation apprenante: plus de 100 outils et pratiques pour développer l'intelligence collective*. Eyrolles.
- Ball, G. D. S. (1999). Building a sustainable future through transformation. *Futures*, 31, 251–270. [https://doi.org/10.1016/S0016-3287\(98\)00133-5](https://doi.org/10.1016/S0016-3287(98)00133-5)
- Becker, E. (2012). Social-ecological systems as epistemic objects. In M. Glaser, G. Krause, B. M. W. Ratter, & M. Welp (Eds.), *Human-nature interactions in the anthropocene* (Routledge studies in environment, culture, and society) (1st ed., pp. 37–59). Routledge.
- Berque, A. (2000). *Écoumène: Introduction à l'étude des milieux humains*. Mappemonde. Belin.
- Biesta, G. (2013). *The beautiful risk of education. Interventions: Education, philosophy, and culture*. Paradigm Publishers.
- Collectif Paris-Education 2015. (2015). *Manifeste pour une éducation à la citoyenneté planétaire. Pour vivre ensemble à 10 milliards, changeons l'éducation*. Numéro Spécial Chemin de Traverse. Les Amis de Circée.
- Conférence des présidents d'université and Conférence des grandes écoles. (2016). *Guide "Compétences Développement Durable & Responsabilité Sociétale" - 5 compétences pour un développement durable et une responsabilité sociétale*.
- Descola, P. (2011). *L'écologie des autres. L'anthropologie et la question de la nature. Sciences en questions*. Éditions Quæ.
- Diamond, J. M. (2006). *Collapse: How societies choose to fail or succeed*. Penguin Books.
- Ferdinand, M. (2019). *Une écologie décoloniale: penser l'écologie depuis le monde caribéen. Anthropocène Seuil*. Éditions du Seuil.
- FORTES collective. (2020). *Manuel de la Grande Transition: Former pour transformer*. Les Liens qui libèrent.
- FORTES collective. (2021). *The great transition guide: Principles for a transformative education*. Forges - Campion Hall, Oxford: Campus de la Transition - Laudato Si' Research Institute. https://campus-transition.org/wp-content/uploads/2021/07/The-Great-Transition-Guide-Principles-for-a-Transformative-Education_0.pdf

- Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the twenty-first century*. Basic Books.
- Glissant, É. (2005). *La cohée du Lamentin. Poétique 5*. Gallimard.
- Goffman, E. (1967). *Interaction ritual. Essays on face-to-face behavior*. Anchor Books.
- Kierkegaard, S. (1983). *Fear and trembling*. In H. V. Hong & E. H. Hong (Eds.), *Kierkegaard's writings 6*. Princeton University Press.
- Pineau, G., Bachelart, D., Cottureau, D., & Moneyron, A. (Eds.). (2005). *Habiter la terre: ecoformation terrestre pour une conscience planétaire. Ecologie & Formation*. L'Harmattan.
- Ricœur, P. (1992). *Oneself as another*. University of Chicago Press.
- Sæverot, H. (2011). Kierkegaard, seduction, and existential education. *Studies in Philosophy and Education*, 30, 557–572. <https://doi.org/10.1007/s11217-011-9239-6>
- Scholz, R. W. (2011). *Environmental literacy in science and society: From knowledge to decisions* (1st ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9780511921520>
- Senge, P. M. (1994). *The fifth discipline: The art and practice of the learning organization*. Broadway Business.
- Swilling, M. (2020). Towards an evolutionary pedagogy of the present. In *The age of sustainability: Just transitions in a complex world* (Routledge Studies in Sustainable Development) (pp. 295–316). Routledge/Taylor & Francis Group.
- Tardif, J., Fortier, G., & Préfontaine, C. (2006). *L'évaluation des compétences: documenter le parcours de développement*. Chenelière-éducation.
- UNESCO. (2015). *Education 2030: Incheon declaration and framework for action for the implementation of sustainable development goal 4: Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*.
- UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO.
- van Breda, J., & Swilling, M. (2019). The guiding logics and principles for designing emergent transdisciplinary research processes: Learning experiences and reflections from a transdisciplinary urban case study in Enkanini informal settlement, South Africa. *Sustainability Science*, 14, 823–841. <https://doi.org/10.1007/s11625-018-0606-x>
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.
- Wainwright, E., Aldridge, D., Biesta, G., & Filippakou, O. (2020). Why educational research should remain mindful of its position: Questions of boundaries, identity and scale. *British Educational Research Journal*, 46, 1–5. <https://doi.org/10.1002/berj.3594>

Chapter 4

Levers to Operate in Order to Practice a Transition Pedagogy



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec,
Jonathan Dawson, Alexander Federau, Perrine Vandecastele,
and Nathanaël Wallenhorst

Abstract In this chapter we identify seven transversal principles which guide our pedagogical approach, and which are today widely shared by teachers. These principles also seem to us to be consistent with research in neuroscience, in particular that of Stanislas “Dehaene, Stanislas. *Apprendre! les talents du cerveau, le défi des machines*. Odile Jacob, Paris, (2018)” and his four pillars of learning – attention, active engagement, error and surprise signals and the consolidation of acquired knowledge – or those of Antonio “Damasio, Antonio R. *L’erreur de Descartes: la raison des émotions*. Odile Jacob, Paris, (1995)” on the fundamental role of emotions in supporting learning. The principles advocated are: solicitation of curiosity and commitment; learning through sensitive experiences; connection of knowledge, emotions and values; reappropriation of assessment methods; multifaceted posture of the teacher; politicization of education; self-awareness and striving for common good.

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l’Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_4

The principles highlighted in this section represent the major levers to be operated in order to provide students with truly transformative learning. Tools and examples of real-life implementation of these principles will be detailed in the second part of this book.

4.1 Arousing the Learner's Curiosity and Genuine Commitment

How to arouse the curiosity which engages the learner in an existential process where the head, heart and body take their real place? How to properly counter reductive learning strategies focused only on grade obtention and the fear of failure (Astolfi, 2011; Pépin, 2016)? How to tend towards fair sharing referring to the etymology of the notion of curiosity – in Latin, *cura*: *the curious one is one who takes care* (Orsenna, 2014) – in order to learn to take care of the common home in a lasting reconnection with oneself, with others and with nature?

In this intra-, inter- and transdisciplinary approach, transition pedagogy is based on the freedom to learn, that is to say the possibility given to the subject to *choose his or her learning project and to mobilize oneself in multiple ways*. The proposed activities – inform, teach, initiate – enable to empower and *engage the existence of the person* in the interaction with humans and other life forms to move towards a common good (Meirieu, 2012). The learning activities are engaging but not distracting; captivating, critical and transformative (Ball, 1999). It is also about facilitating student *autonomy, responsibility and their capacity to act* in order to implement what has been and what must be learned. This happens in particular through feelings of personal and collective self-efficacy (Bandura, 1971). What can I do concretely and what will be the impact of my action on the system or the targeted change?

Each student's curiosity drive is unique, which is a challenge in terms of instructional design. Using the six gates to design training courses or course sessions around an addressed theme makes it possible to mobilize different and complementary ways of working and therefore to engage all students in learning. For example, it is possible to reread the double movement of the yellow vests and the climate protests in France in late 2019 from the social and political action entrance (Praxis), then through the other gates:

- **Praxis:** the yellow vests movement and the climate protests (types of mobilization, relationship to non-violence, etc.)
- **Dunamis:** questioning its positioning in relation to the different movements, links between actors whose worldviews seem distant.
- **Ethos:** replacing the issue of environmental justice in the center; orders of magnitude of the ecological footprint according to living standards.
- **Logos:** building a common narrative beyond the opposition between “end of the world” and “end of the month”; analyzing collapsology through the prism of the social question.

- **Oikos:** assessing whether the compromise between social demands and environmental goals is in line with the planetary challenges.
- **Nomos:** considering institutional reforms to give voice to those who do not usually have one on environmental issues (citizen conferences, referendums, etc.)

4.2 Favoring Learning in Connection with the Sensitive Experience

Abstract, out of touch teaching, as is often practiced in higher education, may ensure a transmission of disciplinary knowledge, but it cuts itself off from its environment. The danger is that the resulting mental models do not take sustainability issues into account. This point is particularly important as digital learning takes more and more place in the official discourse and in the proposals for education reform (Taddei et al., 2018). This is why the courses must multiply the opportunities to link learning to reality, to situated knowledge; which also has the advantage of driving student motivation and the possibility of giving meaning to reflect on the future of the common home (Oikos).

In addition, it is important to give a real place to a third¹ pedagogy which would not take shape initially in the university, in the school nor in the company, but rather in a third landscape defined as another discreet and convivial common space without distinction of social status and without remuneration: allotment gardens, training courses in food gardens, local eco-educational initiatives for example. In our modern society, basic ecological notions² such as learning to name and care for plants and animals are not taught, thus permanently weakening the bases of eco-citizenship and education in harmony with living things. Naturalist guides, pioneer gardener-teachers, neighborhood leaders and other teachers in urban agriculture are all educators, volunteers and activists of this new landscape and this renewed pedagogy who set up a democratic space of third citizenship, an inclusive, intergenerational and intercultural space. This eco-learning could thus reinvigorate the university's third pedagogy by teaching students about ecological civilizational issues in a local context in connection with reality, combining the specific needs of nature and local initiatives (Delesque, 2021).

Concretely, in transition pedagogy, we wish to bet on a practice and a living experience which articulates:

¹The third pedagogy refers to the third party and its mediating role in social conflicts aiming to restore the relationship between man and nature, city and nature (Delesque, 2021).

²In the form for example of basic botanic, plants and fungi knowledge, ornithological knowledge, knowledge of local rivers and the species that live there, entomological knowledge of the insects that are found in the area in order to constitute an electronic "herbarium" with photos taken by smartphone. This "electronic notebook of the living" in the area where we live can be developed from kindergarten to university, in self-study or with guidance and advice from teachers, gardeners, experts.

- Reconnection to nature and knowledge of nature, for example through permaculture courses
- Manual learning, for example housekeeping or garden work sessions (in small groups) included in the schedule
- The integration of concrete testimonies and real-life examples, for example from practitioners engaged at different levels to empower from a social and/or environmental point of view their business/sector
- Thinking critically and realistically on the digital relationship, its benefits and its drawbacks and prejudices
- Learning through field trips and visits
- Learning through projects rooted in the territory with local actors leading to the realization of real and useful educational projects

These experiences encourage reflection on the values needed to be mobilized to respond to the current ecological and social issues by addressing both reason and arousing emotions.

4.3 Combining Reasoning, Emotions and Mobilization of Values

University education often opts for abstract knowledge and underestimates value pluralism which remains fundamental because it is linked to the deep emotions of the being and nourish his or her relationship to the world (Brossard Børhaug & Weyringer, 2019). *How to base the educational transition on the values that are real founders of living and doing together without harming oneself or the world?* How to learn to manage the complexity of reality by refusing populist, “definitive” and arbitrary responses, as well as a technician – even transhumanist – vision of collective survival? University education provides *teaching scenarios where students learn to reflect on concrete value conflict cases and confront their own emotions* (Weinberger et al., 2016). Indeed, the goals of transition do not erase social conflicts. They sharpen them in a hotly debated political project. For example, would work value and the objective of full local employment be more important in the choice of modes of action than the preservation of regional wildlife? And can responsibility, solidarity and openness towards others be favored rather than the quest for profit, egocentric pleasure, and the preservation of achievements? (Pache et al., 2016, 53).

During a conflict of values, it is often observed that conflicting emotions take precedence over constructive dialogue. Students struggle to become aware of these tensions and to manage them calmly. This could partly explain the denial, fear and passivity observed among some of our fellow citizens with little commitment to the ecological cause. Value conflicts thus reveal the challenges of building a common world and discerning how to live well together (Ethos). Without the essential work on values and emotions, some young people could also be led to take care neither of

themselves nor of the world (Biesta, 2013). Therefore the teaching practice includes transition teaching as a moral exercise giving rise to ethics as concern for the other, ethics as concern for the world and ethics as concern for the self. The ecological awakening of students embodies an ethical requirement of the young generation which must be heard and fully recognized in society and in education, in particular through *project pedagogy, including concrete situation staging and complex moral dilemmas* (Meirieu, 2001).

Personal reflection and introspection timeouts can be systematically proposed. A particularly interesting form is “Work that Reconnects”, an eco-psychological approach developed by the American psychologist Joanna Macy who offers a 4 step course to welcome the often harsh emotions linked to transition issues (Macy & Brown, 2014).³ A time for sharing on emotions and values could also be scheduled on a daily basis. Cooperative and creative games can help to gradually create a climate of trust within the group, necessary for the expression of personal and emotional reflections. Additionally, a security framework set up at the start – listening with kindness, speaking with intention, respecting the confidentiality of exchanges, sharing the responsibility of keeping the time and ensuring individual sovereignty – allows room for debate and the expression of personal opinions.

Project-based work allows true construction of the educational framework (Nomos). The learner moves away from the traditional reproduction of knowledge to develop a personalized reflection while building on the pooled work. In addition, project pedagogy gives back space to speech through reformulation work and presentation to co-learners. It can therefore provoke a reworking of the narratives, arts and trades of the transition (Logos) and avoid the pitfall of reproduction, which is not very favorable to the resolution of ethical dilemmas and to sincere commitment.

4.4 Reclaiming the Assessment Methods

The educational project based on collective success integrates “problem-situations” in the learning pathway where each student meets and overcomes difficult but accessible obstacles with the help of a set of educational resources carefully prepared by the teacher who will also anticipate assessment types and times (Meirieu, n.d.).

The goal of this pedagogy is to create fair learning conditions for all where collective work goes well beyond simple teamwork and becomes a real guarantee of quality, seriousness, maturity and depth in reflections, whether intellectual, manual, artistic, or emotional. However, creating fair classes in heterogeneous groups remains an ideal never achieved because of differences in social and educational status. Students with lower social status talk less, influence group work less, and learn relatively less. The ideal of an inclusive and fair education rarely carried out

³ See also the chapter of Michel Maxime Egger in this book.

in a traditional “top-down” learning is more easily achieved in this new educational project. Indeed, the study of concrete cases leads the learners to seek together to solve complex problems posed by the teacher, thus creating cultural productions. This so-called “*complex instruction*” (Cohen, 2002) aims to appeal to a wider range of intellectual skills through stimulating tasks known as “multi-ability tasks”. This could for example be group works requiring a critical reading of diverse sources, comprehension of theoretical principles, a work of imagination, idea structuring, visual and oral presentation of the project, as well as the mobilization of teamwork soft skills, time management and organization. The teacher thus sets up educational activities where everyone is offered a real opportunity to contribute qualitatively to the work of the group.

The principle of complex instruction is to encourage students to interact by working on tasks that offer both elements of uncertainty and several solutions. Students will discover this multiplicity of perspectives with the help of a sequential interdependence made up of collective explanations and mutual aid. Placed in a situation of autonomy and authority delegated by the teacher, individual resources and talents thus become an important factor in the group’s creative work (Cohen, 2002). *This pedagogy of action can also make it possible to overcome the competition pitfalls* of the dominant economic model to develop the capacity for initiative in teamwork, and the will to tackle complex problems with others (Pache et al., 2016).

Transition pedagogy also offers a formative assessment, centered on learning progression, in addition to the summative assessment that we know, and which focuses on the level reached at the end of the course. Carried out during the activities, the formative assessment shows the progress made and the difficulties encountered by the students invited to reflect on the strategies to be adopted to overcome them. These can be implemented by the teacher him or herself, in the form of learner self-assessment and peer feedback. *It does not give rise to a grade, unlike the summative assessment which concludes, sanctions and certifies the work.* The reformulation and the summary of the contents worked on individually or in a team, the concept maps, the assessment and the qualitative feedback on the work carried out are examples of tools in the service of a formative assessment. As for summative or certification assessment, its function is the attestation or recognition of learning. It intervenes at the end of a teaching process to sanction or certify the degree of mastery of student learning. It is therefore placed under the responsibility of the teacher.

To set up fair formative and summative assessment, it is necessary to take into account the obstacles linked to cultural and social differences – class, ethnicity, gender, school status – and to the greater or lesser social integration of students. *Using multiple-ability tasks, the teacher can more accurately assess individual contributions and deconstruct the often disabling expectations based on status characteristics.* Only the expectations considered relevant for the resolution of the “problem-situation” will be at stake. The pedagogical interventions put in place by the teacher stimulate the participation of students on the margins to create better interaction with an equalization of statuses in the long term, positive expectations among all students and better assessments (Cohen, 2002). Non-targeted presentation games on status elements at the beginning of the course give everyone the

opportunity to talk about more personal elements (relation to the subject, state of mind and feelings) or creative ones (presentation by analogy to a plant, animal, etc.). Among the attempts to change assessment methods, we can cite that of the Canadian government: “The Canadian government has asked faculties to stop evaluating students quantitatively. Instead, 100 situations are presented and the students must show and demonstrate that they understand them and are able to deal with them. You have to master each situation to be able to validate a subject. The theory is still being studied in class but the assessment is based on physical evidence of mastery of a situation in order to introduce the notion of relationship with the patient.”⁴

The two types of assessment in transition pedagogy are crucial because they arouse the autonomy of the actors and institute a dialogic practice nourishing the six gates. Assessment by the teacher, the peers and self-assessment are all the more efficient when the students themselves have chosen the subject to be debated and when it therefore strongly appeals to them (Weinberger et al., 2016). These formative and summative assessments can be implemented during a collective and individual follow-up (on striking content and individual progress in one’s questioning for example), taking notes and comments throughout the stages (with times dedicated to keep a personal learning log in a desired form), and quality feedback (e.g. everyone sharing a nugget with which they leave the course) (Weyringer et al., 2012). In the overhaul of mental models (Nomos) and the development of a shared vision (Logos), self-assessment methods as well as regular rereading, individually and collectively in a framework of trust (especially rereading lived experiences in the light of theoretical concepts discussed in class and analyzing reflectively a practical sequence or an educational game), lead students to become aware of their own transition learning and the way it is relevant (Dunamis). Recognizing specific individual contributions to the team following a collective work, for example through an “acknowledgment circle”, also allows individuals to become aware of their strengths and talents and those of the others.

The reappropriation of learning time is necessary to integrate knowledge, emotions, body, nature and common territory. The ecological transition goes through the mediation of concrete practices in nature which can take on various spiritual forms. However, making sense of existence takes time. If too little time is granted and if the quantitative reproduction of knowledge takes precedence over the qualitative construction of learning, then transition pedagogy cannot be deployed. This “time famine” can lead to a multiple alienation in the relationship to space, things, actions, time, oneself and others (Rosa, 2010). It thus reinforces the great acceleration of the Anthropocene. This is why learning cooperative practices and self-knowledge, like that of all knowledge, takes time and is anchored in repetition. The educator must develop learning sequences designed over time, leaving room for the maturation of stories, shared visions (Logos) and individual and collective ethos while allowing resonance (Rosa, 2019) with his or her own experience.

⁴Interview with Jacques Tardif.

4.5 Developing the “Multifaceted” Posture of the Teacher Co-creator of Knowledge

The traditional role of the (university) teacher is often confined to the top-down transmission of generalizing knowledge, to the posture of the expert; by contradiction with the intimate and contextual knowledge which can only be constructed from the student’s experience and talent. *There is therefore a gap between individual aspirations and the homogenizing conceptual material poorly assimilated in the learning process.* The challenge is to transform this pedagogical approach in order to consider the diversity of the group, balance the statuses and promote learning in connection with each and everyone’s real experience. Project pedagogy extends this traditional mode of transmission and its place among the various existing modes of transmission.

The figure of the mentor is a good illustration of the change in posture that we are proposing. In Greek mythology, Mentor was the tutor of Telemachus and friend of Odysseus: a mentor is a careful and wise guide, an experienced counselor. The concept of mentoring therefore highlights a relationship between the educator and the student and/or between colleagues, which is qualitatively different from what is the norm in the dominant pedagogical paradigm. In the latter, the main goal is cognitive stimulation, the method relying heavily on the transfer of information from the teacher to the learner. Mentoring involves a more collaborative and egalitarian relationship. In addition, mentoring goes well beyond cognitive stimulation to encompass the development of the human being as a whole – emotional, somatic, intuitive, spiritual and cultural. The mentor models values and attributes that teaching seeks to cultivate in order to promote a fair realization of the potential of each and everyone in a composite and unequal world.

The skill set required by the mentor is qualitatively different from that of the more conventional teacher. The center of gravity shifts from teaching to learning, from performance to co-creation and maieutics, that is to say, to the Socratic art of getting the mind to give birth to what it holds. The mentor encourages the students to become aware of the virtuous knowledge, skills and know-how that deserve to be preserved. He or she introduces students to a transformation that is certainly destabilizing but emancipating from unsustainable behavior, by giving it the necessary time to take shape (know how to become). To the extent that teachers are fully involved as free and committed people in relation to students, the latter can in turn have the courage and authenticity to bring their own vulnerabilities as well as their skills and talents.

Thus, the role of the teacher becomes multifaceted: he or she is at the same time the one who *accompanies* the students in their reflection (the facilitator), the one who *organizes* the debates (the moderator), *the expert* who holds and transmits the knowledge when it is requested by the students, and a *learner* him- or herself when the students working to solve complex situations ask questions or make proposals which can enrich and sometimes destabilize the teacher’s reflection (Weyringer

et al., 2012). *The teacher is thus co-creator, guide, facilitator, mediator, motivator, expert, learner and assessor.*

This multifaceted posture outlines the ability of every learner – student and teacher – to build their own knowledge, a virtuous learning spiral approached by socio-constructivist theories. *Nonetheless, it requires genuine trust and a clear delegation of authority in certain contexts.* Thus, a vague laissez-faire is as counterproductive as an overly strict control of the activities in progress. In practice, the teacher focuses on the effective participation of all to solve stimulating tasks. These are based on multiple skills by creating skill expectations relevant to the required tasks. *Hence, the teacher demonstrates that no one can master all the know-how and skills but that everyone can master some of them.* This then creates a positive interdependence within the group and new skill expectations (Cohen, 2002). For us, complex instruction (Cohen et al., 1999) – an approach focused on equity and democracy in heterogeneous classes and in which work is of a high intellectual level – seems to be a particularly interesting approach for motivating students who are reluctant in more deeply bringing to awareness their emotional, conceptual and moral positioning in order to modify relatively widespread attitudes of denial, indifference, fear and/or rejection of the ecological cause. It also strengthens the place of education for ecological and social transition in higher education.

This organizational change presupposes a real cognitive and emotional investment on behalf of the teacher, continually revisiting and upgrading his or her professional actions, knowledge and values. This change in the pedagogical paradigm can represent a real burden of learning, course review and availability for teachers with already overloaded schedules. This is reinforced when daily life (meals, breaks, socials) is for example used as a support for informal discussions with students, also making it possible to give space to personal emotions and questions. A rethink of standing is also necessary when emotional, creative and cooperative dimensions are introduced in the group (for example through games, songs and reading inspiring texts at the start of the day or by moments of relaxation) where there is no distinction between teachers and students. One way to enrich the teacher's facilitator functions is to work on these questions as a team, by integrating mediators into educational teams and using the teacher support facilities that are developing in the establishments. This makes it possible to multiply the transmission support skills of the people surrounding the students. However, it also presupposes work in educational teams made up of questioning and effective support from the institution, to build and adapt the programs implementing the interdisciplinarity necessary to meet the challenges and deal with the ecological emergency. As a result, the teacher finds him- or herself in a similar position to the students, that is to say confronted with a personal reappropriation of the six skills covered on page 28.

4.6 Daring to Politicize Education to Shape Responsible Citizens

Working with students on issues relating to climate change, the collapse of living things and the transitions to be made naturally leads to questions that go beyond the disciplinary field: What past and present political choices have led us to this stage of deterioration of ecosystems and disruption of the functioning of the Earth System? Who is responsible for this disaster? Against what and against whom do we have to fight? Who is preventing us from acting? If we still have a chance to allow humanity in the future to live a life of dignity and fulfillment, how should we proceed? Will we one day be “indigenous”, that is to say in deep connection with nature (Arnsperger, 2023)? How do we break from the ideal of the Promethean self,⁵ so deeply rooted in our imaginations (Federau, 2023)? Is it necessary to seek to communicate better with non-humans (Morizot, 2016) to learn to establish ethically responsible relationships with others, the world and these other non-human earthlings? Should we enter into a lively political struggle risking violence (Les Convivialistes, 2020)? etc.

Some students realize that it is necessary to fight against this destructive madness of maximizing individual interests – what the Greeks called excess, *hybris*. Playing with the desire for always more – what the capitalist economy has been doing for more than a century and which the neoliberal logics of recent decades have increased tenfold – is contradictory with the concern for planetary limits. If this calls for a happy learning of sobriety (as part of a form of “citizenship education”), it also calls for a political struggle (Wallenhorst, 2020). Climate and biodiversity courses and education implies that teacher-researchers come out of the imperative of axiological neutrality that is expected of them and engage in critical thinking (Lange & Kebaïli, 2019). For the teacher-researchers, it is not a question of playing politics at the university, but of being able to highlight the tensions relating to the pervasiveness of neoliberal logics in the choices of society in OECD countries (Curnier, 2017). In other words, we need teachers who do not hesitate to invest in politics, while ensuring that their tools are indeed those of problematization (Fabre, 2011) and not indoctrination. This view was put forward in the early twentieth century by the American educator John Dewey, who worked on the importance of education for democracy. For Dewey, one of the goals of education is to prepare the citizen, while the development of critical thinking, emancipation and learning of individual and collective action capacities are the means.

⁵ In reference to the myth of Prometheus, divine messenger who stole the sacred fire of Olympus – symbol of technique – to bring it to the human species and thus allow them to learn and rise above their condition. This Greek myth characterizes the transition from the state of nature to that of culture by marking a profound break between man and the rest of life, made possible through the acquisition of technique and knowledge.

Politicizing education does not therefore mean teaching an ideology or a dogma but problematizing the process of knowledge.⁶ The point here is not to focus on the acquisition of knowledge by the students but on what they will do with their knowledge. The question of the social utility of courses, knowledge and professions is decisive for the implementation of the ecological and social transition. This question should be open to critical reflection during study time. However, in recent decades, we have become accustomed to dissociating educational spaces from politics. However, depoliticizing educational spaces amounts to playing the market game, since teaching and the running of campuses feed the reproduction of unsustainable economic models.

Through the mediation of transition pedagogy, students accompanied by teachers learn to reflect on the purposes of knowledge, human responsibility in connection with the world and the responsibility of each and everyone in the direction he or she gives to his or her life facing the ecological and social emergency (Biesta, 2017). The interpellation of younger generations with regard to teacher-researchers, higher education establishments and leaders at multiple levels, testifies to a search for self-development in service of the common good: we should honor this quest in educational transition and reflect together on supporting this ecological awakening and its realization in order to align human needs with those of the planet Earth.

Thus, a first pedagogical approach would be to think of the lesson space in the mode of the agora, a space for sharing the word in order to allow action to emerge. A second way could be to work on redefining this “political world” in relation to the power and the uncontrollability of the biosphere. How can we learn to share conviviality with the non-human? A user-friendliness all the more important as it allows three fundamental elements.

First of all, the Anthropocene will not get the better of life. The interdependent and resilient fabric that is the living is deeply affected by the Anthropocene, but will survive it, based on the past experience of the uninterrupted continuity of life on Earth, despite the many episodes of extinction, including five past major extinctions, which have marked the history of the Earth. Offering to live in conviviality with the non-human is to cling to what will cross the Anthropocene, to this adventure in which we participate and outside of which we cannot live. It is all about holding on to that part of ourselves! We are referring here to Andreas Weber’s conception of the being as sharing, open to otherness (Wallenhorst, 2023a, b; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023).

Then, sharing conviviality with the solidary fabric of the living means to bind responsibility with an autonomous creative power which is, in a certain way, the opposite of prometheanism and destructive control proposed by capitalism (Prouteau, 2023).

Finally, it allows politics to be placed within the limits of the biosphere. If for Hannah Arendt, to live is to live among men, *inter homines esse*; this space between

⁶ See for example the issue n°22 of the journal *Formation et pratiques d’enseignement en questions* (Roy et al., 2017).

people finds its own place within the biosphere, a limited and fragile space (Hétier, 2023).

Concretely, it means “to hold class”, from time to time outside, why not in the woods and the fields. Ultimately, it comes down to living by remembering limits, teaching empowerment through concrete mediating experiences and learning to live in contact with nature. Faced with the necessary limitation of our lifestyles, it is a question of creating an unlimited creative educational space (“a pedagogy of the imaginary”) to find solutions to unprecedented “anthropocenic” problems (Hétier, 2023).

One avenue to explore would be to learn to articulate scientific thought with a form of disregard. Yes, let us try to understand, but without acting too quickly to dominate, master, pre-empt, let us learn “the relinquishment of mastery” (Arnsperger, 2023). Let us try to articulate this scientific thought by listening to the world as it presents itself. Can we not learn to listen to the world, the Earth, living things as a whole and animals in their singularity (Morizot, 2016, 2020) and thus open up to a receptive emancipatory pedagogy (Cerletti, 2005, 81)?

4.7 Integrating Self-Awareness and Striving for the Common Good

In conclusion, transition pedagogy is nourished from the personal roots of all those involved in the educational transition, the plurality of identities, knowledge, behavior and values which constitute human wealth and virtuous interdependence in action in harmony with living things.

The ecological and social transition is the passage from an unsustainable society, greedy in resources and source of deep inequalities to a sustainable society, sober in its use of resources, and which manages to respect and promote biological and cultural diversity. *A lasting transition can only be made from an awareness of the self's place and the need to strive for the common good (Dunamis)*. All educational work includes work on the topic “able to live in the world without occupying the center of the world” (Meirieu, 2007, 96). Defining resilient and creative educational pathways which are up to the challenges of the transition is a complex task⁷: how do we bring about a mature teaching practice which does not destroy the world which surrounds us and/or the being itself but leads all students to a rebalanced ontological, epistemological and ethical repositioning? Courses thus require a space for the learning of ethical discernment, by going back and forth between the identification of the individual and collective dilemmas carried by the students, and the appropriation of currents of thought and an ethics approach.

⁷ We subscribe to this definition of complexity: “Complexity is not complication ... On the contrary, it makes us lucid and gives us power” (Collectif Paris-Education 2015, 2015, 27). See also the creative action which teaches to live and to support with Hétier (2023).

Transition learning also opens up a space of freedom within which the student can explore and develop his or her own relationship with the world, whatever the cultural, philosophical and/or spiritual tradition they choose. Accompanying this interior life must be done by people trained to accompany without leading – a delicate exercise – and who have followed certifying programs in psychology or coaching for example. For example “Work that reconnects” exercises (see Chap. 18) promote a reconnection of each and everyone to oneself, to others and to nature, in the face of what endangers the common good. They allow the verbal and bodily expression of the various emotions that cross people and groups when faced with transformation challenges.

In summary, transition pedagogy is defined by an educational and philosophical vision which articulates personal commitment and collective transformation, four main pillars which characterize a “Head-heart-body” pedagogy which is transformative, relational, transdisciplinary and rooted in real experience. In terms of content, it is structured around six areas of questioning and six essential skills to achieve an ecological and fair transition. This pedagogy is articulated with the competency based approach which is gradually being implemented in higher education. Its strength is to synthesize in seven levers of implementation pedagogical practices and pre-existing theoretical frameworks but unarticulated in a coherent corpus.

Between the critical inventory drawn up in Chap. 2 and what can be perceived as a theoretical ideal in what we have just presented, the gap can seem insurmountable, dooming transition pedagogy to be applied only in the intimate enclosure of initiatives on the fringes of higher education establishments. However, universities offering a coherent learning experience aligned with transformation goals are already demonstrating that transition pedagogy is not only reserved for initiatives outside the university (see Part 2). These examples can help to imagine a gradual transformation of teaching and courses. They provide avenues for infusing this new pedagogy into existing experimentation spaces despite the restrictive framework with which each teacher must come to terms.

References

- Arnsperger, C. (2023). Education and indigeneity. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Astolfi, J.-P. (2011). *L'erreur, un outil pour enseigner* (10th ed.). ESF éditeur.
- Ball, G. D. S. (1999). Building a sustainable future through transformation. *Futures*, 31, 251–270. [https://doi.org/10.1016/S0016-3287\(98\)00133-5](https://doi.org/10.1016/S0016-3287(98)00133-5)
- Bandura, A. (1971). *Social learning theory*. General Learning Press.
- Biesta, G. (2013). *The beautiful risk of education. Interventions: Education, philosophy, and culture*. Paradigm Publishers.
- Biesta, G. (2017). *The rediscovery of teaching* (1st ed.). Routledge. <https://doi.org/10.4324/9781315617497>
- Brossard Børhaug, F., & Weyringer, S. (2019). Developing critical and empathic capabilities in intercultural education through the VaKE approach. *Intercultural Education*, 30, 1–14. <https://doi.org/10.1080/14675986.2018.1534042>

- Cerletti, A. (2005). La politique du maître ignorant: la leçon de Rancière. *Le Télémaque*, 27, 81. <https://doi.org/10.3917/tele.027.0081>
- Cohen, E. G. (2002). Restructuring the Classroom. In F. Ouellet (Ed.), *Les défis du pluralisme en éducation: essais sur la formation interculturelle* (pp. 141–162). Espaces Interculturels. Saint-Nicolas). Presses de l'Université Laval/L'Harmattan.
- Cohen, E. G., Lotan, R. A., Scarloss, B. A., & Arellano, A. R. (1999). Complex instruction: Equity in cooperative learning classrooms. *Theory Into Practice*, 38, 80–86.
- Collectif Paris-Education 2015. (2015). *Manifeste pour une éducation à la citoyenneté planétaire. Pour vivre ensemble à 10 milliards, changeons l'éducation*. Numéro Spécial Chemin de Traverse. Les Amis de Circée.
- Convivialistes, L. (2020). *Résistance, résonance: apprendre à changer le monde avec Hartmut Rosa*. le Pommier.
- Curnier, D. (2017). *Quel rôle pour l'école dans la transition écologique? Esquisse d'une sociologie politique, environnementale et prospective du curriculum prescrit*. Doctoral thesis in environmental science. University of Lausanne.
- Damasio, A. R. (1995). *L'erreur de Descartes: la raison des émotions*. Odile Jacob.
- Dehaene, S. (2018). *Apprendre! les talents du cerveau, le défi des machines*. Odile Jacob.
- Delesque, G. (2021). Le tiers paysage, comme tiers lieu et tiers temps pédagogique, entre ville et nature. In M.-L. Martinez & C. Popliment (Eds.), *Le tiers comme objet et sujet: Relation éducative, fonction tierce et médiation* (pp. 133–146). ISTE Editions.
- Fabre, M. (2011). *Eduquer pour un monde problématique: la carte et la boussole* (1st ed.). Presses Universitaires de France.
- Federau, A. (2023). What anthropology is appropriate for the Anthropocene? In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Hétier, R. (2023). Learning to survive in the Anthropocene. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Lange, J.-M., & Kebaïli, S. (2019). Penser l'éducation au temps de l'anthropocène: Conditions de possibilités d'une culture de l'engagement. *Éducation et socialisation*. <https://doi.org/10.4000/edso.5674>
- Macy, J., & Brown, M. Y. (2014). *Coming back to life: the updated guide to the work that reconnects*. New Society Publishers.
- Meirieu, P. (2001, November). *Eduquer à l'environnement: pourquoi? comment? presented at the PLANET'ERE 2*. UNESCO.
- Meirieu, P. (2007). *Pédagogie: le devoir de résister*. Collection Pédagogies. Issy-les-Moulineaux: ESF éd.
- Meirieu, P. (2012). *Apprendre oui, mais comment* (23th ed.). ESF éditeur.
- Meirieu, P. (n.d.) Motivation. *Site de Philippe Meirieu*.
- Morizot, B. (2016). *Les diplomates: cohabiter avec les loups sur une autre carte du vivant*. Collection "Domaine Sauvage.". Éditions Wildproject.
- Morizot, B. (2020). *Manières d'être vivant: enquêtes sur la vie à travers nous*. Mondes Sauvages. Actes Sud.
- Orsenna, E. (2014). Curiosité. *Académie française*. October 2.
- Pache, A., Curnier, D., Honoré, É., & Hertig, P. (2016). Penser l'avenir de manière créative: un enjeu central de l'éducation en vue du développement durable. *Revue française de pédagogie* 197. Lyon: ENS Editions: (pp. 51–62). [Cairn.info. https://doi.org/10.4000/rfp.5152](https://doi.org/10.4000/rfp.5152).
- Pépin, C. (2016). *Les vertus de l'échec*. Allary éditions.
- Prouteau, F. (2023). Education for taking responsibility in the Anthropocene in the light of Paul Ricoeur. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Rosa, H. (2010). *Alienation and acceleration: towards a critical theory of late-modern temporality*. NSU Press.
- Rosa, H. (2019). *Resonance: A sociology of the relationship to the world*. Polity Press.

- Roy, P., Pache, A., & Gremaud, B., ed. (2017). La problématisation et les démarches d'investigation scientifique dans le contexte d'une éducation en vue d'un développement durable. *Formation et pratiques d'enseignement en questions*.
- Taddei, F., Becchetti-Bizot, B., Houzel, G., Mainguy, G., & Naes, M.-C. (2018). *Un plan pour co-construire une société apprenante – A l'intelligence collective, la planète reconnaissante*. Ministère du Travail, Ministère de l'Éducation nationale, Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation.
- Wallenhorst, N. (2020). *Une théorie critique pour l'Anthropocène. Doctoral thesis in political science and environmental science* (p. 1). University of Lausanne and University Rennes.
- Wallenhorst, N. (2023a). Critique, utopia and resistance: three functions of a pedagogy of resonance in the Anthropocene. In N. Wallenhorst, R. Hétier, J.-P. Pierron, & C. Wulf (Eds.), *Political education in the Anthropocene*. Springer.
- Wallenhorst, N. (2023b). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.
- Weinberger, A., Patry, J.-L., & Weyringer, S. (2016). Improving professional practice through practice-based research: VaKE (Values and knowledge education) in university-based teacher education. *Vocations and Learning*, 9, 63–84. <https://doi.org/10.1007/s12186-015-9141-4>
- Weyringer, S., Patry, J.-L., & Weinberger, A. (2012). Values and knowledge education: Experiences with teacher trainings. In D. Alt & R. Reingold (Eds.), *Changes in Teachers' Moral Role* (pp. 165–179). SensePublishers. https://doi.org/10.1007/978-94-6091-837-7_14

Chapter 5

Mobilizing Wisdom to Live Sustainably by Way of Education



Herner Saeverot and Glenn-Egil Torgersen

Abstract This chapter is a response to the underlying ideas of the first four chapters of this book. On the one hand, we support the idea that there is a need to mobilize wisdom for a holistic view of education and sustainable way of existing. On the other hand, we highlight some issues that show how education can address some of the crises that humanity and the planet are facing today. This is not a critique of the previous chapters, it is more about highlighting issues that are either absent or not so prominent in them. We are also far from certain that the modern education systems will so easily include a holistic pedagogy of higher education. Incorporated attitudes, commercial thinking based on new public management, and administrations exercising control and management of scientific staff, tell us that the battle can be hard and long lasting.

The previous chapters aim to create space for a transformative education in higher education, i.e., a holistic approach “which addresses not only the intellect but also involves the integration of emotions, corporeality, the sensitive relationship with the living” (p. 6). This is a practical pedagogy whose goal is to mobilize wisdom so that we humans can live more sustainably than we do today: “understood as the goal of moving from a non-sustainable society, greedy in resource consumption, to a sustainable society with low greenhouse gasses emissions, which manages to respect biodiversity and planetary limits, and which integrates this fact into its moral system in search of greater harmony with nature and with cultures” (p. 7). We welcome this long-awaited holistic perspective in education. At the same time, the project goes in one particular direction and it is important not to close the door to other directions on what education can contribute when it comes to mobilizing wisdom for

H. Saeverot (✉)

Western Norway University of Applied Sciences, Bergen, Norway
e-mail: herner.severot@hvl.no

G.-E. Torgersen

University of South-Eastern Norway, Vestfold, Norway

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_5

sustainable existence. We therefore offer several reflections that flesh out the critical analysis of the current situation in higher education – interrelation of threats and their deeper causes. Afterwards, we identify complementary levers for a transition in education – a global curriculum, *Bildung*, reliance on facts resulting from rigorous empirical investigation and the capacity of educational actors to counter dominant pressures.

Wisdom is something that the individual can achieve through reading, experience, trial and error, taking responsibility and so on. You acquire knowledge and insight, but it is not just about having knowledge and insight. It is just as much about using the knowledge and insight that you have acquired, that is, you use it in such a way that you are able to respond appropriately to what new situations require (Saeverot, 2022).

5.1 Recognizing Interconnectedness Threats

In the introduction of this volume, the editors state that we live in the epoch of the Anthropocene, and the reason for that is that “human activity exerts an unbearable pressure on the ecosystems, which can ultimately lead to the destruction of a part of humanity, while already worsening natural and health catastrophes, especially for the most vulnerable” (p. 5). The quote implies two things: (1) The claim of a possible destruction of a part of humanity implies that we are facing what one might call existential threats, that is, a person or thing likely to cause damage or danger to the existence, well-being and survival of humankind (Saeverot & Torgersen, 2022a). (2) The claim that the ecosystem can lead to health catastrophes implies that various threats are interconnected. Although the editors acknowledge these conditions, they primarily focus on the environmental crises. We would rather see that the issue of interconnected threats was even more highlighted.

We say this because a trend today is seemingly to have an eye on existential threats in isolation, with no connection to other threats. A clear example of this is that climate change, and lately the coronavirus pandemic, frequently appear as headline news, with no mention of other related threats. However, different existential threats are interconnected in different ways. The situation may resemble a set of dominoes: if one falls, many follow. For example, the natural world is harmed by the release of environmentally active substances—either over-encouraging life, as excessive nitrogen and phosphorus releases do, or suppressing life, as many harmful synthetic substances do. The point being that the natural world is threatened on many fronts, due to other threats, e.g. climate change, overpopulation, inequality, distortion of truth and egotistical lifestyles (Saeverot, 2022). In other words, several threats can act in parallel and can function synergistically to amplify the effect of each individual threat (Thompson, 2022). As this in turn may be the cause for serious concern for the world’s societies, researchers should demonstrate the connections between the different threats, for example that climate change and environmental pollution of the air, soil, and water may cause serious health

problems. As a consequence of this interconnectedness, different existential threats should be considered equally serious. Although each threat has different degrees of severity, some threats may be more fundamental than others, for example egoism, which is inherent in several threats.

5.2 The Problem with the Current Education System

The editors further point out that the “current environmental crises are also the result of our education system”, specifically higher education. In our view, that is correct. For example, education, including higher education, worldwide is becoming more and more politically-ideologically oriented, due to the intervention of politicians who have been seduced by socio-economic models (e.g. the Human Capital Theory; HCT), organizational principles (e.g. New Public Management; NPM) and globalization ideas (e.g. the Bologna Process; BP), only to name a few examples among many. Thus, there is an emphasis on efficiency of students (HCT), market-oriented education management (NPM) and standardization of higher education (BP). The problem is that such political interferences, which are based on power and control, only make room for finding answers to that which is already known and previously solved. This way of thinking opens up a new element in education; namely, the unforeseen, which in our view should have been more highlighted in these first chapters. Actually, it is conceivable that education may be regarded as an indirect threat to humanity as it may prevent us from being able to solve the problems that we have triggered, in particular problems and threats related to the unforeseen. As we have argued in a recently published volume, there are many reasons to highlight the unforeseen in relation to threats (Saeverot & Torgersen, 2022a). For example, we do know that some of the problems and threats that humankind has caused may unintentionally generate unforeseeable and unpredictable side effects. There is probably also more serious threatening problems that are unforeseeable to us. Moreover, it is well known that history (including threats) does not always repeat itself, as new conditions may come into play, so that a situation or an event in the present and future can take on new forms, perhaps totally different from what has happened in the past. Thus we cannot always learn from history.

This is also the reason why rational organizations for emergency preparedness, where regulations and procedures are believed to prevent and protect society from threats, are far from sufficient. Predetermined regulations and procedures may be relevant when the conditions are predictable and foreseen, but they are more or less useless as solutions when the events are unpredictable and unforeseen, meaning that something occurs relatively unexpectedly and with a relatively low probability or predictability (Torgersen, 2015). In cases where the unforeseen plays a role, one does not really know what kind of knowledge and competencies are needed. Nevertheless, the unforeseen should be part of education precisely because the problems and threats that we cause often include unforeseen elements.

Moreover, if education, and society as a whole, ignore the threats we face, while letting intransigence, narrow-mindedness and inflexibility reign, we will perhaps be on our way to digging our own grave. The causal explanation for this assertion is that we reduce our own ability to meet the challenges of existential threats and other problems in fruitful manners. And when we humans are unable to reduce the threats we have triggered, then the pandemics, the climate disruptions, wars and everything else that threatens us will win. Humanity has lost. The great task of our generation is to reverse this currently apparent trajectory, and the question is how education may play a role in this.

5.3 Meeting the Threats with a Global Curriculum

A holistic practical pedagogy that is promoted in the previous chapters is an important contribution to reverse the currently apparent trajectory. However, in our view it should be added that education can have other roles than a practical pedagogy which is “intended to ‘teach in order to transform’” (p. 6). Education can even have roles that precede a practical pedagogy. Specifically, we are thinking of curriculum theory which is part of the discipline of education. The reason being that curricula can play a crucial role in responding to the challenges of existential threats, not least because curricula can reach out to millions of students. Curricula govern the practical pedagogy, as they are intended to convey principles and factors on how knowledge and learning can be taught. Principles are stated ideas that must permeate every step of the education and learning process. Whereas principles are more general, e.g. view of education, factors are more specific, e.g. freedom and trust. In order to create space for a new practical pedagogy, new curricula should therefore be developed.

We will even propose a global curriculum, which means that the principles and factors will be general yet intended to serve as a guide to designing national and local curricula in different countries and regions (Saeverot & Torgersen, 2022b). Specific institutions in different countries and regions must therefore adapt the guidelines from the global curriculum to suit their circumstances and context by drawing up national and local curricula. At the heart of a global curriculum is a mindset concerning how to avoid causing the problems and existential threats we have caused to date. The global curriculum is neither child-centered nor learning-centered, it is world-centered and tasks education as a system and as a discipline (together with other disciplines) which highlights threats, in an attempt to build global knowledge in order to not only mitigate the threats but also to transform the threats into constructive forces and opportunities. These constructive forces and opportunities can in turn be of existential significance in that they increase the chances of each and every one of us being able to live well in a world worth living in. With the very existence of humankind and the planet under threat from climate change, pandemics, declining biodiversity and so on, a new mindset could turn

these existential threats into a resource and a new force which together can create a more sustainable world.

In this particular context the concept of sustainability is linked to development of human *Bildung*.¹ As such, we see sustainability from an educational perspective and as part of a shift where education is used to transform existential threats into something productive for humanity and the planet. If everyone refuses to compromise, we will never move on, and many of the existential threats will probably escalate. It may therefore be a good idea to encourage a healthy ego—that is, an ego which takes responsibility for itself and for others, including the next generations (Biesta, 2022). Such a responsibility embodies justice and respect for others. The consequence is that everyone must give and take according to their means.

In an idealistic perspective, such a generic curriculum is meant to help build a bridge between nations and areas of interest to the benefit of both individuals and society at large. However, there are also dangers to such an idea of globalization. In that respect, Jürgen Habermas reminds us that “universalism amounts to egalitarian individualism and morality that demands mutual recognition, in the sense of equal respect and reciprocal consideration for everybody” (Borradori, 2009, 42). Not the least, Habermas warns us that the egalitarian principle “can be abused as a particularly insidious form of legitimating since particular interests can hide behind the glimmering façade of reasonable universality” (Borradori, 2009, 42). To avoid falling into that trap, the intention behind the idea of a global curriculum should therefore be the exact opposite of a hidden agenda (e.g. a political agenda). The global curriculum should rather serve as a sparring partner to individuals and communities—whereby local and global considerations can be taken and maintained in both the short and the long term. To achieve this, the existential threats must be neutralized to the greatest possible degree. Identifying these threats and how to neutralize them and turn them into a benign force for building a safe world should be the intention behind the global curriculum.

5.4 Recognizing the Importance of Facts and Evidence

Another point that we want to draw attention to has to do with the editors’ initial description of facts. In their introduction we meet the school board Superintendent Thomas Gradgrind, a character from Charles Dickens’ novel *Hard Times*, first published in 1854. In the novel, Dickens mocks Gradgrind as he crams hard facts into his students’ heads. The readers of *Hard Times* can already sense this in the first sentence of the book: “Now, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else” (Dickens, 2003, 7). The editors of this volume quote Dickens and

¹The German term *Bildung* is untranslatable in English and refers to education processes by way of interactions between the self and the world. The concept of *Bildung* has been part of educational and philosophical thinking in Germany for more than two centuries.

call Gradgrind a “man of facts and calculations” (Dickens, 2003, 10), after which they try to make a point that a fact-based and quantitative approach to the problems, in particular Man’s unbearable pressure on the ecosystems, “is not only insufficient to arouse individual and group power to act, but it can even prevent the mobilization of other fruitful resources” (p. 5). Of course, the editors do not propose to reject facts from education, but it is nevertheless appropriate to emphasize that underestimation of facts can lead us in a direction towards politicized ideology. Thus, the factors of a global curriculum should be based on empirical data, research findings and facts from a range of disciplines. In other words, multiple models and theories should form a backdrop to the global curriculum to guide us as we tackle various kinds of existential threats. This assumes that what the curriculum conveys is as fact-based as it possibly can be.

However, the problem with the different threats we face is that facts and evidence are not unambiguous. While some “truths” can be taken for granted and widely accepted, other “truths” may only exist within given parameters (Szkudlarek, 2022). There are varying degrees of evidence, therefore, which means that we must be very careful not to take everything as read. An acknowledgement of how facts are not always unambiguous should therefore be a prerequisite for a global curriculum, especially if it is to gain global validity. Rather than being founded on an ideological platform, the curriculum should be based on sound reason. Using sound reason, the curriculum can encourage and support climate change action (but not frighten or moralize). Rather than encourage actions that are politically motivated and which could hinder interaction, the motive of the curriculum should be to develop fact-based insights into the significance of the climate on global climate development etc. Development within climate, health, equality etc. to the benefit of the planet requires interaction, and at a global level it involves interaction between nations.

To allow for local and regional adaptation, the global curriculum should not provide explicit and moralistic pointers. Instead, the global curriculum could concretize dilemmas, e.g. free population development versus systematic measures for population reduction. Addressing such dilemmas is challenging, but they should be highlighted in a global curriculum as a starting point for practical policy initiatives. Although there are no textbook solutions to such dilemmas, some solutions can be better than others. The idea is to help identify solutions that can create a more sustainable world in which threats are mitigated and their impact having a lesser impact than if they were to play out unchallenged.

5.5 Transition Pedagogy

Now, let us return to the introduction of this volume. Here we will find an important statement, seen in light of the many challenges in today’s society, plus the importance of pedagogy as a contribution to sustainability and the development of a better society: “‘transition pedagogy’ is faced with the challenge of teaching students by giving them access not only to content but also to ways of thinking and acting in all

fields, in a context of great uncertainty” (p. 6). No one can predict the future, but everyone can be responsible and make themselves and others aware of the present situation. The point is that what we do today is also important for the future. As we see it, this is the strength of transition pedagogy; namely, to enable teachers, schools and students to pause so as to grasp actual situations and actions, and then articulate and convey these situations.

In order to achieve this, both the concept of learning and the concept of knowledge, plus diversity in forms of expression, must be expanded. Elliot Eisner’s pedagogy, related to “The Art of Education” (Eisner, 1985), do emphasize this. This is a holistic concept of learning, not only in relation to communication, but also in relation to *Bildung*, including a focus on values. In practice, this can also be expressed by way of the maxim of the Swiss pedagogue and educational reformer Johann Heinrich Pestalozzi (1746–1827); namely learning through head, heart and hands.

Such learning processes do not happen automatically, especially today where the education system is subject to goal-setting practices, which forces teachers to focus on measurable goals and purposes and evaluations and assessments. Such a policy has consequences for practical pedagogy and the understanding and use of the concept of learning. For example, the model of John Biggs, “constructive alignment” (Biggs & Tang, 2011), which is in line with the Bologna process ideals—whose objective is to create a common European standard for higher education (EHEA)—frame the teacher trainings and educations and the pedagogical professional educations in higher education to work according to principles that constrain the understanding and use of learning and *Bildung*. The focus of this principle is consistency between competence goals, facilitation and evaluation. Both the goals and the forms of evaluation will then govern both the content and how the teaching and supervision should be conducted—in order to satisfy the goals and the actual measurement of the competence (Andersen, 2010). All of this reduce the pedagogical room for maneuver, including experimentation with new didactic methods and practices. The consequence is that this way of thinking and acting will spread further to teacher students, who in turn will spread this to pupils and students in the education system.

Thus, there is a need of counterforces, which must come from the educationists themselves. A clearer scientific basis must be developed, which can challenge the established system, “speak against Rome”, as the Goths did in the Middle Ages when it came to design, architecture, music and mindset (Torgersen et al., [Forthcoming](#)). Against today’s political-ideological pressures on education, the previous chapters articulate in a clear way why there is a need to mobilize wisdom for a holistic view of education and sustainable way of existing. However, we are far from certain that the modern education systems will so easily include a holistic pedagogy of higher education. Incorporated attitudes, commercial thinking based on new public management, and administrations exercising control and management of scientific staff, tell us that the battle can be hard and long lasting.

References

- Andersen, H. L. (2010). »Constructive alignment« og risikoen for en forsimplende universitetspædagogik. *Dansk Universitetspædagogisk Tidsskrift* 5: 30–35.
- Biesta, G. (2022). Holding oneself in the world: Is there a need for good egoism? In H. Saeverot (Ed.), *Meeting the challenges of existential threats through educational innovation: a proposal for an expanded curriculum* (Routledge research in education) (pp. 11–26). Routledge.
- Biggs, J. B., & Tang, C. S.-k. (2011). *Teaching for quality learning at university: what the student does* (SRHE and Open University Press Imprint) (4th ed.). McGraw-Hill, Society for Research into Higher Education & Open University Press.
- Borradori, G. (2009). *Philosophy in a time of terror: Dialogues with Jürgen Habermas and Jacques Derrida*. Nachdr. University of Chicago Press.
- Dickens, C. (2003). *Hard times for these times*. Penguin Classics. Penguin.
- Eisner, E. W. (1985). *The art of educational evaluation: A personal view*. Falmer Press.
- Saeverot, H. (Ed.). (2022). *Meeting the challenges of existential threats through educational innovation: A proposal for an expanded curriculum*. Routledge Research in Education. Routledge.
- Saeverot, H., & Torgersen, G.-E. (2022a). Basic constructs in the science of sustainability education. In H. Saeverot (Ed.), *Meeting the challenges of existential threats through educational innovation: A proposal for an expanded curriculum* (Routledge Research in Education) (pp. 1–10). Routledge.
- Saeverot, H., & Torgersen, G.-E. (2022b). SSE-based frame of reference. Outlines for a global curriculum: Turning existential threats into resources. In H. Saeverot (Ed.), *Meeting the challenges of existential threats through educational innovation: A proposal for an expanded curriculum* (Routledge Research in Education) (pp. 11–26). Routledge.
- Szkudlarek, T. (2022). Ignorance and Truth. In H. Saeverot (Ed.), *Meeting the challenges of existential threats through educational innovation: A proposal for an expanded curriculum* (Routledge research in education) (pp. 196–210). Routledge.
- Thompson, R. (2022). Inequality: Education, opportunity and existential threat. In H. Saeverot (Ed.), *Meeting the challenges of existential threats through educational innovation: A proposal for an expanded curriculum* (Routledge Research in Education) (pp. 127–144). Routledge.
- Torgersen, G. E. (2015). *Pedagogikk for det uforutsette*. Fagbokforlaget.
- Torgersen, G. E., Saeverot, H., & Firing, K.. (Forthcoming). *Gothic Pedagogy. Erasmus+ project, ALL – Artist Led Learning in Higher Education*.

Chapter 6

Learning to Live with Emotions for Transition



Caroline Verzat and Julie Lecoq

Abstract Eco-anxiety affects 75% of young people. What can be done in the classroom to overcome denial and prepare for constructive action? Building on the analysis of the causes and consequences of eco-anxiety (Heeren A et al. On climate anxiety and the threat it may pose to daily life functioning and adaptation: a study among European and African French-speaking participants. (2021)), the chapter explores educational means based on emotional skills (Mikolajczak M et al. *Les compétences émotionnelles*. Psycho Sup. Dunod, Paris, (2014)). Four successive strategies are made explicit: (1) learning to recognize and express one's emotions via reflective exercises based on real-life situations, (2) arousing and then maintaining the desire to act by enabling exciting encounters and projects that make it possible to believe that change is possible, (3) learning to tame the negative emotions aroused by the prospect of collapse through safe spaces for talking, (4) initiating the inner transformation towards sobriety drawing inspiration from spiritual wisdoms advocating love and joy and reconnecting each person to themselves, to others and to non-human earthlings.

6.1 Introduction

Almost every day the media informs us that we have exceeded the planetary limits and that the possibilities for human life on the planet are dangerously diminishing. Can we, as educators, pretend that we have not seen anything, continue to teach the same content and remain insensitive to the increasingly palpable sadness of our young people? Adam McKay's comical yet stunningly insightful film *Don't Look*

C. Verzat (✉)

ESCP Business School, Sustainability Department, Paris, France
e-mail: cverzat@escp.eu

J. Lecoq

Université catholique de Louvain, Louvain-la-Neuve, Belgium

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_6

up confronts us with the stark reality of organized denial in the media, the economic and political world and the possible tragic end of humanity. Is the world of education condemned to the same impotence? What can we do in our classrooms to overcome the denial and prepare young people to act constructively? What if the blockages are more emotional than intellectual? In this chapter, we propose to first decipher the causes and consequences of eco-anxiety. Then, in a second step, we review the means that are within our reach on an emotional level to cultivate hope in our classes and to get through the inevitable fears without becoming discouraged.

6.2 Eco-anxiety

6.2.1 Definition and Manifestations

A growing number of press articles warn of eco-anxiety related to the ecological crisis.¹ The term was first used by journalist Lisa Leff in 1990 in her concern about pollution in the Chesapeake Bay. Eco-anxiety is defined as “a form of pre-traumatic stress, a prospective suffering triggered by projection into the future in connection with ecological awareness”.² It is distinct from the concept of solastalgia proposed by G. Albrecht (2005) to qualify “*the lived experience of a negatively perceived environmental change*”. In contrast to eco-anxiety, which is prospective in nature, solastalgia is retrospective.

Eco-anxiety follows the mechanics of stress, which is a normal adaptive response to danger. The perception of danger activates the limbic brain, which releases stress hormones into the body to give it the energy to flee or fight. The associated emotions of fear and anger reach the cortex with a delay. In a normal (temporary) situation, the mechanism is self-regulating: when the danger is over, the body rests, the production of hormones stops, the negative emotion passes. Stress becomes a problem when the threat persists and exceeds the person’s energy resources. Hormones continue to send warning messages while the body is exhausted. In this case, eco-anxiety loses its adaptive character and plunges the person into a situation of distress that deprives them of any capacity to act. This is known as ‘eco-paralysis’ (2011).

Sutter and Steffan (2020) distinguish three types of eco-anxiety depending on the nature and reality of the perceived ecological threats to the resources available to people.

- Somatic fears are related to primary physical needs (eating, drinking or breathing) or secondary needs (protection, heating, care). They activate the real or anticipated fear (anxiety) of lacking resources.

¹A search on the term “eco-anxiety” in the Europresse database (14,000 titles) shows 1 occurrence in 2017, 4 in 2018, 142 in 2019, 143 in 2020, 328 in 2021.

²This definition is proposed by the psychotherapist Schmeber (n.d.) on her website.

- Psychic scares are more or less serious mental disorders depending on the profile of the person and the information available to them. The anticipation of a coming collapse can make people anxious without visualizing an immediate danger. People sleep less well, feel sad or depressed.
- Noetic fears correspond to existential or metaphysical anxieties linked to the upheaval of the relationship to the world (fear of the end of the world, questioning of deep beliefs on the meaning of existence). They activate the life and death drives (Eros/Thanatos) which, according to Freud, fight in our unconscious. One can be overwhelmed by death anxiety, try to contain it by obtaining information (which maintains the anxiety) or repress it (denial).

Sutter and Steffan (2020) add that the mechanics of stress are reinforced by the fact that the ecological crisis calls into question the deep beliefs that structure our behavior and our vision of the world. The prospect of a resource collapse challenges the belief in the sustainability of the current consumption system based on technoscientific progress and infinite growth. To challenge this dominant belief would risk excluding us from our group and losing the security it offers us. We are then confronted with an internal contradiction (or cognitive dissonance) between our consumption behavior related to our needs for well-being and security and the disturbing information about the finitude of resources. Festinger's (1957) theory of cognitive dissonance explains that we seek to reduce the psychological tension it causes, either by changing our behavior, by adjusting our attitudes to justify our behavior (which corresponds to denial), or by transforming our beliefs through the acquisition of new knowledge.

6.2.2 *Unequal Impact*

While the prospect of collapse concerns us all, awareness of it varies among the population. One can hypothesize that denial is more prevalent among privileged populations, who have much to lose, than among poor populations for whom vulnerability is an everyday experience. The greatest awareness is among people who are already experiencing the consequences of climate change in their lives on a long-term basis. In regions of the world where global warming is no longer a threat but a reality, eco-anxiety affects 95% of the population (Gibson et al., 2020).

Among the informed but still relatively unaffected populations, eco-anxiety primarily affects young people under 40 and women (Heeren et al., 2021). The latter suffer in many countries from a lack of power and limited access to resources of which they could be deprived. As for young people, 75% see their future as doomed: What studies should they choose in an overheated world? What profession will be useful? Should they opt for long studies when time is "running out"?³

³ See (Miller, 2022).

In the study by Heeren et al. (2021), the researchers showed a significant correlation between the degree of eco-anxiety and behavioral commitment to sustainable development ... up to a certain threshold. The 10% of participants with the highest scores showed a significant impairment of their daily functioning but also an inhibition of any environmentally friendly behavior.

How then can we educate to inform and overcome denial, transforming behavior in favor of the transition without triggering eco-paralysis? Before discussing educational practices, a diversion through the therapeutic care of those most affected by eco-anxiety is enlightening in order to understand the possible levers of support.

6.2.3 *What Therapists Tell Us*

Baudon and Jachens (2021) have listed all the eco-anxiety support practices⁴ (all therapeutic schools combined) and advocate a holistic approach in two stages:

A first stage focuses on emotional work to promote inner resilience. This first facet of the intervention brings together all the practices aimed at creating a safe space for the expression and regulation of emotions (e.g. developing a sense of realistic hope, working on loss through mourning rituals, encouraging artistic expression, aesthetic emotions, dreams, etc.).

A second stage focuses on the creation of links and aims to connect the person to a group, to nature, to a project, to something greater than themselves. This second facet of intervention proposes a repositioning in a network of belonging, an experience of communion with an experience that goes beyond the individual.

These results reveal that between eco-anxiety and action, there are stages that seem to be essential if we want to respond to the extent of the identity and systemic change at stake.

6.3 Emotions at the Heart of Transition Pedagogy

As we have seen, the concept of emotion appears to be central to transition support both in the inner resilience phase and in the connection and commitment phases. This is not surprising. Although long considered suspect by the scientific community because of its apparent opposition to reason, emotion is now recognized as a major concept whose role is central in the most intimate spheres of human life (attachment relationships, physical and mental health, decision-making, etc.) as well as in the understanding of collective dynamics, the production of meaning and the construction of culture (Rimé, 2020).

⁴From a diagnostic point of view, eco-anxiety is not considered as a disorder but as an indicator, an adaptive and potentially mobilizing spark.

Emotion signals a ‘flaw’ in the person’s anticipation systems, a gap detected between certain environmental conditions and certain individual aspirations (Rimé, 2009). This emotional response is experienced in the body (it has physiological and expressive manifestations), it induces a cognitive and attentional upheaval (it comes to the fore), it is accompanied by a tendency to act and a propensity to share with others (social sharing and emotional contagion).

This definition helps us to understand why emotion is an essential springboard of Pestalozzi’s head-hand-heart pedagogy and links the three terms (Brühlmeier, 2010). This is explicitly claimed in sustainability education (Singleton, 2015). In the following passages, we explore some emotion-centered pedagogical levers for transition.

6.3.1 Start by Learning to Recognize and Express your Emotions

Accurately perceiving and naming emotions are the first steps in emotional intelligence. For Mikolajczak et al. (2014), this is a skill that does not come naturally. One must learn to (1) identify the emotion in a situation (make it conscious, name it), (2) understand it (identify the underlying need), (3) express it in an acceptable way (speak in “I”), (4) use it consciously so as not to fall into the trap of automatisms and impulsive reactions, and finally (5) regulate it, i.e. cognitively reassessing the situation and defusing dysfunctional beliefs. All the emotions associated with eco-anxiety must therefore be made aware of and associated with the underlying needs before the associated beliefs and value hierarchies can be transformed.

Acquiring these skills requires practical training based on a reflective exercise based on real-life situations. According to Burkitt (2012), emotions are indeed the core of any reflective exercise, as they color all the social relationships experienced, which influence our perception of ourselves (who we like, who we identify with, of what we are proud or ashamed), our actions (the hope, curiosity or anger that motivate us vs. the boredom and feelings of powerlessness that demotivate us) and our view of the world (what we attribute value to).

It is therefore appropriate to offer students stimulating encounters and activities, then to offer them a space for reflection to become aware of the emotions they have experienced, first individually, and then to share them. As this practice is rarely familiar, it is necessary to organize and accompany the exercise, i.e. to make them want to do it, to provide them with tools,⁵ to create a safe space and to offer tactful help to those who have the most difficulty.

⁵We can refer here to the chapter by Lecoq and Verzat (2021) which proposes several tools, to the activities indicated in the part “Combining reasoning, emotions and mobilization of values” in the fourth chapter of the present book, to the part “Academic implementation” in the chapter of Michel Maxime Egger in the present book, or to the online resources proposed by J. Macy and Brown (2014), (<https://workthatreconnects.org/resources>)

6.3.2 *Experience Exciting Encounters and Activities*

A first step is to create desire. Based on the testimonies from former Schumacher College students (Kumar et al., 2021) and student feedback from a seminar dedicated to transition (Verzat et al., 2021), we have identified that the starting point for a change of perspective is systematically the meeting of inspiring people who actively contribute to the transition and with whom students can identify. These charismatic leaders make it possible to believe that change is possible. *“Interviews were the most interesting part of the project for me because it was really becoming concrete. We could finally see how things could really move in favor of the environment”*. *“[I]t was hard not to immediately feel connected to this man, for he is someone whose experience of life is a moment-to-moment relatedness with everyone around him”*.

As Bruner (1990) already mentioned, narration and storytelling play a major role in emotional circumstances. For the French writer Alain Damasio, society has an ethical duty to put into narrative “concrete, achievable, desirable utopias, to give directions” (de Hesselle, 2019) because *“There is no change without a dream, just as there is no dream without hope”* to quote Paolo Freire (1997). The creation of original, poetic or aesthetically appealing prospective narratives can thus recreate positive emotional spaces that will act as an upward spiral and open up a whole range of possibilities for action that negative emotions do not allow (Garland et al., 2010).

Once the desire is created, students can engage in authentic projects with real conflicts and issues. Observing the ineffectiveness of a seminar based on information and debate on sustainability among his Indian students who still believe in growth as the only way out of poverty, Shrivastava (2010) pleads for a holistic pedagogy of “passion for sustainability”. It integrates intellectual education with physical, emotional and spiritual training for true personal transformation. The 15-week project he is proposing consists of organizing and running a triathlon by and for all students, regardless of their physical level. Comments from students speak of a transformative learning process indicating emotional growth: *“I never imagined myself doing and along with came a lot of fear and anxiety. Training for the triathlon however helped me to overcome the feeling of boredom... It gave me reason to exercise, a goal to accomplish”*; *“[t]hroughout the semester I worked on developing my ‘inner eye’ or my ‘inner observer self’ which allows me to step out of my own body and mind and observe without thought the movement and rhythms of mind and body”*.

The personal transformation of young people for transition finds its highest fulfillment when the projects aim to serve an external community (service learning) because they engage in ethical questioning by bringing to life conflicts of values between concern for the self and for others. Larsen (2017) explains that emotional expression then goes beyond the role of a vehicle for inner transformation via reflective exercise after the event. Here, emotions in action form the core of a transformation of self-perception, agency and values. The students learn empathy and

compassion, but also frustration in the face of the difficulty of being recognized in the community and being legitimate in action. The concrete experience of this “emotional rollercoaster” triggers an awareness of privilege, invites an equalization of power and a revision of the hierarchy of values. Furthermore, the requirement to work not *for* the oppressed but *with* them (Freire, 1974) enables them to overcome fear by becoming aware of oppression and then to engage in a concrete and collectively reflected practice of transformation. The example of the Indian lawyer Afroz Shah⁶ who enlisted 200,000 citizens and 160,000 students to clean up Versova beach in Bombay over a period of 6 years achieves three goals at once: ecological restoration, inner change and solidarity in action.

The prospect of collapse opens up such a negative emotional horizon that it needs to be accompanied by hopeful projects. However, even the most exciting projects have their share of negative emotions.

6.3.3 *Learning to Cope with Negative Emotions*

When it occurs, negative emotion cracks the vision of the world, shakes self-esteem, destabilizes. This vulnerability explains why this personal confrontation can be difficult and its evocation to others even more so. Research on the social sharing of negative emotions has shown that we do not share our negative emotions with just anyone. We turn first to our attachment figures. These figures vary according to age: for a child, it is their parents, an adolescent will confide in their best friends, an adult in their spouse (Rimé, 2009). Other research (e.g. Mikulincer and Shaver (2007)) has shown that we do not all share our emotions with equal ease either. The more secure the attachment style, the easier the exercise will be.

In a group, negative emotions can only be mobilized in a secure setting and it is therefore necessary to take time to establish a climate of trust. When the educator notices that this trust is not sufficient, it is possible to use framed methods of expression such as role play or forum theater (Boal, 2007). These methods have the double advantage of being both clearly marked out, and therefore containing, but also of taking advantage of the distance inherent in the use of another symbolic universe: the game. It is not real, we play a role, we shift, it is us but it is not us. Little by little the emotions can be tamed. They can also evolve. For example, fear and guilt, once expressed, can be the object of cognitive work, likely to make them evolve towards more mobilizing and motivating emotions such as anger for example.

Environmentalist mobilization relies precisely on emotional work aimed at reducing the cognitive dissonance of activists confronted with situations that they deem unacceptable in relation to their values. The feelings of dread and guilt shared within the group, which is united by common values, are transformed into anger, which leads to a commitment to action (Semal, 2019).

⁶ See Afroz Shah's website, (<https://afrozshahfoundation.org/>)

The taming of negative emotions related to the prospect of collapse can also be done through mindfulness meditation exercises, philosophy or spiritual techniques that have been tried and tested for thousands of years. These practices help to become aware of the internal mechanisms of stress, to put distance between the feelings and the inner self. They do not in themselves provide the solutions to face the dangers, but help to restore the vital energy to live with eco-anxiety and to engage in the transition within our means. Spiritual practices (religious or not) are also recommended to positively connect us to greater than ourselves.

6.3.4 Love and Joy to Connect Oneself to the Bigger Picture

The prospect of collapse challenges the dominant norms in the West that justify the exploitation of resources to maximize the interest of homo-economicus, individual decision-makers and consumers. The search for immediate pleasure and absolute control must give way to the search for the long-term common good and the acceptance of limits. The desire to give up is not obvious. Such a change of attitude is encouraged by most spiritual wisdoms, whose key words are love and joy, which reconnect us to ourselves, to others and to life. Alternative ecological educational communities propose a process of inner transformation based on this wisdom.

The example of Schumacher College, founded in 1991 on the head-hands-heart pedagogy, is particularly inspiring. Significantly, the emotions mobilized are mainly those of happy passion: joy, love, flow⁷ and awe.⁸ As Fig. 6.1 shows, they are central: they feed people's vital energy, connect them spiritually to nature, inspire an optimistic narrative based on a holistic scientific reading that is not separate from the living, and fuel creativity and ongoing experimentation within a community of service that fully adheres to the founders' vision. The whole system is particularly coherent. Each of the links between the elements is meaningful and contributes to the dual goal of profoundly transforming people and contributing to systemic change in education for the protection of life (Sterling et al., 2018).

This model embodies the Haidt (2010) hive concept and nurtures the vital engagement of people: "One of the great challenges of modernity is that we must now find hives for ourselves. We can't create them on our own any more than we can create a language on our own. But the view from positive psychology is that we can find meaning in life if we take advantage of our capacity for vital engagement and bind ourselves to projects and people. We can co-create, or join into, something larger than ourselves. We can join others in pursuit of common goals, nested in shared traditions and common values." The testimonies from former students and teachers who have passed through Schumacher show that they have spread by

⁷Csikszentmihalyi's (2014) flow refers to a state of cognitive absorption, characterized by total attention that focuses all cognitive resources to the point that the notion of time disappears.

⁸The emotion of awe combines fear and wonder.

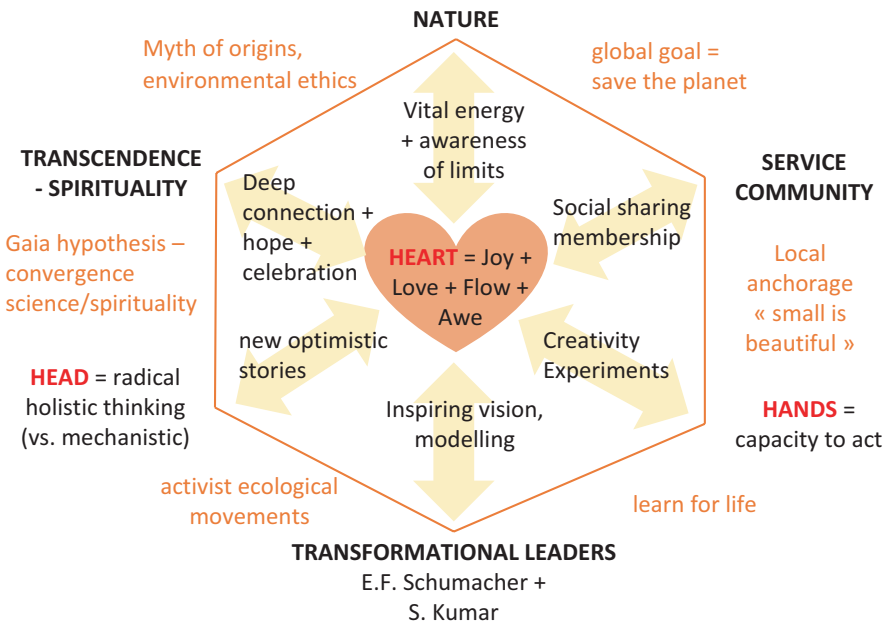


Fig. 6.1 Model of the educational hive based on the Schumacher College example

creating new hives in other countries or regenerated their practices in the light of head-hands-heart pedagogy. We can hope that immersion in such hives will help to pollinate these values within our global education system in the service of transition.

6.4 Conclusion

The increasingly unquestionable rise in ecological perils confronts us with a major educational challenge. Although the facts and causes are now widely known, the necessary transformation of our lifestyles and our political and economic priorities has stalled. We need to respond and education has a great responsibility to prepare minds and engage in new practices. However, the driving force behind human engagement is not intellectual but emotional.

The challenge is therefore to know what place we want to give to emotions and which ones we want to cultivate in our teaching. G. Albrecht (2020) suggests that positive emotions must fight negative emotions and this war will determine the fate of humanity on earth. On the one hand, eco-anxiety is gaining ground, becoming more widespread among young people, women and in countries already exposed to climate change. It can mobilize for action if transformed into mobilizing anger, but it more often feeds an attitude of denial and can also paralyze if the stress is excessive. On the other hand, enthusiasm, joy and love restore our vital energy and can

inspire stories that respect life in all its forms and practices that serve the common good.

Certainly, by opening up more to the affective dimension, our role and our habitus as teachers will transform the magisterial posture into that of catalyst, mentor, critical friend, sometimes provocative, but above all, full member of the learning group. There is no hope that it will be a smooth ride! But rather than lamenting, procrastinating or rambling, don't we have everything to gain by listening to our own emotions as educators in order to deploy the creative energy of new projects in our classrooms?

References

- Albrecht, G. (2005). 'Solastalgia': A new concept in health and identity. *PAN: Philosophy activism nature* (pp. 44–59). Monash University.
- Albrecht, G. A. (2020). Negating Solastalgia: An emotional revolution from the anthropocene to the symbiocene. *American Imago*, 77, 9–30. <https://doi.org/10.1353/aim.2020.0001>
- Baudon, P., & Jachens, L. (2021). A scoping review of interventions for the treatment of eco-anxiety. *International Journal of Environmental Research and Public Health*, 18, 9636. <https://doi.org/10.3390/ijerph18189636>
- Boal, A. (2007). *Théâtre de l'opprime*. (D. Lémann, Trans.). La Découverte/Poche.
- Brühlmeier, A. (2010). *Head, heart and hand: Education in the spirit of Pestalozzi*. Sophia Books.
- Bruner, J. (1990). *Acts of meaning* (1st ed.). Harvard University Press.
- Burkitt, I. (2012). Emotional reflexivity: Feeling, emotion and imagination in reflexive dialogues. *Sociology*, 46, 458–472. <https://doi.org/10.1177/0038038511422587>
- Csikszentmihalyi, M. (2014). *Flow and the foundations of positive psychology: The collected works of Mihaly Csikszentmihalyi* (1st ed.). Springer Netherlands. <https://doi.org/10.1007/978-94-017-9088-8>
- Hesselle, L. de. (2019, May 7). Nous avons le devoir éthique de mobiliser des affects positifs, le désir, l'envie. *Imagine*.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Stanford University Press.
- Freire, P. (1974). *Pédagogie de l'opprimé*. Maspero.
- Freire, P. (1997). *Pedagogia da Esperança: um reencontro com a pedagogia do oprimido* (4th ed.). Paz e Terra.
- Garland, E. L., Fredrickson, B., Kring, A. M., Johnson, D. P., Meyer, P. S., & Penn, D. L. (2010). Upward spirals of positive emotions counter downward spirals of negativity: Insights from the broaden-and-build theory and affective neuroscience on the treatment of emotion dysfunctions and deficits in psychopathology. *Clinical Psychology Review*, 30, 849–864. <https://doi.org/10.1016/j.cpr.2010.03.002>
- Gibson, K. E., Barnett, J., Haslam, N., & Kaplan, I. (2020). The mental health impacts of climate change: Findings from a Pacific Island atoll nation. *Journal of Anxiety Disorders*, 73, 102237. <https://doi.org/10.1016/j.janxdis.2020.102237>
- Haidt, J. (2010). Finding meaning in vital engagement and good hives. (Commentary on Susan Wolf's 2007 Tanner Lectures at Princeton). In S. Wolf (Ed.), *Meaning in life, and why it matters* (pp. 92–101). Princeton University Press.
- Heeren, A., Mouguia-Daouda, C., & Contreras, A. (2021). *On climate anxiety and the threat it may pose to daily life functioning and adaptation: A study among European and African French-speaking participants*. Preprint. PsyArXiv. <https://doi.org/10.31234/osf.io/a69wp>.
- Kumar, S., Cenkl, P., Bichon, A., & Spatareanu, D. (Eds.). (2021). *Transformative learning: reflections on 30 years of head, heart, and hands at Schumacher College*. New Society Publishers.

- Larsen, M. A. (2017). International service-learning: Rethinking the role of emotions. *Journal of Experiential Education*, 40, 279–294. <https://doi.org/10.1177/1053825917706379>
- Lecoq, J., & Verzat, C. (2021). Les émotions au coeur de l'accompagnement. In B. Raucourt, C. Verzat, C. Jacmot, & C. Van Nieuwenhoven (Eds.), *Accompagner les étudiants: rôles de l'enseignant, dispositifs et mises en oeuvre* (Pédagogies en développement) (2nd ed., pp. 109–126). De Boeck.
- Macy, J., & Brown, M. Y. (2014). *Coming back to life: The updated guide to the work that reconnects*. New Society Publishers.
- Mikolajczak, Moïra, Jordi Quoidbach, Ilios Kotsou, and Delphine Nélis. 2014. *Les compétences émotionnelles*. Psycho Sup. : Dunod.
- Mikulincer, M., & Shaver, P. R. (2007). Boosting attachment security to promote mental health, prosocial values, and inter-group tolerance. *Psychological Inquiry*, 18, 139–156. <https://doi.org/10.1080/10478400701512646>
- Miller, M. (2022, January 4). L'écoanxiété, une crise existentielle pour certains adolescents. *Le Monde*.
- Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. *Emotion Review*, 1, 60–85. <https://doi.org/10.1177/1754073908097189>
- Rimé, B. (2020). Emotions at the service of cultural construction. *Emotion Review*, 12, 65–78. <https://doi.org/10.1177/1754073919876036>
- Schmeber, C. (n.d.). Bienvenue à vous sur ce site! *Éco-anxiété, solastalgie, collapsalgie/effondralgie...*
- Semal, L. (2019). *Face à l'effondrement: militer à l'ombre des catastrophes. L'écologie En Questions*. Puf.
- Shrivastava, P. (2010). Pedagogy of Passion for Sustainability. In *Academy of management learning & education* 9. *Academy of Management* (pp. 443–455). JSTOR.
- Singleton, J. (2015). Head, heart and hands model for transformative learning: Place as context for changing sustainability values. *Journal of Sustainability Education*, 9.
- Sterling, S., Dawson, J., & Warwick, P. (2018). Transforming sustainability education at the creative edge of the mainstream: A case study of Schumacher College. *Journal of Transformative Education*, 16, 323–343. <https://doi.org/10.1177/1541344618784375>
- Sutter, P.-É., & Steffan, L. (2020). *N'ayez pas peur du collapse!* Desclée de Brouwer.
- Verzat, C., Teglborg, A.-C., & Acquier, A. (2021). *From awareness to engagement: how can impact pedagogy educate future sustainable leaders?* 2021-54-EN. ESCP Impact Paper. ESCP.

Chapter 7

Taking Into Account Cognitive Biases to Implement an Adapted Transition Pedagogy: Interview with Thibaud Griessinger



Cécile Renouard, Ronan Le Cornec, Frédérique Brossard Børhaug, Perrine Vandecastelle, Elaine Vetsel, and Thibaud Griessinger

Interviewers: Cécile Renouard, Ronan Le Cornec, Frédérique Brossard Børhaug, Perrine Vandecastelle, Elaine Vetsel
Interviewee: Thibaud Griessinger

Online interview realized on April 17, 2020

Abstract Thibaud Griessinger, a doctor in cognitive sciences, is interested in the challenges of ecological and social transition, complex thought, collective intelligence and the sharing of the knowledge of his field. In this interview he explains the different ways cognitive biases can be understood and how it is less a bad interpretation rather than a useful cognitive tool which can sometimes make mistakes. He goes on with outlining the benefits of good awareness of cognitive biases but also with warning on the individualizing focus it has. He then details a few methods they tried to make people realize how cognitive biases work and the importance of the

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

R. Le Cornec

University of Rennes 1, Rennes, France

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

P. Vandecastelle · E. Vetsel

Campus de la Transition, Forges, France

T. Griessinger

ACTE Lab, Paris, France

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_7

collective part in this process. He explains how cognitive sciences attempt to search for universal commonalities and what links there are with evolution and gender. Finally he shows that cognitive sciences raise questions on agency and ethics.

Campus de la Transition: As part of the FORTES project, we are working on books on “Higher education at a time of ecological and social transition”. The work will be made up of two parts: a common base of knowledge and skills that every student in higher education should acquire (the Great Transition Handbook) and small books by discipline to go into more detail on what can be considered essential on these issues. The objective is to work in an inter and transdisciplinary way in order to give students, teachers and researchers the means to act with a view to training in transformation. A book is devoted to pedagogical aspects and transition pedagogies. This is why we wanted to ask you about your experience and your expertise in relation to the problems of cognitive biases to feed this reflection on the pedagogies adapted to the transition. To begin, could you describe your background?

Thibaud Griessinger: With pleasure. I am a doctor in cognitive sciences. I have a background in biology, psychology and neuroscience with a strong interest in social interactions. For 3 years, I have been interested in the challenges of ecological and social transition in the broad sense and a few months ago I created a consulting and research group, ACTE Lab (acronym for Behavioral Approach to Ecological Transition). We seek to link academic research in cognitive sciences with the field and territories in order to transfer the knowledge we have about the human mind, behaviors and social dynamics to territories and transition actors who do not necessarily have access to this information. It is a question of facilitating transformations in one direction, and in the opposite direction, of evoking the interactions and the problems encountered with different actors in academic or research laboratories. Our goal is to be useful for action on the ground.

At the same time, I am part of a Chiasma collective – co-founded by Albert Moukheiber, a friend – where I am in charge of reflection on complex thought and issues related to collective intelligence. We study how individuals form their opinions taking into account cognitive biases.

Campus de la Transition: Basically, what should be transmitted on the question of cognitive biases in relation to transition issues and to strengthen the capacity of individuals to act?

Thibaud Griessinger: The issue of cognitive bias can be seen in different ways. Generally speaking, cognitive biases are considered to be distortions of the information received that can lead to errors of judgment. They take different forms (*cf.* the cognitive bias codex), from optimism bias, i.e. the temptation to see the future as something bright and more optimistic than it tends to be, to negativity bias, where we only see what could go wrong... They can be caused by information simplification (due to information overload), misinterpretation (due to information that is ambiguous in nature), too rapid decision-making (due to not having all the information), or distortions of the past (due to memories, recollections and analogies that do not necessarily correspond to what actually happened). However, one of the strategies is to use this knowledge to try to adjust and avoid the systematic errors that may occur in our perception and judgment, in order to have a more rational behavior

towards reality. This is called critical thinking education, where we try to make people aware of and prevent the biases that can come from them and that can lead to doing things that are harmful to them or to others.

Now, there are several avenues of reflection to be taken into account: on the one hand, this is a field of investigation that is still in progress. We have no scientific proof that once this field is taught, individuals will be able to extract themselves from it or abstract themselves from it to make a more critical judgment. We therefore conceive them as mental shortcuts or properties of our mind that would necessarily lead to errors, with the idea of “deviance” from optimal and rational behavior that would give us complete satisfaction. However, this idea is highly contested because what we call bias depends on what we consider to be optimal behavior, which is neither obvious nor general. Take the example of drugs used in medicine. The scientific optimum is to prescribe only the most effective drugs with the best chance of success in terms of survival probability. However, we can see that this is not necessarily the case, as the doctor may have a different view of the game, particularly by taking into account the way in which the treatment will be received by the patient (side effects, treatment on the patient’s psychology, etc.), which has nothing to do with the “statistical optimum”. This questions the notion of “being biased” and being biased against what. A bias is always relative to something that would be optimal to do. If you consider that what is optimal for a doctor is to prescribe drugs that correspond to the best survival probabilities then there is a bias. If, on the other hand, you consider that his role is to take the patient into account, to be empathetic, and to make sure that he is understood, then the mechanism by which one will judge whether decisions are biased or not is different. So it is difficult to identify systematic biases, especially if the decisions are complex issues.

Another example I could give you is the issue of the Covid-19 epidemic and why the French went out to the parks the day after the lockdown was announced. Some articles claimed that this was due to an optimism bias. However, it was not necessarily irrational for these people to go outside, knowing the inconsistency of the information that was given, that the event was unique and that there was no reference point on which citizens could rely. It all depends on the optimal: if the optimal was to get everyone to go home with the announcement of the lockdown, then citizens were indeed biased towards this optimal. However, if the optimal was that citizens would comply with the lockdown after a certain period of time, then this did not seem so aberrant. It all depends on the prism through which one perceives what is optimal to do and on the observer. There are as many biases as there are deviations.

Campus de la Transition: We tend to see cognitive biases as something negative, but they are also an adaptation that has proved to be very effective for making decisions in emergency situations, in particular for escaping from a predator in a hostile world without having to analyze all the parameters. This raises the question of the place of intuition in science.

Thibaud Griessinger: You have to bear in mind that these biases are not errors but properties of our cognition, which has evolved, refined and adapted to an environment very different from the one we know today. The environment was very hostile and our survival depended on these groups and our ability to organize ourselves, to

ensure our survival and to manage resources. Our brains have adapted to that environment, which is quite good, but the environment has changed so much that there is now a mismatch between what our cognition has been adapted to and what is actually happening around us, which can lead to maladaptive behavior. These are the heuristics of thought. Knowing how to discriminate where information comes from, who is giving it, what information is relevant to me in the context and how to interpret it is a very heavy task. Even computers are not capable of handling this plurality. Our brain is a very powerful tool and sometimes there are mistakes, but these are rare compared to the rest. I would also like to stress that these biases are studied in the laboratory, in a context where we put people in a very specific situation to study the properties, limits and constraints of our cognition. In a way, we are forcing the error, whereas in everyday life, it is not said that these biases come into play as much.

There is also a dimension of individual responsibility that can be problematic. If we make the link with the climate, we can say that cognitive biases are to cognition what eco-gestures are to the environment. With cognitive biases, we focus on the informational demand and the citizen who receives the information, who has to deal with those who give it without looking at the one who gives it; just as the attention is focused on those who consume and not those who produce in the framework of eco-gestures. I mean by this that biases are a rather reductive way of looking at the human mind, a way that is not neutral, that is individualizing, empowering and not representative of the richness of our cognition.

On the other hand, we can wonder if this knowledge, once acquired, will actually allow us to make better decisions and better adjust ourselves. It's an open question and I think it's important because looking at your own mental states to be able to adjust them and understand how they work allows you to be empathetic towards others in a decision-making context. It also allows us to be more indulgent towards ourselves by accepting that we do not have a perfect knowledge of our environment. A mistake is a learning process. We have the right not to have a perfect knowledge of what surrounds us and it is a question of proposing a framework of thought which can facilitate our learning. We then reach two extremes: either we consider that all citizens are irrational and that this is very negative, or we reach a form of neuro-wisdom where we consider that everything is possible for those who want it. In my opinion, you have to find an in-between that can be calibrated thanks to the keys to understanding the brain and psychology.

Campus de la Transition: Shouldn't we be concerned regarding the use of cognitive biases and the possible manipulation that could occur? One could feel manipulated when faced with someone who knows the subject and who could possibly exploit it to try to convince the other person through proselytism (typically the case of neuromarketing or the consent factory, for example). Shouldn't we find a balance that requires the mobilization of significant ethics? According to you, what is the place of ethics in relation to the use of cognitive biases in education?

Thibaud Griessinger: Giving these keys to citizens means giving them the means to be aware of how their psychology can be used without their knowledge. I don't see how giving information about the properties of their mind can give the

impression that they are being manipulated. On the contrary, it is the opposite. If I tell you that your intention is limited and that you are going to give importance to certain information more than others and that this mechanism can be used to convey false information by people who have this knowledge, then I don't see how I'm manipulating you because I'm giving you keys so that you can become aware of how you can be used or the properties of your mind to make you go in the direction they want you to go. It's mental hygiene. As soon as you are aware of these properties, you can deal with them and have a greater form of freedom.

In terms of academic integrity, I know what you mean, but the debates we organize are quite well received. Educating critical thinking by approaching things through cognitive biases is something that is aimed at people who have the cognitive capacity to look at themselves critically. It is very difficult for a child, especially before adolescence, to look at his or her own cognition from the outside and the exercises have to be adapted. For those who are capable of looking at these biases, then from the moment we give this information and name the concepts, it is easier for individuals to appropriate them, to look at them and to analyze them.

Campus de la Transition: Within the Chiasma collective, do you have tools/practices/exercises that you like to carry out to raise awareness of our cognitive biases? Do you have any fundamental references to pass on?

Thibaud Griessinger: We are trying to set up a small laboratory to develop these tools.

From experience, what works well is the observation posture in the field. We start from a given situation with two or three biases and we bounce around by analogy, letting people react. This allows participants to understand the limits of each concept and to see that it is not something categorical or compartmentalized. The concepts are nuanced. This raises the question of the universality (and particularity) of our cognition – new disciplines have emerged such as cognitive anthropology for example. Henrich showed that most of the people mobilized to study biases belonged to the same social category, the WEIRD (for *Western, Educated, Industrial, Rich, Democratic*) and that finally we had specific knowledge of cognition linked to a single category of people. From then on, we began to wonder if we could observe similarities for other populations in order to see if there were invariants of the human condition or not. In the debates, we often come to questions of philosophy of mind, difficulty in prospecting, the role of emotions in decision-making and we purposely let the discussion unfold in this way.

Another tool we use a lot is the debate where we put the participants directly in situations where biases are likely to emerge and then let people experiment. Typically, we ask open-ended questions that do not wait for an answer (e.g. can radicalism lead to moderation?). We force both teams to adopt a position towards each other and observe how heuristics/sophisms emerge and shape the debate. We also look at how actors take up and modify arguments, transform perceptions and defend their position. The idea is to introduce the notion of motivated reasoning and to see the positions of each person: are we there to defend a point of view no matter what, to try to better understand the world together, to comfort each other, to reach a point of truth, do I consider the other person as an opponent or a partner...? If the

motivations are not the same, then there are alignment problems and tensions can arise. Many biases can then arise. It is usually possible to make the different participants feel the fallacious sides that can come up. You can find these reflection tools on the ACTE Lab or Chiasma website if you wish!

Campus de la Transition: Behind your work, there is this logic of helping to get into a dynamic with an ethical goal of achieving better communication or even contributing to real societal transformations. It is a question of adopting an ethical posture thanks to the study of biases.

Also, I was wondering, is there a gender aspect that has been studied? Without being caricatural, are there trends between men and women in terms of listening or openness to discussion, for example? Because from experience, there are notable differences...

Thibaud Griessinger: On the first question, totally, there are psychological concepts like the internal or external locus of control. When we face an internal locus of control, we will put this control "in us" rather than "on us" and everything will depend on our capacity to change or act on the world. In ecology, an internal locus of control consists of considering that if everyone makes decisions and behaves well, then there will be a strong societal transformation. Conversely, an external locus of control consists of considering that we have no control, everything is external (and only external) to us. This leads to a position of powerlessness where we think that whatever happens, we can't do anything about it. It is up to other systems to change. The right position between the two is Stoic: it is to say that we can look for what we have control over and ignore what we don't. This brings us to the notion of agency, that is, our capacity to act as an agent, a notion discussed in philosophy of mind. Some philosophers of mind aim to reflect on the principles of consciousness, agency and emotions, while others, in the field of cognitive sciences, reflect on these concepts so that they can be tested experimentally. There is therefore a strong link between philosophy and cognitive sciences because the latter is the program that makes it possible to link philosophy and psychology.

As far as the gender question is concerned, it is very difficult to estimate. Questioning is never scientifically neutral, even if the evidence can be. The questions are very dependent on the person asking them, but it is possible to agree on a methodology for testing the hypothesis or questioning the subject. In relation to gender issues, studies are being done on the amount of gray matter, mathematical and other abilities between men and women. What is very difficult is to distinguish the cultural context from the effect that is due to biological sex. It is very difficult to know whether it is because of a different biological sex that one has a different critical mind or whether it is the marked social role that will lead to different behavior. We don't know if it's innate or acquired. There is a very good TEDx Talk by Franck Ramus on gender differences in the brain where he explains that there are quite marginal differences between men and women in the sense that these differences are of the same order of magnitude as differences between different cultures. We pay a lot of attention to them because we want to make them meaningful, but that is part of the variability that we find in individuals. Nevertheless, even if there are

differences in cognitive functions between a man and a woman, this does not change the fact that there must be full equality in law between men and women.

All this means that we should avoid talking about cognitive bias but rather talk about cognition and put it back into an evolutionary perspective. This allows us to understand where these properties come from, to put ourselves back into a long time frame and to reconnect with other species. Consider the work of Frans de Waal (an ethologist) who wrote the book *Are we too "stupid" to understand the intelligence of animals?* He shows that we have long sought to isolate humans from the rest of the animals by considering that we are unique beings. To do this, we carried out experiments that were so adapted to human beings that other animals were not able to respond. It was only when we took into account the reality of the animal in its life context that we lost our "uniqueness" as humans, since we saw that animals were capable of empathy, cooperation and coordination. Animals are no longer considered as objects but as spirits. Campus de la Transition: There was a kind of gap between our cognition, what we wanted to show and the reality of our environment...

Thibaud Griessinger: Yes, and there are two ways of solving the problem: either it is up to us to adapt ourselves to re-acclimatize to our environment, which has changed drastically, or we have to readapt our environment so that it is closer to our cognition. The question that arises is which readjustment is easier: changing our environment to be more in line with our cognition or the other way round. In companies, we often say "it has changed, adapt". However, any change has a cost in terms of stress, effort and cognition which can alter our mental health and our relationship with others. It would therefore seem more virtuous to change the organization or the environment. This raises the question of how humans adapt to their environment. If you want to integrate cognitive sciences into pedagogy, it would be from that point of view and not on teaching cognitive biases as such. It is then a question of introducing the notion of complexity, which is inherent to these subjects.

To conclude, I would say that we must bear in mind that cognitive biases shift, individualize and reduce the debate because they depoliticize many subjects, just as eco-gestures tend to depoliticize the subject of the environment. We were talking about collective intelligence earlier, but our political life, our organization as a state or as a group is totally part of our mental life. When we talk about critical thinking, there is also this idea of debate, of exchange, of forming a group, of forming society. Today we hear politics as something very partisan, but debate, exchange and the ability to think together are key skills to develop. The debate on adaptation is a highly political subject insofar as choices must be made and cannot be ignored. We need to be able to doubt ourselves, be moderate, be wary of our certainties, perceptions, fears and needs for recognition in order to see the world as it is, but also how this can color our relationships with others. Much of our cognition is social and to talk only about cognitive biases without talking about our social organization is problematic. Cognitive biases are nothing in terms of the ability to change. They need to be linked to issues of popular education to put the citizen back at the heart of the exchange without having a paternalistic vision where the citizen is only considered as being biased.

Chapter 8

Four Families of Skills for Ecological and Social Transformation



Gérald Majou de la Debutrie

Abstract The ecological and social transformation of human societies, particularly their Western model, is a vital imperative in view of the major anthropogenic changes affecting the climate and biodiversity. The skills-based approach is a powerful educational response to this challenge, provided that it does not serve a narrow, utilitarian version that is supposedly devoid of any value system. These competences must enable people to act individually, but above all collectively, as humans among non-humans, as citizens and as responsible professionals. They mobilize an ethic involving respect for living beings in their diversity, as well as the desires and fears that guide our actions, allow us to understand and feel the connections to “Others”, to accept our limits and to know those of our planet. Acting forcefully and collectively, according to technological or non-technological responses, will then be commensurate with the responsibilities taken and the futuristic narrative invented.

The notion of competence gives rise to debates, even controversies on its definition. Its meaning changes according to the times and economic contexts. Each person can invest their own social, cultural and even moral representations in it, in order to put a label on the black box of a process that leads to acting in a “successful” way in different contexts. The representation of competence is different depending on the situation of the observer. An employer will tend to restrict the competence sought to the professional situation(s) present in their company or sector of activity. A training institution will see it as a pedagogical objective, which is assessed in a certain number of typical situations that the educational team considers close to the learner’s future professional situations with the view of their professional integration. And the learners themselves will expect at least the possibility of exercising an activity that allows them to live with dignity and, if possible, in accordance with their values.

G. Majou de la Debutrie (✉)

Head of Sustainable Development and Social Responsibility, Student Life and Regional Policy at the Conférence des grandes Ecoles (CGE), Paris, France

e-mail: gerald.majou@cge.asso.fr

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_8

The most recent literature on the subject does, however, show some consensus:

- One cannot observe (or with great difficulty) the development of a skill in action, but one can observe the result in a given situation, professional or not.
- A competence can mobilize knowledge, interpersonal skills and know-how, but also other competences in the manner of nesting dolls (meta-competences).

Competence is a concept with weaknesses, since it does not allow for the description of the process – the black box – that leads to the result, the text you are reading, for example. Moreover, its evaluation with absolute rigor in the context of a certification is materially impossible as there would be so many situations to explore or to stage for this purpose. It is also a highly interwoven, connected notion: it weaves a network of close links between the actor's personal context - their internal resources and constraints - and the environmental context - the external resources and constraints - in which the action is carried out. Competence is to the simple addition of knowledge, skills and know-how, what epigenetics is to genetics. And this capacity to capture the complexity of reality gives it great power.

This black box/connectivity duality for a notion that claims to characterize our individual and collective capacity to act on the world opens the way to instrumentalization by socio-economic actors, each one representing it according to their own interests. The fear of a utilitarian approach to competences is legitimate in this context: this is not, however, a characteristic of the notion of competence itself, but rather of the use that could be made of it. It is therefore essential that any form of governance associated with the deployment of a competency-based approach be representative of the interested parties so that the 'black box' of the process, if not open, is informed by the various existing representations.

While this notion can indeed help us individually and collectively to characterize and then improve our capacity to act in and on the world, it is also essential to integrate values and ethics that are in line with societal and particularly ecological issues: Guy Le Boterf talks about the need to act as a competent and responsible professional (Le Boterf, 2011). Ethics therefore define the framework within which responsibility is exercised, just as, in mirror image, the planetary limits (stocks of mineral and fossil fuels, stocks of water, etc.) define the framework within which life, both human and non-human, flourishes.

Implementing an ecological and social transformation – a term I prefer to that of transition, which implies knowing the point of arrival – will be the masterpiece of humanity in the next 30 years (or not...). Is the competence-based approach the best way, from an educational point of view, to make this rapid, even radical change possible? I would say yes, if the competences in question play on disciplinary logics by articulating them for a better representation of reality and acting on it in all its complexity. Yes, if these skills can, in their simplest expression or for certain resources that they mobilize and according to adapted pedagogies, be addressed to all age groups in a population. Yes, if, whatever the educational or training pathway, these competences can form an undivided whole, which will mobilize other competences, technical for example, in the dual perspective of the responsible exercise of a citizenship and one or more activities enabling people to live with dignity. Finally, a

base of these skills, which can be described as “transversal”, must be acquired rapidly by a significant proportion of the world’s population. This rate of acquisition is like an inverted immunity rate, it is the threshold beyond which everything can change; it varies between 5 and 30% of a population. The actors of this change already exist, but they are still too few. The education system, from schools to continuing education and higher education, must therefore mobilize to ensure this quantitative and qualitative change of scale in a few years time, and current and future decision-makers and teachers are a prime target in terms of the responsibilities they exercise or will exercise. What are the characteristics of these transversal competences and what kind of reference frameworks could they feed and structure?

The notion of competence already contains part of the answer. Competence characterizes the way in which we act to achieve a given result; it mobilizes our internal and external resources; it establishes the appropriate connections with our knowledge, know-how, interpersonal skills and other competences, but also with our fellow human beings, with the cultural and organizational frameworks considered as situations that can facilitate or limit our capacity for action. When we study the existing works that propose competences for sustainable development or ecological and social transition, such as the guide on competences for sustainable development and social responsibility of the French *Conférence des présidents d’université* and the *Conférence des grandes écoles* (2016) or the UNESCO (2017) guide on education for the SDGs and the Handbook of the FORTES collective (2020), we find strong correspondences¹ between the resources/competences (see Table 3.1).

This work sheds new light on the notion of competence: values and desires, to which is added an assumed relationship with the uncertain, guide action. Situations also become more complex as the concepts of nature and culture, dissociated in the West by the philosophers of the social contract, become intertwined. Connections that were once hidden from our view thus reappear, opening up the field of possibilities for competent action in favor of ecological and social transformation:

- Foresight, a resource also called Logos or anticipation according to previous works, installs uncertainty as a given inherent to the evolution of the phenomenal world and of ecosystems. This breaks with the reassuring but inoperative determinism on the scale of complex systems such as the climate, in which societies, especially Western societies, have been settled since the Enlightenment. Foresight invites us to elaborate, according to a rational methodology, scenarios of possibilities ranging from the most pessimistic to the most optimistic. This again introduces an element of irrationality, since human beings, aware of their mortal condition, have desires that go far beyond the limits of satisfying their vital needs. Beyond these limits lies the territory of unknown death and, in counter-

¹ Note that the correspondence between the 3 references is perfect when considering the totality of the skills. However, when considered one by one, the correspondence is not complete: for example, the skill related to “strategy” of the UNESCO report can also be associated with the “collective” skill of the CGE/CPU report as well as the “Praxis” and “Dunamis” gates/skills of the FORTES Handbook.

point, of known life that we wish to make last in intensity, by consuming beyond the minimum needs, or in length, by transhumanising our bodies, to forget death in our flight from the present moment or forward. It becomes necessary to imagine other collective narratives, ecologically and socially acceptable, to overcome our fears and act.

- The connection to the Other is no longer limited to our fellow human beings but is extended to other animals, to the living world as a whole, and feeds self-knowledge in the interrelation with the Other via recursion. The connection to the Other, more broadly, explodes the myths of the autonomous individual and of the human exercising omnipotence over nature. Connection to the Other reveals the true nature of human autonomy in the greater or lesser capacity we have to choose, accept and maintain connections with others.

In summary, whatever the designations of these transversal competences, their acquisition must:

1. Enable action with connectivity, towards the Self, with the Other (human and non-human), in an interrelated network of living, non-living beings or between networks:
 - associated resources: collective, collaboration, empathy, psychology, emotions, interculturality, cooperation, autonomy, systemic, information, communication, resilience, interactions, links, networks (physical or virtual), circulation of matter/water/air, circulation of electrons, molecules or photons..,
 - associated enabling or limiting factor: flow.
2. Enable action to be taken within a chosen framework, that of the ethical framework which gives meaning to the action, and within an imposed framework, that set by the earth's limits:
 - associated resources: respect for living beings, solidarity, sufficiency, responsibility, standards, sustainability, commonality, diversity, renewable and non-renewable materials, heat, air, water, soil..,
 - associated enabling or limiting factors: values and stocks.
3. Enable action on desirable scenarios and against a narrative or vision:
 - associated resources: foresight, uncertainty, vision, narrative, myth, time scale, space scale, historicity of phenomena, boundary conditions, interdisciplinarity, wish, anticipate, dream, imagine, hope...,
 - associated enabling or limiting factor: desire.
4. Enable action on or with the dynamics of change, transformation, by mobilizing points 1, 2 and 3 as resources:
 - associated resources: support, adaptation, mitigation, disruption, innovation, creativity, impermanence, evolution, building, transforming, living...,
 - associated enabling or limiting factor: energy.

The common base of competences for an ecological and social transformation will be structured according to these four families. The four families of competences do not have the same status: for example, the second family of competences, by mobilizing the values and the finitude of our planet, plays the role of a safeguard for action, like a lamp that would only light the way when one deviates from it. And not just any values: a society in which individualism disguised as autonomy, material and financial accumulation and consumption are existential values, is blind to ecological transformation. In the process of acquiring the four families of competences mentioned above, this family of competences has an ‘essential’ role to play: it is necessary to return to it regularly, as a familiar, stabilizing place, where one comes to recharge one’s batteries and find one’s way again, with one’s feet firmly planted in the ground, while desire takes us elsewhere. Spirituality, thus revived, gives us the strength to better take action.

As another example, the fourth family of competences, by mobilizing the other three families in the manner of a meta-competence, is totally dependent on their levels of acquisition, while at the same time constraining them via its limiting/capacitating factor (L/C): energy. A mechanistic analogy with a rocket would associate this fourth family with the ability to build or operate the engine that would transform fuel into motion – energy – to propel the craft to the planet Mars, for example. The other skills would be everything else: fuselage, guidance system, its networks..., plus a goal or narrative: colonizing Mars? Without these qualities, the rocket would not be a rocket for anyone. The fourth family of skills therefore plays the role of ‘machinist’, without which no transformation is possible; it operates thanks to energy, mobilizing the other three families of skills.

Among the enabling/limiting factors associated with the families of competences, energy is therefore the prevailing factor, since no transformation, whether undergone or desired, is possible in its absence. With regard to an ecological and social transformation desired by human beings, politics as a collective narrative and organization for a common future depends first and foremost on choices (or non-choices) in terms of “energy”. We are talking here about energy as a force in action and not about renewable or non-renewable energy resources, with which it is often confused in the usual discourse.

Energy is the force in action of human and non-human beings, of machines, of gravitation, of lunar attraction, of biological metabolisms, etc.

The “energy” L/C factor is also related to the other L/C factors it combines with, thus changing its capacity/limiting power. For example, the flow of photons from the sun can influence our energy choices in favor of photovoltaics. The Western model of society has gradually made the act of consumption an existential value, and the resulting energy choices led to the majority use of fossil fuels, the only ones capable of producing much more energy than necessary to extract them, and this almost free of charge as of today. And finally, stocks, such as the agricultural land available for our food, which guide energy choices related to the production of biofuels.

From a pedagogical point of view, it is conceivable that at each major stage of schooling and studies that are not solely geared towards professionalization – final

year of elementary school, final year of lower secondary education, final year of higher secondary education and final year of undergraduate degree² – a common base adapted and based on these four families of skills should be acquired. Then, for the three stages for which a professional orientation is possible – final year of lower secondary education, final year of higher secondary education and final year of undergraduate degree – it would be a question of producing reference systems in the continuity of these three common bases, which would introduce technical resources and would require a differentiated deepening of such or such family of competences in the main education branches or professional activity sectors. Energy interrelated with other enabling/restraining factors would play a central role, as a common thread from primary to higher education.

Competence-based approaches to these frameworks also share the following characteristics:

- The process of acquiring competences is not linear within a family of competences or between the four families of competences. In other words, knowledge acquisition does not necessarily precede action – a group project, for example. Similarly, it is common to jump from one family of competences to another, to retrace one's steps and to progress in a spiral logic between the levels of acquisition. The acquisition of competences is experimental in nature, with back and forth movements between action and theory, including readjustments.
- The pedagogy of action is the only way to observe and try to assess competences. This requires, among other things, creating typical situations (role-playing games, serious games, case studies, etc.), transforming teaching premises into modular “play boxes”, taking time for reflexivity (debriefing), using pedagogical engineering to identify/invent the practices best suited to the acquisition of a given skill and working on real projects, whether territorial, entrepreneurial or at the service of the educational establishment, in order to rediscover the complexity and unthoughtfulness specific to this type of situation.

The next step is the creation of reference systems based on these four families of skills. But this is the end of what can be considered as common guidelines for this type of work. The next stage, which is more contextual, is for teachers, educational engineers and also students, future employers and, finally, all the staff of an educational establishment or a family of establishments. Adopting a competency-based approach in order to act in favor of an ecological and social transformation means, *de facto*, committing to the ecological and social transformation of the institution providing the training concerned. This is linked to the notion of competence, which always leads, from a certain level of acquisition, to reflexivity of practices; and this is even more significant when ethics are invited to give meaning to the action: the coherence between the practices of the institution and the teaching that is provided there then founds its credibility but also its effectiveness as a place of integral pedagogy.

²CM2, 3ème, terminale, L3 for France.

The competency-based approach to ecological and social transformation can be the breeding ground for systemic change if the rate of acquisition of these competencies is high enough (see above). This is a necessary condition, because it gives us weapons to tame fear, the guardian of the territory of unknown death, and to act in an informed way away from its influence. But these weapons are not sufficient on the scale of humanity or the planet: being collectively competent does not in itself carry the spark that lights the fire of large-scale transformation. Individual desire must be sublimated into the collective to enable us to stop running away from our human condition; desire must be channeled by universal values; desire must serve our imagination to elaborate a new civilizational, mythical, enviable and respectful narrative of the living in all its diversity.

References

- Conférence des présidents d'université and Conférence des grandes écoles. (2016). *Guide "Compétences Développement Durable & Responsabilité Sociétale" – 5 compétences pour un développement durable et une responsabilité sociétale*.
- FORTES collective. (2020). *Manuel de la Grande Transition: former pour transformer*. Les Liens qui libèrent.
- Le Boterf, G. (2011). Apprendre à agir et à interagir en professionnel compétent et responsable. *Education Permanente*, 188, 97–112.
- UNESCO. (2017). *Education for sustainable development goals: Learning objectives*. UNESCO.

Chapter 9

From Knowledge to Skills: Training for Transition Jobs – Interview with Alain Grandjean



Cécile Renouard, Rémi Beau, Elaine Vetsel, and Alain Grandjean

Interviewers: Cécile Renouard, Rémi Beau, Elaine Vetsel

Interviewee: Alain Grandjean

Online interview realized on February 11, 2020

Abstract Alain Grandjean is an economist and author specializing on green finance. He is also co-founder and partner of Carbone 4, a consultancy firm focusing on energy transition and adaptation to climate change. The interview first revolves around the academic content Alain Grandjean considers as the bare necessities to be taught in higher education, no matter the curriculum. This should take the form of a basic synthetic training which takes into account the major environmental issues without too much technicality as well as lessons in accounting and economics, which he considers essential. The interview also looks more specifically at engineering and business schools. Then Alain Grandjean shares his views on the effectiveness of different ways to engage for the transition – like radical individual lifestyle transformations and civil disobedience. He also evokes the roles that trade unions as well as NGOs can play and he talks about collapsology.

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

R. Beau

CNRS, iEES-Paris, Sorbonne Université, Paris, France

E. Vetsel

Campus de la Transition, Forges, France

A. Grandjean

Carbone 4, Paris, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_9

Campus de la Transition: In 2007, you co-founded Carbone 4, a climate strategy and energy transition consulting firm. In your opinion, what are the challenges to be met and the shortcomings observed in the educational path towards professionalization in order to make the transition a success?

Alain Grandjean: It's not easy to answer this question, because we can't always distinguish between what a student has learned during his or her training and what is a matter of personal commitment. At Carbone 4, we have many engineers who are certainly specialized, but above all very committed. However, I see huge deficits in the people who hold management positions with our clients, particularly among young people from literary and business schools. They start out in their jobs without any real scientific background, so we should be able to offer them basic synthetic training, which is not necessarily biology or physics, but which takes into account the major environmental issues, namely climate, biodiversity, resources, pollution and water. Students need to have factual information about the state of the planet, how things have changed over the last 50 years. This requires a minimum of explanation without necessarily going into all the complexity of the processes. On the climate, for example, the subject is not that they understand in detail the physics of the greenhouse effect, but that they know that there is a scientific consensus on the fact that the climate is changing rapidly at the moment, that this change is partly the result of human activities and that it is supported by figures. With this in mind, we have created a 2x4 hour module at ESSEC Business School to outline a course on climate. This is indeed too short, we would have needed at least 15–20 hours. In 10 hours, the students made the Climate Fresk, a playful tool to ease them into the subject. We also shared information on actions taken by companies or financial markets, or in the context of public policies. We did not address the issue of personal appropriation of these topics at all, and this is one of the reasons why I think we should add 3 to 4 hours of workshops on sharing best practices. Coming out of this initial module, we want students to feel confident that these are core issues, even if some of them are open to discussion. I put a lot of emphasis on business schools, because the main challenge they face is lack of time. Students have little time to devote to these topics, because they have too many concepts to master on the side – hence why I am not in favor of them having physics courses. There is not necessarily much point in being too scientific.

Campus de la Transition: At the Campus de la Transition, we are working on the construction of a common base of knowledge that could be used by all students in higher education, regardless of their field or discipline. This question of the level of technicality to be reached for each disciplinary field is at the heart of this reflection. For the time being, we want to include some basic knowledge of physics and energy, particularly in relation to the functioning of the climate. The question is to know how far we can go once we start to enter the field of physical sciences. We also want to find a balance between, on the one hand, the acquisition of scientific knowledge and the main orders of magnitude that allow us to take the measure of the changes underway and, on the other hand, the formation of a critical mind based on an introduction to epistemology that allows us to understand how scientific facts are constructed.

Alain Grandjean: On this point, I find that the Climate Fresk, which I mentioned earlier, is at the right level of analysis as regards the question of causes and consequences. The causal chains are well described, and that is why its implementation works well with different audiences. However, as soon as we go further upstream – with more sophisticated notions, such as heat exchange – it quickly becomes too long, or even inaccessible. Depending on the different courses of study, the ability to understand these scientific concepts varies, and that's perfectly normal.

Campus de la Transition: Have you observed any changes in the engineering schools that you know well?

Alain Grandjean: We are in a different situation with engineering schools, because they already have more capacity and a better basis for understanding the phenomena in question. For these schools, it seems to me that it is important to have a core curriculum on transition, which can then be supplemented by specialties that allow us to go further upstream in the analysis (using modeling or paleology to study the climate, for example). Unfortunately, we are less well equipped to deal with biodiversity because we lack shared tools. IPBES is working on this, but we have not yet reached the same level of synthesis as for climate issues.

Campus de la Transition: From our various teaching experiences in these schools, particularly at the prestigious engineering school, Ecole des Mines de Paris, where 80 students enrolled this year in the course given by Cécile Renouard, we note the need to put things into perspective and to develop a critical perspective on ethical and political issues. Do you also feel the importance of this need?

Alain Grandjean: Of course. But I insist again on the fact that students cannot develop this critical and philosophical capacity if they have not understood the scientific issues beforehand, otherwise they are a bit out of touch. When I was talking about 15–20 hours to get the basics, I wasn't including many subjects like accounting, economics, ethics, philosophy or many of the other impacted disciplines.

Campus de la Transition: If you had to mention absolutely key issues to address, what would they be? You mentioned accounting standards. We're also thinking about what you've been working on for the past few years, such as finance and financing the transition, or the price of carbon. What do you think is essential to include in a common base?

Alain Grandjean: I think it is essential to integrate accounting, which is the real lens and the ideal system for representing companies and the State. It is a mode of representation and apprehension of reality that has considerable effects and an enormous potential for transition. We will not change the accounting frameworks in 3 days, of course, but we can already lead students to conceive other systems of representation, through another way of doing the accounts, using the carbon balance sheet for example. The same problem arises with economics. Young people need to understand that the economy is part of the biosphere and that the environment is not external to it. I am convinced that there will be a very big transition and that economics and accounting will be taught in a completely different way in 20 years.

Campus de la Transition: In the chapter on economics, what should be included in this core curriculum?

Alain Grandjean: The first chapter should be a summary of resources by defining the economy as a system that transforms raw materials into energy in order to produce goods and services to satisfy needs and demands. But a system that also generates waste. The question of machines must also be addressed, because once we understand that resources are transformed into goods and services, we must also understand the mechanics of transformation, which involves the use of machines. It is therefore necessary to deal with the issues of pollution and competition between machines. I am convinced that there is a specificity of economics in the so-called “social sciences” compared to all the others, and this is why it must be taught very early. We can approach the history of economics and make students aware of the fact that its power is amazing compared to other disciplines. In the second chapter, we need to bring students to understand that there is a plurality of modes of reasoning and different chapels associated with different teachings. Some are dominant, others are in the minority, in disarray, false or at least questionable...

Campus de la Transition: Regarding the priority areas of action, for example digital sobriety, mobility, building renovation..., what mix should be recommended between collective and individual efforts?

Alain Grandjean: I think that this subject should be integrated into the core curriculum in general, because it doesn't take a lot of complicated economics to understand that the issue is systemic and that everyone has an action to take as a citizen, consumer or stakeholder in a community. It is not complicated to understand that there is a polar opposition between putting everything on the individual and accusing the public authority in parallel. Many works try to illustrate the establishment of a zero waste France within 50 years or to imagine global scenarios. The conclusion is often the same: we must reduce our energy consumption and decarbonize the economy. It is also interesting to teach the difference between direct and indirect impacts, for example by using tools such as the water footprint, the energy footprint, the carbon footprint... I would integrate all these notions into the common core, because it is very interesting to observe the problem from these different angles.

Campus de la Transition: We are thinking about the proposal of Gildas Véret, an engineer who graduated from Ecole des Mines (already mentioned above) and who is very involved in a movement advocating climate resistance. On a personal level, he has chosen to build a positive energy house and proposes that people who can do so commit to never take a plane, to buy only second-hand manufactured products, to consume organic and local products, and to drive their car less than 2000 kilometers per year. He realizes that not everyone can do this, but he wants to help people understand the orders of magnitude and what it means to live with a carbon footprint of less than 2 tons per capita. What do you think about the impact at the individual level of these lifestyle transformations?

Alain Grandjean: At ESSEC, we did a session on the Climate Fresk, and then a session on what companies, financiers and public authorities are doing in order to give students the feeling that things are happening, even if it is not enough. In this second module, I talk about what France will be like in 2050, what it means to move to a carbon footprint of less than 2 tons. It is good that there are emblematic people who have made ambitious commitments, but we must not forget that there are over

67 million French people. The danger would be to limit ourselves to highlight individual commitments of this kind, to make other actors believe that these commitments are sufficient. I encourage students to look for even stronger actions, especially when they are committed.

Campus de la Transition: What are the greatest levers available today to implement collective and political actions?

Alain Grandjean: First of all, I would spend some time “getting economics out of its ivory tower”. The community of economists is divided into three main groups: there are those who think that technology will save us, those who believe in the market, and those who think that reality is much more complex and that other instruments must be mobilized. In any case, this remains in the economic sphere. One of the most significant levers of change is in the area of social norms, because they really do change the world. If we are gradually becoming vegetarian and paying more and more attention to animal welfare, it is not at all because of an economist’s reasoning. It is simply a change in society. Public policies can influence these changes: the State or local authorities can commit and invest in public transport policies, for example, to try to reduce greenhouse gas emissions from the car fleet; but, ultimately, it is social norms that drive the transition.

Campus de la Transition: Alongside the State and local authorities, a diversity of actors must take part in the transition: companies, unions, NGOs. What roles can they play? How should they transform themselves?

Alain Grandjean: At present, trade unions continue to see mainly the destructive effects of the ecological transition in terms of jobs. The absolute priority is therefore to train them to make them understand that the scenario of climate inaction is a scenario of social destruction. For the moment, they do not realize this and think that the transition only implies negative social impacts. So we need to put the climate issues back on their own ground, namely employment, and show them that such a scenario leads to a deterioration of employment. The second way to get them on board would be to talk to them about the company of tomorrow, the emergence of new rules of governance and their integration into new decision-making systems in order to get out of financial capitalism. As far as NGOs are concerned, we expect them to play the role of whistleblowers, which they do quite well. The priority for the Nicolas Hulot Foundation, for example, is to build the world of tomorrow by creating the possibility for debates to be held on the major directions to take. We must be able to debate, for example, the questions raised by what is called *collapsology*. If we cannot deny the fact that all systems will collapse 1 day, we must ask ourselves the question of the effectiveness of such a discourse and its appropriation by civil society.

Campus de la Transition: How do you position yourself in these debates on collapse? *Collapsology* has a strong power of attraction, but it is also very divisive. Today it has many followers, but also detractors.

Alain Grandjean: The debate on collapse raises questions about the effectiveness of mobilization to bring people together to avoid the announced catastrophe. A discourse that consists of saying that our inaction will lead to our downfall has no

mobilizing capacity in my opinion – at least not on politicians, who must have concrete proposals if they hope to play a role vis-à-vis the public authorities.

Campus de la Transition: In the field of mobilization, how far-reaching could the action of movements like Extinction Rebellion be, which can appear as critical spurs for public authorities, or more broadly the radical choices made by citizens in terms of consumption, choices that sometimes cover deeper issues?

Alain Grandjean: I am rather skeptical. In situations as complicated as today's, we must keep in mind that we are in an ecosystem where each of us has a role to play. Radical positions can lead the masses, which is encouraging. On the other hand, it is not because we avoid 5 tons of CO₂ that we will have solved the problem. To put it another way, it is not the individual who emits greenhouse gasses, but our equipment and the objects we transform and use. Plastic is not produced without machines. We are not going to succeed in changing things by radical consumer movements. I don't believe in the realistic nature of this project at all.

Campus de la Transition: However, they question the link between public policies that can influence the way a car is made, the way it is used, the way public transport is valued... This could lead to cultural changes that are necessary today in the evolution of our representations. Aren't there questions of collective change to be promoted?

Alain Grandjean: It's a fact, there's no debate about it. I agree with you. We need to encourage changes in behavior – this is happening more among young people – and we need to replace “consuming more” with limited and intelligent consumption. What I am saying is that I do not believe that a radical discourse on consumption patterns is sufficient.

Campus de la Transition: Movements like Extinction Rebellion also provoke reflection on the modes of political action, questions about the effectiveness of non-violence or civil disobedience. Beyond changing consumption patterns, don't they also raise the question of whether active minorities can play a decisive role in the transition?

Alain Grandjean: The problem remains that I don't see how these movements will have an effect on public policies and on production methods. We are not going to transform the world by getting 20% of consumers to move and leaving the fossil fuel industry alone. It seems to me to be essential to accompany the middle classes on the way to massive changes in their behavior. Radicality must be expressed in political actions, such as closing coal-fired power plants.

Part II
**Taking Charge of Transition Pedagogy in
Higher Education: Experiences Located in
Europe and in Africa, Practical Tools and
Actors to Be Mobilized**

Chapter 10

Three Examples of Universities Offering an Integrated Approach to Teaching the Great Transition



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst

Abstract Some universities have set up courses relating to the systemic integration of ecological and social issues into their curricula. We are presenting two types of initiatives here: first, those that come directly from universities or higher education institutions, such as the University of Lausanne; secondly, those which emanate from small organizations created to constitute a higher education transition laboratory, linked to a university institution, as is the case of Schumacher College (United Kingdom) linked to the University of Plymouth or the Sustainability Institute (South Africa) attached to Stellenbosch University.

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition, Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l'Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*, Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_10

10.1 Ecological Transition Teaching at the University of Lausanne

Teaching and concern for ecological transition has been a priority of the University of Lausanne (UNIL) for more than 30 years. Its ambition is to be a crossroads for reflection on sustainability. Its transition pedagogy revolves around exemplarity, an educational offer allowing each and everyone to have basic sustainability culture, various experiments with sustainable lifestyles, promotion of interdisciplinarity, and promotion of ecological transition in civil society.

10.1.1 *Exemplarity*

The University of Lausanne (UNIL) welcomes on its 90 hectare Dorigny campus more than 15,000 students and more than 5000 teachers and staff. Reducing the impact of the campus on the biosphere is a priority, which has many facets.

UNIL uses 100% certified renewable and local energy. It monitors the consumption of each of its buildings using sensors. In 2018, 8300 m² of photovoltaic solar panels were installed on the various roofs of buildings, which produce 1.5 GWh of electricity per year.

The many green areas are managed without pesticides and maintained by a flock of sheep. 150 m² are used as a permaculture garden. All green waste is transformed into compost, kitchen waste is methanized, and more than 25 types of waste are recycled. More than 60% of people come to the site by public transport.

10.1.2 *A Wide Range of Courses*

UNIL's goal is to enable each student to acquire sustainability culture. For the most committed people, the Faculty of Geosciences and the Environment offers a Master of Science in Foundations and Practices of Sustainability,¹ the purpose of which is to teach the various aspects of strong sustainability, and which forms actors capable of leading and supporting the transition of our societies towards a sustainable world. The teaching provided, combines natural and human sciences, touches on ethical, political, economic aspects, or industrial ecology, in connection with the ecological transition. The teaching is both theoretical and practical, with an internship in permaculture.

For the others, many courses, lecture cycles, and MOOCs are offered on the themes of sustainability, which allow each student to acquire basic culture on these

¹Maîtrise universitaire en fondements et pratiques de la durabilité, (<https://www.unil.ch/formations/fr/home/menuinst/masters/fondements-et-pratiques-de-la-durabilite.html>)

issues. In particular, an optional course entitled “Scientific and social issues of sustainability” was offered to second and third year students. Since 2007, the Durabilis Award has rewarded the academic work of students who have shown a real concern for a theme linked to sustainability.

10.1.3 Experimentation with Sustainable Lifestyles

UNIL promotes the emergence of more sustainable lifestyles through experimentation. It uses its campus as a “living laboratory”, making it available for sustainability experiments on the proposal of researchers or committed students. There is hence, for example, a bicycle workshop, an organic market, a permaculture garden or even vegetable gardens. It has also developed an action research program (Volteface Project²) on the social aspects of the energy transition.

10.1.4 Stimulating Interdisciplinarity

Recognizing the holistic nature of environmental issues, UNIL encourages interdisciplinary research on ecological transition issues. Thus, the Faculty of Geosciences and the Environment welcomes geologists as well as philosophers, economists and toxicologists. More generally, UNIL has opened an interdisciplinary sustainability center, the function of which is to stimulate innovative and creative approaches around sustainability.

10.1.5 An Active Dialogue with Society

UNIL engages in constant and active dialogue with civil society. It actively promotes sustainability in society, by organizing workshops, general public conferences, or even by hosting the SMILE meeting of the “Fridays for Future” movement in 2019. The many public interventions in favor of the ecological transition by professor Jacques Dubochet, Nobel Prize in Chemistry 2017, are the living embodiment of the spirit of UNIL.

²Lausanne University Volteface platform, (<http://www.volteface.ch/>)

10.1.6 *Main Obstacles and Limits*

An important limitation is the ambivalence of the terms “transition” and “sustainable development”, which can be understood in very different or even opposite ways. For some, this is primarily technological development, where others consider that it is the lifestyles that need to be changed. These two readings, although sometimes contradictory, coexist in the teachings. A second limitation is that, under the guise of academic freedom, UNIL shelters a certain number of climate change skeptical teachers. While other Swiss colleges and universities have publicly disavowed climate change denial statements from their teachers, UNIL on the contrary leaves the field open to them. They sit on committees and juries related to sustainability, and they even occasionally receive funds devoted to research on ecological transition, although they publicly deny the role of humans on climate change.

10.2 Schumacher College³

Schumacher College (SC) is part of a larger organization, the Dartington Hall Trust, located on a beautiful, 485 hectare estate in South Devon (UK). Inspired by Indian poet and visionary Rabindranath Tagore, a friend of the founders of the Trust in the 1920s, the Trust sought to be a living experience of ways of living “Life in its Completeness”, in the words of co-founder Dorothy Elmhirst. This has led to innovations spanning nearly a century in multiple fields, including agricultural research, education, social justice, crafts and the arts. Education is at the heart of the vision which is marked by a deep suspicion of the insidious power that formal education can have in lulling consciences and strengthening cultural norms linked to blind submission to authority and conformism.

The philosophical and pedagogical lineage into which SC was born in 1991, was therefore already deeply aligned with many critiques of today’s dominant neoliberal and reductionist paradigm. During the first 8 years of its life, the institution was a provider of informal education, hosting short courses taught by a succession of recognized thinkers and activists, many of whom have become icons of the intellectual landscape engaged in the Great Transition – Vandana Shiva, James Lovelock, Fritjof Capra, David Orr, Theodore Roszak, Thomas Berry or Arne Næss to name just a few.

In 1998, SC began offering its first second cycle courses in partnership with the neighboring University of Plymouth, which then became its accreditation body. Since then, several Master’s programs have been added to the course offer: Regenerative Economics in 2011, Ecological Design Thinking in 2015, Movement, Mind and Ecology in 2016, and Myth and Ecology in 2017. Each of these welcome

³To learn more about the Schumacher College and its pedagogical methods, see also Kumar and Cenkl (2021) as well as Kumar and Horwarth (2022).

promotions from 10 to 15 students, the composition of the groups being varied in nationality and age.

Within the “*Regenerative Economics*” Master’s degree, the economy is explored as a complex adaptive system, nested and dependent (rather than separate) on society and the ecosphere. Efforts to correct current imbalances in economics education are not limited to curriculum innovation. The students’ capacity for generosity and cooperation is not only stimulated conceptually, but also by creating circles of mutual giving where students can identify opportunities to give and take within the learning community. Students work in groups on concrete projects with local organizations.

The day-to-day management of SC life offers another possibility of collaboration within the learning community. This includes an explicit rejection of unnecessary hierarchy as well as an invitation to integrate artistic creativity, singing, dance and mindfulness practices into everyday life. This explicitly places the institution in the tradition of “living and learning” communities, common to many ecovillages around the world and inspired, among others, by the Gandhian ashram and the “*nai talim*” tradition (Sykes, 1988).

Reflexivity – that is, the students’ ability to recognize and follow their own personal integration into their research field – is a basic element of the Master’s program. Instead of staying away from their study subject like disengaged researchers, students are encouraged to give meaning to their work by reconsidering the way in which they approach their research themes.

An important tool for cultivating reflexivity is the learning journal, in which students are encouraged to creatively explore – through writing, painting, and other artistic modes – their emerging ideas, their confusions, frustrations or their discoveries.

Students are encouraged to be artistically creative in their research methods and assessments. The works include art installations, videos, podcasts and compositions. One afternoon a week is open to students for gardening, handicrafts, carpentry or other practical activities.

Likewise, SC students are encouraged to creatively engage in exploring and framing the assessment of their progress. Assessment is therefore seen as a support for the learning journey which should allow everyone to be able to take ownership of their own learning process – both as individuals and as members of a group. Where appropriate, a formal assessment includes the weighting of grades awarded by the student, his or her peers and the teacher.

The center of gravity therefore shifts from the authority of the teacher to the distributed intelligence of the learning community, with students increasingly taking responsibility for the supervision and management of their own pathways. This revolutionizes the role of the teachers as they shift from transmitting a fixed body of knowledge to that of “educators” (etymology: “to draw from”), who help students to engage creatively and intelligently in their quest to create meaning. Teachers are thus called upon to play the role of catalyst, mentor, provocateur and, to some extent, that of a peer within the learning community.

10.3 The Sustainability Institute (South Africa)

The Sustainability Institute (SI) is located around ten kilometers from the town of Stellenbosch, in the Western Cape Province of South Africa. Established in 1999 at the heart of the Lynedoch ecovillage, the SI offers academic courses in close connection with Stellenbosch University, one of the most prestigious universities in the country. Thus, the “Diploma in Sustainable Development” is a course for which the certificate is issued directly by the university’s School of Public Leadership. Opened in 2018, the three-year program gives access to NQF level 6, the first degree in South African higher education. The particularity of the program is that it takes place entirely at the SI, and not on the university’s main campus in Stellenbosch. The SI teaching staff has *carte blanche* to develop the curriculum, organize exams and lesson validation tests. Participation and on-site presence are however absolutely required, any absenteeism leading to exclusion from the program. Student selection is carried out in two stages: first with the SI itself, which receives applications, then with the School of Public Leadership.

The SI also offers a Master’s degree, which is a 2 year full-time course, or a 3 or 4 year part-time course. In the first year, students must select eight one-week modules, spread over the academic year. In the second year, they must lead a research project and write a thesis under the supervision of one of the SI teachers, who can be permanent members or teachers mobilized to teach only one module in the year. This course is also validated by the University of Stellenbosch with a certificate issued by the School of Public Leadership, under the same conditions as for the previously mentioned diploma. The validation criteria are however very high, and are based on the constitution of a file (of about forty pages per module for the first year) in a highly rigorous academic format, which explains why the university grants full confidence to the SI to organize these courses.

Ecological and social issues are at the heart of the courses offered by the SI. In the postgraduate degree, the courses address the scientific, technical and ecological issues of sustainable development, as well as the economic and social responses that can be brought to them, such as social entrepreneurship, social and solidarity economy, “sustainable” management techniques, etc. The approach is resolutely practical and anchored in concrete activities and specific case studies. Teaching is interdisciplinary and mobilizes contributions from the hard sciences (such as the concepts of complexity, biomimicry, etc.) and social sciences (for all political and economic development issues). The idea is to develop an “entrepreneurial mentality” with a view to creating ethical and responsible values.

These issues are explored from a more international point of view during the Master’s degree. A large place is given to international macroeconomic and geopolitical issues, in terms of resources, conflicts, economic trajectories, trends in climate change, etc. Each module then addresses the issues of transition around a specific theme: sustainable food, renewable energies (policies and funding), globalization and development, ethics, sustainable cities, corporate governance, etc. A particular characteristic of these modules is to address the issues of sustainable

development from a specifically African point of view: what rationalities and epistemologies can be used to locally respond to these global crises? How do we highlight the networks of domination, which continue to irrigate international relations within countries and between them, in all their aspects? The definition of a “fair transition” and its implementation, ecologically and socially in “the countries of the North and the South”, is for example at the heart of many courses.

Concretely, this theoretical and holistic approach of the SI translates into a practical experience of interdisciplinarity and transdisciplinarity. Within a single day of classes, students participate in a range of activities that strengthen ties between themselves and with the rest of the Lynedoch eco-village. The living environment provides many opportunities to put one’s hands in the soil and help the rest of the people living and working there on a daily basis. Each morning, a time for stretching and collective reading is offered to the entire eco-village, the SI included. Then, an hour is devoted to carrying out daily tasks: the students are distributed in groups in the garden, the vegetable patch, the kitchen, and can be entrusted with DIY tasks, housework, “care and embellishment.” of the site, etc. It is only after that the classes really start, at 9:30 am. This thus reinforces the feeling of participating in the social utility of the site and allows a real social mix, in a South African context where the consequences of Apartheid are still being felt strongly through a racial partitioning between professional situations.

Within the courses themselves, something similar to a “head-heart-body” pedagogy is also put into practice.

For the mind, the courses mobilize a lot of quality data and academic content, which refer to recent and international research work.

For the body, in addition to the morning activities already described, it should be noted that each teacher incorporates physical practice time into his or her module which stimulates creativity and promotes “bonding” with other students and the environment. Thus, time for study and sharing is organized in the gardens. In the introduction to the module on Sustainable Development, a session is devoted to dance and free bodily expression. In the presentations that the students must do in groups to validate the course, a large part of the grade is reserved for the way in which they appropriate the subject and use everyday objects to present their work. Far from being limited to a simple PowerPoint slide show, these presentations encourage students to always work in relation with their environment and with others.

Finally, the heart dimension is just as fundamental: times for introspection and reflection on what the course generates as collective and individual emotions are frequent. In particular, a logbook is requested in the file that students submit to validate each module. This is not a private diary, but rather the trace of what each student experienced during the module: how the teachings surprised, upset, frightened, or on the contrary inspired and energized them to participate in the ecological and social transition. The main idea is that an integral part of the learning process is about familiarizing everyone with their own emotions and this should not be set aside, but on the contrary encouraged and gradually tamed.

The SI therefore offers a complete pedagogy which has many parallels with other innovative head-heart-body teaching practices. Its specificity however, is being

integrated into a complex eco-village and carried out in parallel with the University of Stellenbosch. Above all, the SI wants to be resolutely centered on Africa and the solutions for the ecological and social transition that the continent can offer to the rest of the world: the recourse to rationalities, to emotions, to notions of “social connection” and to sharing. The intercultural approach of truly African resources therefore constitutes the basis of a pedagogy rooted in a specific place to constitute a more global and sustainable future.

10.4 Conclusion

These three monographs are a source of inspiration for building university campuses in the Anthropocene (Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023) and an organization of studies which put form at the service of substance, bring to life the principles and concepts taught in the courses, and fully engage students in human relations and transformative territorial projects for them as well as for local society.

References

- Kumar, S., & Cenk, P. (Eds.). (2021). *Transformative learning: Reflections on 30 years of head, heart, and hands at Schumacher College*. New Society Publishers.
- Kumar, S., & Horwarth, L. (Eds.). (2022). *Regenerative learning: Nurturing people and caring for the planet*. Global Resilience Publishing.
- Sykes, M. (1988). *The story of Nai Talim: Fifty years of education at Sevagram, 1937–1987 : a record of reflections*. Sevagram, Wardha: Nai Talim Samiti.
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.

Chapter 11

What Transition to Teach? Interview with Dominique Bourg



Cécile Renouard, Rémi Beau, and Dominique Bourg

Interviewers: Cécile Renouard, Rémi Beau
Interviewee: Dominique Bourg
Online interview realized on January 3, 2020

Abstract Dominique Bourg is a philosopher and honorary professor at the University of Lausanne (UNIL). He is the editor of the online journal lapenseeecologique.com and the author of several books about ecology, democracy and the impact of the market. In this interview he first talks about the initiatives, in teaching but also in university management, he is involved in, mainly in Lausanne. With regards to teaching, he shares his thoughts on how to introduce courses and he argues for a multidisciplinary and transdisciplinary approach of teaching ecological issues, combining the perspective of social sciences with sound scientific knowledge and eco-psychological support. The interview then adopts a broader angle by mentioning obstacles to the « transition », the need to change institutions at different scales, with taking into account long term issues in public decision-making and defining a common baseline for democracy. Finally Dominique Bourg explains which levers he considers most important on the local, national and international scale.

C. Renouard (✉)
ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France
e-mail: cecile.renouard@campus-transition.org

R. Beau
CNRS, iEES-Paris, Sorbonne Université, Paris, France

D. Bourg
University of Lausanne, Lausanne, Switzerland; <https://lapenseeecologique.com>

Campus de la Transition: The Campus de la Transition presents itself as a place of experimentation, research and teaching to reflect on the transition processes to be put in place in order to put the economy back at the service of people and nature. The Ministry of Higher Education has entrusted us with the mission of conducting a project on “higher education at the time of ecological and social transition” to respond to the demands of students who are increasingly questioning the relevance of their teaching with regard to environmental issues. 70 motivated and convinced researchers and academics are working alongside us to try to decompartmentalize the curricula and revalue the transdisciplinary approach. In your university, such initiatives have been set up in particular thanks to your commitment. Can you tell us more about them?

Dominique Bourg: We have seen the emergence of a student movement that challenges the curriculum in general and the content of courses in particular. This is an important support for us who are trying to change the teaching. During my experiences at the University of Lausanne (UNIL), two things were created: a course and a master’s degree. We wanted to provide scientific culture, in the sense of the natural sciences, to students in social sciences. It is somewhat the opposite of a humanities college that would exist within an engineering school. It is therefore within this framework that the course entitled “Scientific and Social Issues of Sustainability” was born. It is optional and is aimed at second or third year students. It has been very successful for the past 10 years as it is one of the most popular courses at UNIL, with around 100 students attending. The first third of this course consists of a solid and precise assessment of the state of the planet with two main entries, an “Earth System” entry and a “Resources” entry. Our wish is that “no one should leave UNIL without knowing the state of the planet”, to quote Plato, because it is essential that these elements be part of the common culture. Students must be able to have a global overview and all the keys in hand to understand these ecological and social issues. This works well, since a large proportion of the students who enroll in the Master’s program have taken this course beforehand.

Campus de la Transition: You were also involved in a project concerning an engineering school, the École polytechnique fédérale de Lausanne. How was this one different from the previous ones?

Dominique Bourg: This one had the specificity of combining several subjects thanks to the mobilization of various teachers: a climate scientist, a conservation biologist and a social sciences teacher. We added our three disciplines, and it was a very good experience. However, the generalization of such projects is difficult because you need the resources to carry them out, which is not always possible in universities. It is easier to implement these programs in engineering schools where teaching is more cross-disciplinary. In a traditional humanities faculty, you have to be able to entrust this to a person who is willing to broaden his or her disciplinary field.

Campus de la Transition: You mentioned that the course was optional. In a logic of enlargement, would you advise making a course on climate and environmental issues compulsory?

Dominique Bourg: I would recommend that we start with the optional choice and wait 3 years before making it compulsory. We need to give people time to familiarize themselves with the idea, so that it is well framed without taking the risk of upsetting the most skeptical. That said, the idea of setting up a think tank at national level on these issues in order to identify the main contents and draw up a precise inventory based on solid references seems to me to be a good one. Secondly, psychological support is also very important. At the end of the course, it is necessary to show and give perspectives so as not to depress students. Furthermore, I strongly encourage students to do internships in eco-psychology. Of course, it won't suit everyone, but it's a memorable experience!

Campus de la Transition: In the common base that we have built, we have devoted a whole section called Dunamis to questions of eco-psychology and to a reflection on the links between relationships with oneself, with others and with nature. Did you feel alone or surrounded in the implementation of these initiatives? Have you seen a change in scientists' perception of the need to work with philosophers or other social scientists? Do you see the same changes in other universities?

Dominique Bourg: There has indeed been a remarkable revival of interest in these issues. We started with a sustainability commission, which became a sustainability center which now extends to the whole university with more and more people involved at each stage. A "Volteface" research program has also been set up to encourage researchers from different areas of the university to engage in environmental programs. We can also see this more concretely in the city of Lausanne itself, which was very lively during the climate strikes with more than 8000 young demonstrators. This was unheard of, especially in Switzerland. So yes, we can say that there has been a significant change. I also felt it elsewhere, like at the University of Technology in Troyes where I taught and where a pole was organized to get things moving. The students are also very supportive of these issues as they are often more open than the professors...

Campus de la Transition: What are the main bottlenecks to remove in higher education?

Dominique Bourg: Certainly the ambivalence of the word "transition". Nobody puts exactly the same thing in it. For some, it refers to technological solutions; for others, it's a change in lifestyle. Depending on the case, it is a question of teaching very different things. Where there is now a consensus is on the scientific observation linked to the work of the IPCC and the IPBES. The problem is that from now on, all the scenarios presented in these reports predict an obligatory transition to violent energy decline, and this is why there is enormous political resistance, despite positive signals from the population.

Campus de la Transition: In our reflection on training for the ecological and social transition, we reflected on how to teach the basic knowledge that would enable students to become aware of the extent and seriousness of the change underway, while at the same time forming critical minds capable of making judgements on scientific statements. How do you combine and balance the two objectives? Have you encountered any difficulties in combining the two?

Dominique Bourg: To begin with, when we teach about environmental issues, we must always give a historical perspective. The relationship between the perception of our problems and knowledge is quite curious. In the 1970s, we could already explain the major mechanisms in terms of climate change. So you could say that what we know today, we have known since yesterday, and the way we relate to it is the same. However, from the second half of the 2010 decade, everything started to accelerate. It is gradually becoming clear that disruptions to the carbon cycle are not limited to the residence time of a CO₂ molecule in the atmosphere, that they will extend over much larger time scales, while the windows of opportunity are gradually closing. Despite this, there is enormous resistance; just look at the counter-papers being written. Then there are more philosophical and epistemological questions. A model is a model, and it's important to have epistemology in education to tell us where we are. Still, you have to combine a historical perspective, to show the dynamics of appreciation and the evolution of perception, with sound scientific knowledge.

Campus de la Transition: In terms of teaching, what innovative forms of teaching would enable the acquisition of this basic knowledge and the development of this critical mind?

Dominique Bourg: In the *Foundations and Practices of Sustainability* master's program, we have opted for a multidisciplinary and transdisciplinary approach. For the acquisition of a scientific culture, we teach them for example to read papers from the scientific literature, combining historical, ethical and practical aspects.

Campus de la Transition: Among the obstacles to such a transformation of higher education, some as you said are political. This is a delicate area when it comes to education. For many, teachers and trainers are required to respect a form of political neutrality in their courses. So how do we deal with these powerful obstacles to transition? Should this position of neutrality be broken?

Dominique Bourg: On the political question, we can see that first of all there is a need to change the institutions at the national level, because we are in the midst of a crisis of representative democracy and the rift between the elites and the people is growing. We are clearly in a time of change and turmoil with a reaffirmation of the relevance of the state and the need for its regulatory function. At the same time, democracy is developing at different scales and is alive and well, especially at the local level. The major challenge is to take into account the question of the long term in public decision-making. This integration of the long term must lead us to redefine the common horizon of our democratic life. Previously, the left and the right agreed on the principle of creating more material wealth and debated above all on the different ways of creating and redistributing it. Today, the consensus should be to reduce this material wealth through degrowth. However, for the moment there is no unanimity on the general direction to take. Let's imagine that we have to go through a period of energy diet (climate and depletion of hydrocarbon resources). If this phenomenon were to become a reality, it is estimated that 15 to 30% of the population would have to be assigned to agricultural work in order to feed the entire French population. Different schemes are then presented to us depending on the political forces in power; on the one hand, we can imagine that everyone would have to

devote a quota of work to agriculture in their lifetime to meet seasonal demands in a world with scarcer transport, a measure that is more likely to be supported by the left. On the right, there is a tendency to promote specialization and to assert that only one category of people, the poorest, should be involved. To achieve resilience in relation to the resources the planet generates in a year, some want to divide the cake equally so that they can give it to everyone, others are prepared to give more to some and less to others so that the average balances the equation.

Campus de la Transition: To sum up, as today we have not defined a common objective, we think that the left-right divide is being erased, which is not necessarily the case, because if we re-establish the conditions that allow a debate around a precise objective there will be a debate on the means. We must therefore make this common objective a reality.

Dominique Bourg: Absolutely, the left-right divide is consubstantial with a democracy that represents a pluralism of values. We can express ourselves as long as we have a minimal consensual basis. Education does not have to be left or right, but should bring out these systemic aspects in a degrowth framework. The political obstacle to be removed is therefore the one that continues to make growth and the production of material wealth the common horizon of democracy.

Campus de la Transition: To conclude this interview, we would like to ask you to describe three types of action that you consider to be crucial at the local, national and international levels.

Dominique Bourg: As far as the local approach is concerned, we have to prepare for a different civilization and I think it is important to teach people to reappropriate a certain number of fundamentals. Relocating food production is essential to rebuild a strong form of local resilience. On a national scale, the answer is more difficult. The legitimacy of a state today depends on its ability to organize resilience and solidarity in the face of ongoing changes. This resilience and solidarity may be easier to achieve at the regional level. At the supra-national level, Europe must once again become a power capable of developing an internal policy that is equal to the challenges. But to do this, it must first of all get rid of neoliberalism and of course stand up to external powers. At the international level, we must maintain efforts to build international regulation because the changes we are experiencing are global. Withdrawal within our borders and a policy of every man for himself would be a disaster. We must therefore ensure that we combine a logic of state power with a process of multilateral construction that enables us to maintain dialogue between the powers. The issues that determine the planet's habitability are global issues. Allowing Jair Bolsonaro to "savannahise" the Amazon forest would be catastrophic for the planet and this is one of the reasons why dialogue must be established now.

Chapter 12

Learning to Engage with Complexity Through the Transformative Learning Approach of the Sustainability Institute in South Africa



Tom Renault and Reinhold Mangundu

Abstract Sustainability challenges are complex wicked problems which require innovative approaches to address them. Since 1999, the Sustainability Institute in South Africa has developed a robust experience around teaching about sustainability and addressing complex systems.

This chapter unfolds the value added by the Sustainability Institute as a praxis hub and its complementarity with Stellenbosch University and the Centre for Sustainability Transitions. It unpacks the pedagogical philosophy that embraces complexity and the need for teachings to be rooted in their geographical environment. The South African context combines historical traumas of Apartheid, current record-high inequalities and an environmental crisis unfolding. It thus urgently calls for a just transition. The chapter further argues that in light of such socio-ecological crisis, it is essential to value learners' emotions and to build resilient communities within the learning process that ultimately allow for transformative learning.

The “Great Transition” requires us to radically change our ways of organization, production, consumption, and our relationship to other human beings and non-human beings at an unprecedented pace. Such a transition requires a transformation of the higher education field, both in its content and its pedagogical approach. Since 1999, the Sustainability Institute (SI), a non-profit trust based in Lynedoch, South Africa, has been promoting a transformative learning approach – encompassing place-based

The original version of the chapter has been revised. A correction to this chapter can be found at https://doi.org/10.1007/978-3-031-39366-2_20

T. Renault (✉)
Campus de la Transition, Forges, France
e-mail: tom.renault@campus-transition.org

R. Mangundu
Namibian Environment and Wildlife Society, (Alumni of Stellenbosch University),
Windhoek, Namibia

learning and community learning, in order to equip future practitioners with the necessary cognitive and interrelational tools and skills to address the increasing complexity of twenty-first century challenges. The SI implements transformative learning programs across all ages, and collaborates with various organizations as the praxis hub in which theoretical concepts and constructs can be animated through application and experimentation. One such collaboration is with Stellenbosch University, specifically the Postgraduate Diploma in Sustainable Development delivered by the Center for Sustainability Transitions (CST), as well as the Diploma in Sustainable Development delivered by the School of Public Leadership (SPL).

As collaborators, the CST and the Institute's philosophy are enabling a world in which humans learn about their interdependencies with ecosystems in a highly unequal world. The learning approach is based on pedagogical methods for integrating sustainability learning (Su & Cheng, 2019), and developing competencies in sustainability which include new innovative skills, systems thinking and collaboration.

12.1 Making Systemic Thinking the New Normal

The climate crisis is deeply intertwined with the erosion of biodiversity, the capitalist economic system, social structures and the political sphere. Future graduates should be equipped with skills that allow them to grasp the interconnections of such challenges by understanding the systemic and emergent features of Complex Adaptive Systems (Meadows, 2009). These perspectives could inform effective decision-making and contribute to an integrated management of systems, particularly with a focus on how society and the economy interact with the ecosystem services we depend on. According to Preiser et al. (2018), this should take the center of any decision-guiding framework. It is already visible in many global frameworks including the United Nations Policy Framework on the Sustainable Development Goals (SDGs), with extensive anchors in economic, social and environmental perspectives to address global challenges. Achieving sustainability for humanity and the planet will require well-informed decision-making frameworks guided by new unprecedented ways to perceive complex problems. This complex and systemic approach needs to be translated in the world of higher education to equip graduates with the adequate tools to address the multiple challenges that we are already facing.

The CST – formerly known as the Center for Complex Systems in Transition – at Stellenbosch University fully embraces the systems thinking lens as part of a novel approach for comprehending emerging phenomena. One of the core modules delivered at the Sustainability Institute for the Postgraduate Diploma equips students with analytical tools to navigate complex situations. The module strives to prepare students to be able to comprehend complexity and to therefore adopt a new way of thinking and doing things beyond business as usual.

In the research pathway, complexity theory and the study of complex adaptive systems enables researchers to integrate different disciplinary perspectives, methodologies and discussions in their research (Hammond, 2005). These particular

perspectives are social, economic as well as environmental. For many years, the subject of nature, for example, has been merely seen as a commodity for the benefit of the human species. As a result, life-supporting systems have been subject to exploitation and disruption. Rockström et al. (2009) and Steffen et al. (2015) remind us that the continuation of human activities not abiding to the way the earth's systems function could make existing systems unstable, causing harmful consequences for major parts of the world. These types of detrimental consequences are the current challenges hindering long-term sustainability around the world.

In order to face such challenges, higher education institutions should acknowledge the interdependency between its various disciplines and equip their students to navigate in such complex environments. By embedding the learning in a praxis hub, complexity concepts are animated and experienced by students through daily interactions with the Institute's various programs and operations.

12.2 Place-Based Learning to Engage in Complexity

According to Iyer-Raniga and Andamon (2016), transformation usually takes place in processes where real-life issues are dealt with through an integrative process in which learners are exposed to participatory methodologies. The learning journeys of the SI embedded in nature and in communities offer an opportunity for students to experiment with real-time challenges while they are being equipped with an understanding of Anthropocene's complex challenges and interdependencies. The opportunities provided by such a learning-conducive environment often create a transformative space for co-creating solutions towards achieving sustainable communities. Pereira et al. (2018) refer to transformative spaces as "safe enough" environments that bring together different participants seeking transformation through the experimentation with new thought processes and practices significant for promoting new paradigms and alternative pathways. Pereira et al. (2018) further underline that these spaces enable and catalyze deep-dialogue, reflection and response-based approaches arising from the application of different perspectives. Students need to deconstruct many assumptions and undergo a paradigm shift that will drive the behavioral change needed for building resilient communities.

Transformative spaces are places to shape and make consistent decisions aimed at anticipating our common future (Dator, 2017). The spaces provided by the SI as a praxis hub, enable students to deal with challenges as they are emerging while shifting to a realm of possible worlds and anticipate future changes (Dunne & Raby, 2013). The current thinking is shifted to extrapolate aspirations valued in the future, which are radical enough to effect deep systematic transformations. For instance, students participating in community work would be able to challenge their social biases and discover new ways of living together. This approach contributes in helping students become well equipped to design adequate policies and plans for the future from constant experimentation and envisioning (Dator, 2017).

26 years after entering a democratic political system, South Africa is still facing numerous challenges characterized by the triple burden of poverty, inequality and unemployment. This nexus is already fuelled by climate change, as the severe 2018's drought highlighted Western Cape's vulnerability or the 2022 floods that wiped out many parts of Kwa-Zulu Natal.

These socio-economic dynamics exist along racial lines after centuries of institutionalized discrimination where people of color were systematically denied access to equal education, land ownership and economic opportunities, amongst other prejudices. The aforementioned is evidence enough that social justice is central to any transition approach, ultimately a "just transition". Fighting inequalities is therefore central in the SI's educational approach and its close environment, which is repeatedly used for experimentation and analysis towards improving the situation.

Diving into the SI's context, the Lynedoch valley, home to the eco-village and the teaching facilities, is not exempted from this infamous triple burden. The semi-rural environment is characterized by winelands that contributed to the building of Stellenbosch's reputation as the wine capital of South Africa. Yet, this beautiful scenery hides a gruesome reality. For a long period of time, farm workers were underpaid in wages and instead compensated through cheap wine, a practice known as the 'dop' system. This practice existed long enough to play a significant role in several generations of alcohol abuse, addiction and violence that stems from it. Scientifically, the abuse of alcohol is known to cause fetal alcohol spectrum disorder (FASD). Although this practice is now officially banned, its lingering effects continue to influence South Africa's drinking patterns. Further evidence points that the world's highest reported rates of FASD occur in South Africa causing a major public health and neurodevelopmental burden on the country (Adnams, 2017). The 'dop system' arguably played a role in contributing to South Africa's high rate of FASD.

This, in addition to many other historical legacies, inter- and intragenerational traumas and present-day issues, creates a challenging context that drives the pedagogical approach of the Sustainability Institute. As a praxis hub, the SI drives projects and research rooted in its local environment. It also creates space for problems to be addressed in a systematic way. Inspiring socio-ecological initiatives are therefore regularly showcased to students and they are constantly reminded of the necessity to have a "just" transition that includes marginalized communities.

This approach materializes in many projects supported by the SI such as the iShack Project, launched in 2011 and which became a social enterprise that provides off-grid solar electricity to residents of informal settlements while they wait for grid-electrification. Or the Living Soils Community Learning Farm, an initiative which aims to demonstrate ecologically-restorative methods to grow nutrient-rich foods to improve community food security.

12.3 Valuing Emotions for Transformative Learning in a Complex World

Empathy can be understood as “a complex cognitive-affective skill that allows us to ‘know’ (resonate, feel, sense, cognitively grasp) another person’s experience” (Jordan, 2009, 103). Empathy is a key competence that can flourish in a conducive environment. Empathy provides the students with the ability to take the perspectives and experiences of others into consideration. Consequently reducing the probability of prejudices while increasing a common understanding amongst students, ensuring the critical reflection enabled by the application of empathy (Cranton & Taylor, 2013). The group work and case studies grant students the opportunity to learn from each other and work towards a common goal.

This learning theory and its appealing approach are contingent on the belief that a better world for all results from the decisions of better individuals (Christie et al., 2015). Hiemstra (2009) captures the fundamentals of this learning theory by stating that the major human need is to comprehend our experiences in order to learn and to act accordingly. This approach is significant as it integrates different perspectives arising from a wide range of experiences on which participants are encouraged to reflect. A well-facilitated process by the educator enables students to question why they feel or act in a certain way (Hiemstra, 2009), which is usually the feeling and behavior arising from the classroom environments (Costanza et al., 2014). This demonstrates the significance of feelings in teaching environments which requires deeper inquiry and acknowledgement of its relationship to existing emerging research around the role of feelings in transformative learning (Cranton & Taylor, 2013). Emotions are significant for learning as they provide areas to focus on and shape any form of action taken by the students, and provide meaning to actions.

Learning about the Anthropocene implies facing staggering facts about the pace of climate change, biodiversity collapse and massive inequalities rooted in a profit-seeking neoliberal system. Such wicked problems are further disturbing as there are no simple solutions to them. These phenomena drive the spark rise in eco-anxiety occurring worldwide, which is fed notably by a feeling of powerlessness (Panu, 2020). From primary school onwards, conventional educational approaches disregard the various emotional and affective interplays between people, other beings, and places. In order to build sustainable communities, we need to learn to connect to our emotions and to be able to express them in various ways, and the SI intentionally promotes such an approach.

In addition to the rigorous academic assessment methods, the CST requires the Postgraduate diploma students to write about their emotions in a journaling format. Having a reflexive and multidimensional space to express one’s learning journey and the emotions that arise throughout the modules plays a central role in the transformative learning experience. The format is also open to promote creative methods of expression such as but not limited to poetry, music and painting.

According to Strange and Gibson (2017), transformative learning theory asserts that an understanding of the world is advanced when students participate in active learning – which in turn allows them to reflect on their experiences that put them in uncomfortable situations. These spaces make provision for students to explore their emotions as explained by Cranton and Taylor (2013). In doing so, participants move beyond knowledge-based ontological assumptions mainstreamed in modern cultures relating to human-nature relationships (Barrett et al., 2017). The ability to feel and experience belonging leads to the construction of a new view of seeing our interdependence with the natural world, breaking away from the blind spots of reductionism (Swilling & Annecke, 2012). Transformative learning about sustainability comes with a pedagogical approach rooted in bigger picture-thinking, which supports a teaching orientation that views nature as a living being (Barrett et al., 2017). Through this kind of learning, students can comprehend our influence on living nature and the implications for long-term sustainability. These insights allow us to explore the right kind of tools needed for radical transformation, transitioning from unjust and unsustainable societies towards more just and sustainable societies (Swilling & Annecke, 2012). Transformative learning should thus always keep sight of the interaction between the shift in the consciousness of an individual and societal change, as the two are strongly connected (Balsiger et al., 2017).

We can thus assert that the learning approaches of both the SI and CST – through systems thinking lenses and transformative learning-based pedagogies – are conducive for learning about sustainability. The praxis hub offers an appropriate space where students can be inspired by socio-ecological innovations as well as learning by experiencing and failing. Being part of the experience – as opposed to explorative system dynamics from the outside – prevents any objective position which would logically contradict the very nature of systems thinking (Young, 2010). Applying systems thinking makes provision for experimental insights in favor of the agility needed to build sustainable futures (Dieleman & Huisingh, 2006).

12.4 Community-Building to Enable Efficient and Meaningful Learning

In his detailed and thought-provoking paper, Taylor (2008) states that humans are intuitively driven to create meaning of everything happening in their lives. The author explains that there are no common truths, that change is permanent and that one can rarely be assured of one's knowledge or beliefs. Nurturing a critical lens to perceiving the world is at the core of CST's pedagogical approach. It is fundamental that students take ownership of their thoughts and develop consciousness that is not being influenced by what they can assume from others. Taylor (2008) provides the basis for discussion and enables us to fathom the concept of transformative learning. He provides a vivid description of the transformative learning approach, which constructs and rallies for novel and revised explanations of the meaning of our

experiences in the world. The experience referred to here is prior encounters from the past which forms the basis for the primary medium of a transformation, and it is the revision of that experience that provides the intended learning process (Cranton & Taylor, 2013). This guides our interpretation of phenomena and thus builds our belief systems and values. Our identity is shaped by our experiences, our upbringing and our prospects on life.

Research around the world seems to have a common interest in transformative learning, given the ability to promote the paradigm shifts needed for a sustainable future. Taylor (2008) posits that the interest is so immense that it has seemed to replace other dominant educational philosophies exploring teaching approaches grounded in empirical research and supported by teaching practice theories.

The concept and approach of ‘transformative learning’ according to Balsiger et al. (2017), considers and critiques the entire context under which education systems execute learning. It is triggered by crises (emerging systemic problems of the Anthropocene) and provides for critical thinking – which in turn invites experimentation based on comprehension meaning perspectives (Balsiger et al., 2017). The approach guides students to challenge their current assumptions against those which they have based their choices on, and asks how they can better align them for the right form of change which is subsequent to a shift in consciousness as well as behavior (Christie et al., 2015).

The sense of community-belonging cannot be crafted artificially, it is a person-driven process. It can be nonetheless facilitated by intentional design that creates favorable settings to enable a community to emerge. The daily community work routine, called *Ilima* plays a significant role in that process. In the amaXhosa culture, *Ilima* is an important community-based initiative that happens in the villages when someone needs help in their home or field. People will come together to help a member of their community without expectation of remuneration, being thanked by the member through the sharing of food or umqombothi (traditional beer). This reciprocal practice is rooted in the Ubuntu philosophy that characterizes Southern African traditional values where “a person is a person through other persons”. *Ilima* is thus a materialization of Ubuntu in the SI context. Such rituals at the SI bring together staff and students to give back to the space while helping each other as a community. The focus here is mostly centered on the community building rather than the actual task at hand, which is nonetheless essential to the functioning of the place.

Every day during a module, the Postgraduate diploma students split into small groups and commit 1 hour to the various tasks that enable the SI eco-campus to flourish. The activities range from practical activities like gardening, waste collection and sorting to cooking for the children on site and cleaning up the facilities. But it also includes self-development activities like music classes, art classes or yoga.

Such a morning routine is highly valuable for the entire learning experience. Firstly, it allows the group of participants to interact in a favorable environment to create intimate bonds, which increases the fluidity of interactions that will occur later-on during the group work and classes. Secondly, it acts like a buffer zone to the outside world and its load of problems and situations monopolizing one’s

head-space. It allows the participants to enter the classroom in a much more learning-conducive mindset. Ultimately, it creates a sense of belonging to the space and to the community that shapes it. The learning process occurs not in a commodity driven process, where one merely receives academic content and leaves but the participants slowly become the custodians of this shared space.

We currently face intricate and systematic global challenges which require a new lens of seeing and comprehending complex adaptive systems in their own intricacy (Van Bilsen et al., 2010; Biggs et al., 2012; Folke et al., 2016; Reich et al., 2016). The argument follows that because the Anthropocene illustrates the systemic nature of the challenges that face sustainable development initiatives, there is a need for responses that are more mindfully aligned to address the systemic nature of these challenges. The motivation and energy to act upon these challenges can be gathered in that community-building process. Therefore, the field of complex adaptive systems thinking is under scrutiny in this study as an alternative to reductionist approaches, and to challenge conventional educational paradigms.

12.5 Complexity Thinking and System Theory to Enable a Future-Driven Approach

By understanding the way complex adaptive systems operate, we are able to strategize and plan by using a complex adaptive system and a resilience-thinking lens (Preiser et al., 2018).

Recognizing our interdependency with systems allows us to apprehend living with changing systems. This acknowledgment further enables us to monitor and manage our interaction with these systems on a regular basis. According to Biggs et al. (2012), enhancing the resilience of ecological systems through efficient and effective management is fundamental for keeping systems well within limits to avoid points of threshold. Although this definition of resilience tends to differ from most of the literature, Folke et al. (2016) define resilience as the ability of socio-ecological systems to adapt or change as a result of unprecedented events and extreme shocks. In the views of Leslie and McCabe (2013), literature based on diversity and resilience in social-ecological systems suggests that these systems should be seen as a set of components faced with different behaviors of interaction from time to time. This deems it necessary to study reinforcing feedback loops within each system.

To bring into discussion our interaction with the biosphere, Folke et al. (2016) mention that humans and other life on earth interact differently with the biosphere and will often shape its resilience in diverse ways. The interaction of humans with natural systems have known pervasive implications (Folke et al., 2016). This in itself speaks to the impact of a tragedy of commons which, if addressed, could lead to the better safeguarding of resources and the entire biosphere which provides the web of life (Meadows, 2009). Clearly, with a new bigger-picture thinking lens and

a social-ecological systems framework, we can study the structure and properties of our natural systems, plan for resilience and manage ecosystem services much more efficiently.

Planning for resilience is central to healthy ecosystem services which underpin human wellbeing. Humans' inherent connection to natural systems explains the need for long-term resilience which is considered pivotal to their wellbeing. The likelihood of resilience for ecosystem services in systems is dependent on aspects such as management approaches and organizations combined with a set of innovation-based knowledge that can cope with slow ongoing change in systems (Biggs et al., 2012).

This becomes the point at which humans interact with systems. Parallel to this perspective of resilience, people should also be able to build resilience from a 'sustainable livelihoods perspective' to reduce their vulnerabilities against other resulting issues such as deteriorating economies, rising inequalities and rampant poverty. Because of these aggregate socio-economic issues, humans resort to trying to dominate natural systems for survival. It therefore becomes important to create conditions for better livelihoods which will sustain life on earth. The SI grounds and its adjacent eco-village provide real-life socio-ecological systems that are studied with scrutiny by all the students – from undergraduates to PhD – who cross Lynedoch's gates.

Since the Brundtland declaration in 1987, the concept of sustainable development as a "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987) was widely accepted, yet also questioned, culminating with the Sustainable Development Goals in 2015. In a nutshell, sustainability practitioners are committed to build an inclusive, sustainable and just future at the service of future generations.

The commitment for the next generation is central to the SI's philosophy and design, with a child-centered design of the buildings and spaces. In the middle of the Lynedoch eco-village, the SI grounds also host an Early Childhood Development Center, a primary school and a youth program for local highschool learners, in addition to providing the physical learning space for the Stellenbosch University programs delivered by the CST and SPL. The grounds are designed to promote children's well-being from the pedagogical garden – where indigenous plants flourish – to the roads limited at 10 km/h including playgrounds and the sandy soccer ground. Why would this unusual cohabitation matter? The children's playfulness and laughter echoing from afar are a constant reminder that future sustainability practitioners should be committed towards transforming the society into a just one so that children's laughter may continue to resonate.

In a country where more than one in four children is stunted, the urgency resides in allowing each child to develop to its full potential (Devereux et al., 2019). Nelson Mandela often insisted on the fact that "education is the most powerful weapon which one can use to change the world". At the SI, this implies transcending the educational offering to provide holistic support to favor children's development, including but not limited to facilitating transport across the valley, focusing on nutrition, emotional, and well-being support. Hence, this children-centered approach

is a strategic tool to break intergenerational injustices that lays the foundation for a more just and resilient society.

It is evident today that as the world becomes increasingly complex, and human systems continue to be interdependent, the complex adaptive system thinking and complexity-based view also continues to enhance teaching and research. Undoubtedly, this paradigm shift provides a new directionality in thought-processing as well as decision-making. Consequently, it can be expected that school systems, particularly universities, should be able to develop system thinkers who are self-reliant and able to flourish and adapt to an uncertain and rapidly changing world (Fabricatore & López, 2014).

12.6 Conclusion

The learning approach of the CST, SPL, and the SI challenge linear-thinking and the current objectivist paradigm which dominates the curriculum development and knowledge (Young, 2010) within many local universities. The linear style supported by unchanging pedagogical approaches makes it difficult to draw bigger connections within the outside world as the focus is dominantly on the reductionist view of the world (Bernier, 2018).

When systems thinking is integrated within the instructional process, it yields the highest results for students beyond the learning process (Thornton et al., 2004). Students will be increasingly ready for proactive transformation by adopting systems thinking perspectives, deep understanding of complex problems – such as climate change, land degradation, inequality –, a deeper sense of creativity for solutions-oriented thinking, and a collective enthusiasm for positive change. As a praxis hub for Stellenbosch University, the SI nurtures this approach by promoting place-based learning and building communities through transformative learning mobilizing the head, the heart and the hands.

References

- Adnams, C. M. (2017). Fetal alcohol spectrum disorder in Africa. *Current Opinion in Psychiatry*, 30, 108–112. <https://doi.org/10.1097/YCO.0000000000000315>
- Balsiger, J., Förster, R., Mader, C., Nagel, U., Sironi, H., Wilhelm, S., & Zimmermann, A. B. (2017). Transformative learning and education for sustainable development. *GAIA – Ecological Perspectives for Science and Society*, 26, 357–359. <https://doi.org/10.14512/gaia.26.4.15>
- Barrett, M. J., Harmin, M., Maracle, B., Patterson, M., Thomson, C., Flowers, M., & Bors, K. (2017). Shifting relations with the more-than-human: Six threshold concepts for transformative sustainability learning. *Environmental Education Research*, 23, 131–143. <https://doi.org/10.1080/13504622.2015.1121378>
- Bernier, A. (2018). How matching systems thinking with critical pedagogy May help resist the industrialization of sustainability education. *Journal of Sustainability Education*, 18.

- Biggs, R., Schlüter, M., Biggs, D., Bohensky, E. L., BurnSilver, S., Cundill, G., Dakos, V., et al. (2012). Toward principles for enhancing the resilience of ecosystem services. *Annual Review of Environment and Resources*, 37, 421–448. <https://doi.org/10.1146/annurev-environ-051211-123836>
- Brundtland, G. H. (1987). Our common future—Call for action. *Environmental Conservation*, 14, 291–294. Cambridge University Press/JSTOR.
- Christie, M., Carey, M., Robertson, A., & Grainger, P. (2015). Putting transformative learning theory into practice. *Australian Journal of Adult Learning*, 55, 9–30.
- Costanza, R., Chichakly, K., Dale, V., Farber, S., Finnigan, D., Grigg, K., Heckbert, S., et al. (2014). Simulation games that integrate research, entertainment, and learning around ecosystem services. *Ecosystem Services*, 10, 195–201. <https://doi.org/10.1016/j.ecoser.2014.10.001>
- Cranton, P., & Taylor, E. W. (2013). A theory in progress?: Issues in transformative learning theory. *European Journal for Research on the Education and Learning of Adults*, 4, 35–47. <https://doi.org/10.3384/rela.2000-7426.rela5000>
- Dator, J. (2017). Why gaming, why alternative futures? *Journal of Futures Studies*, 22, 75–80.
- Devereux, S., Jonah, C., & May, J. (2019). How many malnourished children are there in South Africa? What can be done? In K. Roelen, R. Morgan, & Y. Tafere (Eds.), *Putting children first: New Frontiers in the fight against child poverty in Africa* (CROP International Poverty Studies vol. 7) (pp. 157–186). Ibidem Verlag.
- Dieleman, H., & Huisinigh, D. (2006). Games by which to learn and teach about sustainable development: Exploring the relevance of games and experiential learning for sustainability. *Journal of Cleaner Production*, 14, 837–847. <https://doi.org/10.1016/j.jclepro.2005.11.031>
- Dunne, A., & Raby, F. (2013). *Speculative everything: Design, fiction, and social dreaming*. The MIT Press.
- Fabricatore, C., & López, M. X. (2014). Complexity-based learning and teaching: A case study in higher education. *Innovations in Education and Teaching International*, 51, 618–630. <https://doi.org/10.1080/14703297.2013.829408>
- Folke, C., Biggs, R., Norström, A. V., Reyers, B., & Rockström, J. (2016). Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society*, 21, art41. <https://doi.org/10.5751/ES-08748-210341>
- Hammond, D. (2005). Philosophical and ethical foundations of systems thinking. tripleC: Communication, capitalism & critique. *Open Access Journal for a Global Sustainable Information Society*, 3, 20–27. <https://doi.org/10.31269/triplec.v3i2.20>
- Hiemstra, D. (2009). *Transformational learning and the outdoor environment: An experiential education approach*. Athabasca University.
- Iyer-Raniga, U., & Andamon, M. M. (2016). Transformative learning: Innovating sustainability education in built environment. *International Journal of Sustainability in Higher Education*, 17, 105–122. <https://doi.org/10.1108/IJSHE-09-2014-0121>
- Jordan, J. V. (2009). *Relational-cultural therapy* (1st ed.). American Psychological Association.
- Leslie, P., & McCabe, J. T. (2013). Response diversity and resilience in social-ecological systems. *Current Anthropology*, 54, 114–143. <https://doi.org/10.1086/669563>
- Meadows, D. H. (2009). *Thinking in systems: A primer*. Earthscan.
- Panu, P. (2020). Anxiety and the ecological crisis: An analysis of eco-anxiety and climate anxiety. *Sustainability*, 12, 7836. <https://doi.org/10.3390/su12197836>
- Pereira, L. M., Hichert, T., Hamann, M., Preiser, R., & Biggs, R. (2018). Using futures methods to create transformative spaces: Visions of a good Anthropocene in southern Africa. *Ecology and Society*, 23, art19. <https://doi.org/10.5751/ES-09907-230119>
- Preiser, R., Biggs, R., De Vos, A., & Folke, C. (2018). Social-ecological systems as complex adaptive systems: Organizing principles for advancing research methods and approaches. *Ecology and Society*, 23, art46. <https://doi.org/10.5751/ES-10558-230446>
- Reich, K., Garrison, J., & Neubert, S. (2016). Complexity and reductionism in educational philosophy—John Dewey’s critical approach in ‘democracy and education’ reconsidered. *Educational Philosophy and Theory*, 48, 997–1012. <https://doi.org/10.1080/00131857.2016.1150802>

- Rockström, J., Steffen, W., Noone, K., Åsa Persson, F., Chapin, S., Lambin, E. F., Lenton, T. M., et al. (2009). A safe operating space for humanity. *Nature*, 461, 472–475. <https://doi.org/10.1038/461472a>
- Steffen, W., Richardson, K., Rockstrom, J., Cornell, S. E., Fetzer, I., Bennett, E. M., Biggs, R., et al. (2015). Planetary boundaries: Guiding human development on a changing planet. *Science*, 347, 1259855–1259855. <https://doi.org/10.1126/science.1259855>
- Strange, H., & Gibson, H. (2017). An investigation of experiential and transformative learning in study abroad programs. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 29, 85–100. <https://doi.org/10.36366/frontiers.v29i1.387>
- Su, C.-H., & Cheng, T.-W. (2019). A sustainability innovation experiential learning model for virtual reality chemistry laboratory: An empirical study with PLS-SEM and IPMA. *Sustainability*, 11, 1027. <https://doi.org/10.3390/su11041027>
- Swilling, M., & Annecke, E. (2012). *Just transitions: Explorations of sustainability in an unfair world*. UCT Press; published in North America, Europe and Asia by United Nations University Press.
- Taylor, E. W. (2008). Transformative learning theory. *New Directions for Adult and Continuing Education*, 2008, 5–15. <https://doi.org/10.1002/ace.301>
- Thornton, B., Peltier, G., & Perreault, G. (2004). Systems thinking: A skill to improve student achievement. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 77, 222–230. <https://doi.org/10.3200/TCHS.77.5.222-230>
- Van Bilsen, A., Bekebrede, G., & Mayer, I. (2010). Understanding complex adaptive systems by playing games. *Informatics in Education*, 9, 1–18. <https://doi.org/10.15388/infedu.2010.01>
- Young, J. M. (2010). Problems with global education: Conceptual contradictions. *Alberta Journal of Educational Research*, 56(2). Summer 2010. <https://doi.org/10.11575/AJER.V56I2.55395>

Chapter 13

Alternative Pedagogies: Interview with Mark Swilling



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, and Mark Swilling

Interviewers: Cécile Renouard, Frédérique Brossard Børhaug and Ronan Le Cornec

Interviewee: Mark Swilling

Online interview realized on January 14, 2020

Abstract Mark Swilling is a Distinguished Professor of Sustainable Development in the School of Public Leadership, University of Stellenbosch, and Co-Director of the Stellenbosch Centre for Sustainability Transitions (formerly called Centre for Complex Systems in Transition). He is also Visiting Professor at the Universities of Sheffield and Utrecht, and Bass Scholar at Yale University (2018). He co-authored, co-edited or lead several publications on sustainability, urban development and South Africa. In this interview he talks about the Sustainability Institute of which he is the Academic Director, the relations such institutions can entertain with more formal ones, how to set up this type of institutions and increase their visibility, the pedagogical practices of the Sustainability Institute, the way the diversity of personalities, the body and emotions are integrated in education. Beyond he also talks about the definition of sustainability, the way it can be taken up by higher education institutions, the role of traditional and cultural knowledge as well as the use of digital tools in education.

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition, Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

M. Swilling

Stellenbosch University, Stellenbosch, South Africa

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*, Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_13

Campus de la Transition: We are conducting a research project on training in the environmental issues that all students will face during their working lives. We adopt an interdisciplinary and holistic approach to take into account knowledge, dynamics, being, attitude... We attach particular importance to the pedagogies implemented. The Sustainability Institute is a pioneer in this field. What challenges did it set out to address in South Africa and how did it go about it?

Mark Swilling: South Africa is quite unique because of its racial history. The institutions have been racialized for a very long time, so the transformation of education primarily meant a massive diversification. Education was really seen as a form and an issue of development for the country. It is only very recently that environmental issues have been integrated into education. When we started in the early 2000s (in 1999, to be precise), nobody really knew what sustainability meant. It was a new concept. So we proposed to start a master's program and then we decided to really implement it in an ecological way, like an eco-village. The project was accepted for very specific reasons: it was to democratize the university, where mainly white elites were trained. They saw it as an opportunity to fight against the arrogance of the system by providing opportunities to educate all young people. Pedagogically, the main challenge was to combat the high disciplinary fragmentation of knowledge. Knowledge has become very fragmented. It is difficult to understand reality, especially ecological reality: we realize the environmental issues when we face physical and visual changes. Without that, it is very difficult to perceive them. That's why we wanted to put ecology back at the center of our teaching, and that's the essence of our campus.

Campus de la Transition: Do you think that this willingness to link theory and practice, cognitive approaches and real-world learning could become a wider trend, or even the norm within universities?

Mark Swilling: It's quite heterogeneous. We're seeing a proliferation of institutions like Schumacher College, the Campus de la Transition, the Sustainability Institute...; there must be about 20 such institutions around the world. For the moment, these institutions represent a network of very innovative niches within which alternatives are emerging. Although they are clearly not changing the dominant regime at the moment, they are becoming more and more influential. There are several approaches to setting up such projects. The first is global: a number of teachers come together under one banner and form a collective with the "name of the university" plus sustainability initiatives or a similar term. This is typically the case with the Arizona School of Sustainability. This is easy to set up as the values are usually common to the whole team. The second approach is to set up a specialized master's program within the institution and then extend these issues to the whole university. This is the case for example at Columbia University. This approach may be more difficult to implement because of the diversity of views within an institution, but it has great potential if done well. In any case, more and more universities are highlighting environmental development programs as part of their ambitions which is very positive, although many want to implement them without disrupting the existing organization too much. Secondly, there is also another trend which is rather contradictory to our way of thinking, which consists of turning sustainability into a discipline as in the United States. I don't necessarily share this point of view,

but it has allowed a new generation to emerge that is steeped in these sustainability issues. However, it should be noted that this is systematically done within a “Western” framework. The transformation of institutions in a country like China for example, raises questions of a completely different order. In India, we are seeing more and more initiatives in the form of urban farms and reflections on urbanization issues, because the priority is above all development.

Campus de la Transition: You mentioned programs oriented towards ‘sustainability’ or ‘soutenabilité’, or even the creation of a discipline under this heading, but what do you think of the very notion of ‘sustainability/soutenabilité’?

Mark Swilling: There is always an ambivalence behind a word, between the temptation to get stuck in it or to put too many different notions in it. Sustainability is no exception. Moreover, depending on the period, its use and understanding can evolve. In the 1970s, 1980s and 1990s, we used to talk about resilience, and then finally we moved to an alternative narrative around transition. In any case, these are broad, general terms that are vague enough to be able to shape society, but the important thing is to see how they allow certain actions to take place.

Campus de la Transition: Isn’t one of the issues at stake the possibility of linking initiatives carried out within small, relatively simple and light structures to those led by the larger institutions that are universities? Can you tell us more about the links between the Sustainability Institute and Stellenbosch University?

Mark Swilling: The Sustainability Institute is a kind of non-profit label. The university does not control it, although it is part of it, it is a completely independent body. Initially, we wanted to distinguish between two forms of knowledge: general knowledge (*episteme* in Greek) which is handled by Stellenbosch University, and technical knowledge (*techne*) which is related to the skills that fall within the competence of the Sustainability Institute. We have added practical reason (*phronesis*) which means the ability to make judgements in the given context. Traditionally, teaching focuses on general knowledge, while technology allows one to relate to the context or landscape in which one applies theory. At the Sustainability Institute, we wanted to create a landscape for applying theory that embodies the different options available, and this is essential for sustainability issues. We started with a master’s program, then developed a bachelor’s program, and then set up a primary school. All we need now is a high school and we will bring together in one space age groups ranging from primary to post-doctorate!

Campus de la Transition: What strategies have you adopted to increase the visibility of the Sustainability Institute?

Mark Swilling: For 14 years the strategy was to stay behind the radar, not to talk about the Institute too much until it was sufficiently solid and robust to be able to justify its existence in all respects. It was only in 2014–2015 that we wrote a document with a set of teachers associated with the university to present the institution as a research institute on transition issues. I think it’s important to have a place to stand, because if these broad groupings of academics interested in sustainability issues don’t materialize anywhere, it becomes complicated to understand concretely what they do. And it is also harder to find funding. We need institutions that can provide a place for research, teaching and certification. One point I think is particularly

important for the success of such projects, whatever their size, is the establishment of a master's degree when a research institution is created. Once the directions are determined, you have to let the people involved in the project take responsibility. This allows the professors to really take ownership. If there is little integration, students will feel it throughout their course and the quality will be diminished. On the other hand, you have to be careful to know exactly where everyone wants to go. For the Sustainability Institute, I wrote the curriculum in advance and chose to invite certain personalities. Only then did I give them free rein. This seems to me to be preferable to a totally inclusive management approach, where the doors would be open to everyone from the start. There is a need to provide an initial framework in which not everyone's ideas can be accepted. This is a real challenge so that everyone can then express themselves, while continuing to maintain a holistic vision.

Campus de la Transition: On the pedagogical level, more specifically, what methods are promoted within the Institute?

Mark Swilling: Our pedagogies are based on three principles: the given context (linked to *frenesis*), which frames place-based learning and discussion learning. Place-based learning is an incredible experience. We have a rich and privileged setting that includes residences, schools, farms..., and we can expand the world of alternatives in one of the most violent and unsafe places in the world. It's an opportunity. So we use this wealth to promote engagement in the classroom, especially through discussion. Indeed, for this learning through discussion, we assume that collective knowledge is much greater than the sum of individual knowledge. To achieve this, we need facilitation and moderation tools to make sure that there is a balance between providing formal knowledge and allowing for discussion. Sometimes some discussions will go far beyond the course. This is a very effective method of problem solving, but sometimes it is at the expense of concentration and analytical skills. Conversely, the more "lectured" courses are effective in developing analytical and concentration skills, but poorer in problem solving, that's why we need a balance between the two. We are very demanding on the writing skills that we feel are essential to master. At the beginning of our programs, we have a one-week module where we give students the keys to read, study, understand, analyze, reflect and write. This is followed by a six-week period with readings to be prepared for each session and two assignments to be handed in. The first is to study a piece of content, usually a literary journal. Students are then required to apply the concepts they have studied in the first module by dissecting the arguments in the review. The second assignment is to learn how to illustrate an argument through a case study.

Campus de la Transition: The academic world is generally hostile or at least critical of the place that emotions can be given within teaching practice, but this is also the case in the research world. Yet forms of reconnection with nature also involve reconnection with oneself and with others, things that cannot really be intellectualized. Do you introduce the emotional dimension into your teaching? How do you prepare students for more negative emotions and how do you build a pedagogy that takes these experiences into account?

Mark Swilling: We have to work with different personalities and styles, which is not always easy. A learning journey is also about navigating these differences. We

put a lot of emphasis on the ‘head-heart-body’ pedagogy. We start the day with yoga and stretching sessions for body connection. Then we take an hour to garden, clean, repair... to soak up the experiential process. Only then do we return to the classroom. Furthermore, in addition to the two assignments the students have to hand in, which we mentioned earlier, we ask them to write a diary about their “learning journey” in the first person singular. Initially, most journals are about what happens in the classroom, but there is no emotion. So we take the time to read, comment and see with them how they can express their emotions. We also insist that teachers ask students not only what they think, but also what they feel. The expression of more negative emotions is something that happens all the time, whether it’s about ethnicity, gender, violence, wealth... It’s all there and we try to work with all of that so that no student remains silent, in a framework of listening and sharing. We also use non-violence pedagogies with texts by Gandhi, Mandela, Martin Luther King, Ben Okri and many others to make them work on their emotions and their behavior.

Campus de la Transition: This is a very interesting approach. Many schools, particularly business schools, teach courses that are not at all linked to the living, to social aspects, to individuals. It talks about the need to integrate non-material elements, even knowledge from the elders. Do you incorporate the discourses of the elders into your thinking and how do these translate into your daily activities?

Mark Swilling: We are part of a new nation that is still struggling to be united in every way. The voice of the elders, especially the indigenous peoples, has long been sidelined, but this is slowly changing with the emergence of a new generation that cares about the environment in which they live. The word *ukama*, which comes from Zimbabwe, is increasingly used, meaning “related to each other”, “kinship to the environment”, in the sense that we are not just related to each other. There is a link between the animate and the non-animate. The contribution of the elders is very powerful here, because they are present, have lived through the past and can advise us on building the future. They allow us to make the link between the past and the future, which is very rich and brings us a lot in the construction of a common framework. To give you a simple example, in the statement “I think, therefore I am”, you will always be asked in addition: “with whom and where?” In this framework, you think with others and in a particular context. From a more technical point of view, we have a module called “Integrated voices Indigenous African Perspectives” to address these issues.

Campus de la Transition: On the technical side of education, the incentives to digitize courses are growing, and the pandemic we are going through is a powerful accelerator in this respect. How do you combine this trend with pedagogies that require more direct interaction with nature and others?

Mark Swilling: These two objectives do not necessarily conflict provided that we consider digital tools as complements to the pedagogies described above, and that we use these tools in a way that respects digital sobriety. We have digital tools and platforms that we use as complementary devices to support this less conventional form of teaching that we deliver at the Institute. We just have to keep in mind that mastering these tools is a means and not an end in itself.

Chapter 14

Challenges and Opportunities in Norwegian Higher Education in the Anthropocene Epoch



Frédérique Brossard Børhaug

Abstract Since 2017, the university sector in Norway has aimed to significantly transform its educational offer in the Anthropocene epoch. The objectives of the inter-university partnership are to deeply transform, in conjunction with the SDGs, teaching programs and research, and make universities aware of their acute ethical and professional responsibility in the 2030 Agenda. This grounding collaboration gave rise to a report: *SDG – Quality in higher education: Developing a platform for sharing ideas and practices within the universities* (UiB. SDG – Quality in higher education: Developing a platform for sharing of ideas and practices within the universities: Report from a working group, 2020), in which are presented the objectives as well as examples of good practices developed by some universities and university colleges in the country. Nonetheless, Norway faces a profound paradox, that of being both a producer and exporter of hydrocarbons and of showing itself as a leader of the climate cause on the national and international stage: Furthermore, Norwegian research indicates contradictory individual and public views on current climate change and its grim consequences on biodiversity's upholding. This polyphony of positions leads educators within the university sector to question further the current educational offer.

F. Brossard Børhaug (✉)
VID Specialized University, Stavanger, Norway
e-mail: frederique.borhaug@vid.no

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_14

14.1 A Notable Paradox with Polyphonic Stances

With one of the highest levels of well-being in the world,¹ Norway's wealth since 1969 has been largely linked to the production and export of oil and gas. Norway has become a country that emits a lot of CO₂ and other greenhouse gasses² even if these emissions are considered by the successive Norwegian governments to be among the "cleanest" in the world; as such, the oil and gas sector has been the main contributor to the increase in Norwegian CO₂ emissions since 1990 (Miljødirektoratet, 2021). The political stance about the economic development and the arguments for or against the reduction of the current production as well as the possible exploitation of new deposits and the burial of carbonaceous waste are regularly the subject of intense and contradictory discussions in the Norwegian public realm.³

At the same time, Norway is positioning itself as a leader in the climate cause, both nationally and internationally. The overall political discourse is to continue promoting the Sustainable Development Goals (SDGs) as "[t]he 2030 Agenda has become more integrated in Norwegian policy planning since 2016" (Norwegian Ministry of Local Government and Modernisation, 2021, 4). Within the field of education, the white paper by the Ministry of Education and Research (Norwegian Ministry of Education and Research, 2018), the revised Education Act (Norwegian Ministry of Education and Research, 2019) and the implementation in 2020 of a new curriculum at school (6–19 years old) integrating sustainable development as a core pluri-disciplinary objective⁴ are showing strong efforts for dealing with challenges in the Anthropocene epoch. In addition, some Norwegian female leaders such as the former Prime Ministers Gro Harlem Brundtland and Erna Solberg show a visible commitment on the international scene.⁵ Finally, in a country where gender parity is highly valued, the Rachel Carson prize is awarded every 2 years to women for their decisive contribution to environmental work and creativity.⁶

We therefore notice a real paradox between an economy highly dependent on hydrocarbons and an openly voluntarist policy against "glocal" warming – let's remember that Norway also is affected by global warming especially in the Northern

¹ According to the OECD Better Life Index (OECD, n.d.), (<https://www.oecdbetterlifeindex.org/countries/norway/>)

² In 2021, 12,1 million tons of CO₂ were emitted by the sector of oil and gas extraction (Statistics Norway, 2022).

³ E.g. Tema: Klimavoter – Energi og Klima, (<https://energiogklima.no/tema/klimavoter/>)

⁴ See 2.5.3 Bærekraftig utvikling, (<https://www.udir.no/lk20/overordnet-del/prinsipper-for-laring-utvikling-og-danning/tverrfaglige-temaer/2.5.3-barekraftig-utvikling/>)

⁵ The Brundtland report introduced a globally used definition of sustainable development in 1987; Solberg was reappointed by the UN to a new term as Co-Chair of the SDG Advocacy Group, together with H.E. President Nana Addo Dankwa Akufo-Addo of Ghana (Norwegian Ministry of Finance and Norwegian Ministry of Foreign Affairs, 2019, 6).

⁶ See the website of the association that awards the prize, (<http://www.rachelcarsonprisen.no/home.html>)

part of the country (Miljødirektoratet, 2021). The drastic reduction of emissions required for achieving the 2030 Agenda and the effective still very high production testify to this deep contradiction.⁷ We also find high ambivalence in the public realm. A growing mobilization in favor of pro-climate actions is registered in the country; however, there are great divergence in points of views dividing both individuals and age groups (Fløttum & Espeland, 2014; Fløttum, 2017; Fløttum et al., 2019). Since the autumn 2015, the gap between youth born in or after 1990 and individuals born in or before 1959, and individuals born in 1960 up to 1989 is significant; in the autumn of 2021, 70% of the youth were concerned or deeply concerned by the climate change, the same concern is lower for individuals born in 1959 or before (54%) and individuals born in 1960–1989 (47%) (Gregersen, 2021a).⁸ It also seems that individuals relate to a higher extent to the collective threat of climate change rather than its also severe implications on individuals and the necessary single commitments that should be made by everyone (Gregersen, 2021b). The mentioned prize above is besides little known by Norwegian commoners. That being said, the situation is evolving; for the first time since 2013, more than 50% of the Norwegian population was concerned or deeply concerned with climate change – more specifically, 53% in the autumn of 2021 (Gregersen, 2021a).

14.2 Educating in the Anthropocene Epoch at the University Level in Norway

This contribution aims only to present a few features of higher education for sustainable development (HESD) provided by Norwegian academia. The expression “ecological transition” is not used in the Norwegian context as the terms of SDGs, education for sustainable development (ESD) (Sinnes, 2021) or didactics of sustainability (Kvamme & Sæther, 2019) are preferred. However, like in other countries, critical arguments are addressed concerning the concept of development *per se* (Sinnes & Straume, 2017; Hilt & Torjussen, 2021) or/and its content (e.g. (UiB, 2020, 10)). The new development model should no longer be understood as expansion, but as “recomposition, circulation, limitations and wellbeing” in continuous reciprocity with nature (UiB, 2020, 7).

In 2017, the University of Bergen (UiB) launched a university-wide strategic initiative, with the support of the State, to set up the 2030 Agenda in the university sector and develop a platform for knowledge sharing of ideas and best practices (p. 6). The objective was to critically engage with SDGs and transform drastically all teaching and research activities making students, teachers, administrative staff, and eventually all citizens “sustainability change-makers”. Every February since

⁷The 12,1 million tons of CO₂ emitted by the sector represents a reduction of 8,1% since 2020 but an increase of 48,4% in 1990–2021 (Statistics Norway, 2022).

⁸The numbers are based on a representative panel of the Norwegian population.

2018, high-level conferences are organized.⁹ This work gave rise to a preliminary report: *SDG – Quality in higher education: Developing a platform for sharing ideas and practices within the universities* (UiB, 2020), in which are presented the objectives and practices developed by six universities and university colleges, one business school and the national organization of students.

In other words, the reports calls for a radical change of the university sector's education in the Anthropocene epoch making possible the emergence of an eco-social type of sustainable development model based on three central pillars: economic viability, social equity and environmental protection (p. 4, 7, 10). As such, the inter-university sharing platform aims contributing to international and national dialogue about the role of universities, by renewing epistemologies, transforming the orthodoxies of traditional disciplines, and boosting pedagogical innovation for educating for, as and about sustainable development (p. 5, 17). By preserving academic freedom and converting silo-thinking into new types of disciplines (post-disciplines, p. 11), the aim is proposing interdisciplinary and multi-institutional projects, high flexibility in both content and practices, continuous critical reflection about synergy and potential conflicts within the SDGs, and rigorous knowledge funds based on an intense cooperation between natural, social and human sciences (p. 10).

The report presents a typology for equipping individuals with a mindset and key competences for sustainability and good practices (p. 12, 13, 21). Key competences for HESD are defined as “systems thinking competency, anticipatory competency, normative competency, strategic competency, transdisciplinary collaboration competency, critical thinking competency, creativity competency, self-awareness competency and integrated problem-solving competency” (p. 12). It also provides a clear commitment to student rights, voicing opportunities and engagement (p. 20). Overall, the report lies on a socio-constructivist approach, where teaching and research are developed through problem-oriented and action-based learning with no predefined solutions on urgent and wicked problems (p. 12, 14). Not only academic and transdisciplinary crossings and cooperation are necessitated for interpreting and acting in the world in innovative sustainable ways (p. 11), new types of governance are also requested. For instance, transforming the higher educational system based on multiple evaluations, rankings, ratings and criteria of excellence with citation-indices and journal status which often lead to strengthen disciplinary orthodoxies and weaken inter- and transdisciplinary collaboration (p. 19). Thus, the traditional disciplinary and administrative orders, systems of evaluation and rewards work as hindrances and must be changed for achieving comprehensive actions based on flexibility, collaboration, academic mobility, and sustainable creativity (p. 19).

⁹See SDG Conference Bergen from the University of Bergen, (<https://www.uib.no/en/sdgconference>)

14.3 A Necessary Paradigm-Change in Education

The report thus denotes a genuine commitment from the Norwegian university sector for initiating and being an example for the society at large, an objective which is also stated explicitly in the document (p. 14). Joining forces and making growing efforts within the whole Norwegian academia, in cooperation with universities abroad, are firmly established. For instance, the research group of Linguistic Representations of Climate Change Discourse and Their Individual and Collective Interpretations at the University of Bergen,¹⁰ the Sustainability Education Collective at the same university,¹¹ the Interdisciplinary Strategic Research Areas of the University of Oslo,¹² and the Sustainability Research Group at the Western Norway University of Applied Sciences¹³ opens up necessary interdisciplinary lines of research and cross-cultural pedagogical innovation. In addition, another important report for the sector is made accessible at the SDGs conference of 2022. The UNESCO in collaboration with the University of Bergen (UiB) established the Global Independent Expert Group on the Universities and the 2030 Agenda, and it published this report *Knowledge-driven actions: transforming higher education for global sustainability* (UNESCO and UNESCO Global Independent Expert Group on the Universities and the 2030 Agenda, 2022). In the report, the expert group strengthens the need for establishing inter- and transdisciplinarity in curriculum and research programs, it claims for a truly global knowledge-base for the SDGs, and it advocates for an intensifying role for universities as partners for the private, public and civil sectors. Universities thus have an enormous opportunity to influence the society at large; not only they must participate actively to its foundational choices, it also must reshape its whole own system from teaching and research where sustainability becomes a strategic focus in all studies (Hessen, 2022).

A broader emphasis yet must be made. For instance, when gathering best practices in teaching and research at national level, not all higher institutions in the country were included in the report of the University of Bergen (UiB, 2020), and business education still fails the climate (Todnem, 2022). A following report could be launched for presenting the whole sector's innovative research and teaching, and it should recognize the valuable work of smaller higher institutions which often are standing farer away from the universities' formal center but are very creative in their research and teaching.¹⁴ Outdoor pedagogical actions – for instance, planting trees

¹⁰ LINGCLIM: Linguistic Representations of Climate Change Discourse and Their Individual and Collective Interpretations, (<https://www.uib.no/en/rg/lingclim>)

¹¹ See Sustainability Education Collective – Bærekraftskollegiet: Institutional synergies for sustainability learning, (<https://www.uib.no/en/sustainabilitycollective/149692/sustainability-education-collective-b%C3%A6rekraftskollegiet>)

¹² See the Interdisciplinary strategic research areas of the University of Oslo, (<https://www.uio.no/english/research/strategic-research-areas/>)

¹³ See the Sustainability Research Group of the Western Norway University of Applied Sciences, (<https://www.hvl.no/en/research/group/sustainability-research-group/>)

¹⁴ In France, see the Campus de la Transition, (<https://campus-transition.org/en/home-2/>)

and creating student community gardens in collaboration with non-governmental associations, also could be presented.¹⁵ Furthermore, a wider dissemination of SDG education at higher level cannot do without an explicit critical examination of the paradox mentioned over- and not mentioned in the report, and this must be combined with a stronger critical stance regarding the limits of the technophile official discourse (Fløttum & Espeland, 2014; Sinnes & Straume, 2017; Wallenhorst, 2021).

As global warming not only is a bio-physical but a social, cultural, political, ethical, and communicational phenomenon (Fløttum, 2017; Fløttum et al., 2019) and of course a crucial educational concern, the goal of providing knowledge *about* sustainable development is insufficient. In fact, the current educational endeavor must provide actively an education *for* sustainable development, and it must include a comprehensive ethical pedagogical reflection fostering green attitudes, skills, values, and virtues for sustainable citizenship (Hilt & Torjussen, 2021). Educating sustainability change-makers as the 2020 report advocates for is implying a paradigm shift where (higher) education cannot not only promote an education *about* the Anthropocene but rather must be conceived as an education *in* the Anthropocene (Wallenhorst et al., 2023). It thus implies crucial, wide-ranging structural changes destabilizing unfair knowledge orders also within higher education, and politicized actions for urgently preserving the ecumene – the habitability of the world for all living creatures on earth. For instance, should we opt for a *post*-neoliberal world as a collective of over 300 intellectuals from 33 countries advocate about (Convivialist International, 2020), and if yes, what could be the contribution of higher education there?

In addition, the preservation of cultural/linguistic diversity is in deep interdependence to the preservation of biodiversity and it must become a systematic objective in all educational discourse and practice (Maffi, 2018; Brossard Børhaug, 2021).¹⁶ Nature's needs cannot be grasped without vivid languages and cultures. For example, the pluviometry in the region of Brittany in North-West France is conceptualized in deep interdependence with its context – rain is not only rain, it can be considered in many ways depending on the light, the sky, the sound it makes on falling on earth, etc.) and it depends on a vivid regional language, the *Breton* language. The beauty of the fjords of Western Norway cannot be fully conceptualized without poetry and a vivid new-Norwegian language– *Nynorsk*, a language that many inhabitants of the fjords speak. Both Breton and Nynorsk languages are being minoritized in their respective national contexts. Therefore, they cannot be fully developed without a strong state support, and the democratic objective of integrating immigrants and indigenous peoples which allows showing a genuine respect to their cultural knowledges. Promoting democratic strategies of living with differences in unity contradicts the state's homogenizing process of erasing slowly (assimilating) the minority groups' cultural/linguistic differences. At the 2022

¹⁵ See for instance the work of the LIKEN for environmental protection at the University of Pau in France, (<https://www.youtube.com/watch?v=YeOBLvGOOvw&list=PLyIiAQ7OL4c0mSTITZTHh5mxdy9hCUJ5D&index=11>; <https://www.facebook.com/likenprojejt/>)

¹⁶ See the work of Terralingua, (<https://terralingua.org/>)

University conference however, the indigenous knowledges were openly recognized which is an important step in the right direction towards the necessity of bio-cultural diversity and the intertwined connections of life. Yet, in the newly revised curriculum at school in Norway, the interdisciplinary theme of sustainable development is not included in mother tongue and bilingual education for immigrant students contrary to all other subjects and thus, it represents a missed opportunity of combining the immigrant pupils' own particular knowledges with the Norwegian learning context¹⁷). Likewise, the future preservation of diversity must be understood within a historical critical and ethical backlight. For example, the genocide of humans and the destruction of nature during the colonization epoch represented the first global anthropogenic destruction; as such, the particular study of the Caribbean historical context, and the critique of the white Anthropocene gives way to anti-racist ecological paradigm shifts (Malcom Ferdinand, 2019, 2020). "What history has to be taught?" is an important question for all higher educational local contexts. In Norway, the history of the Norwegian petroleum development, for instance, could be critically studied regarding the discourse about the preservation of the local nature –what story is being told to Norwegians regarding the country's petroleum-based economic boost which started for 50 years ago, and how sustainable has it been portrayed in the long-lasting debate?¹⁸

Finally, the Norwegian case could learn from international examples beyond an Anglo-American context. For instance, in a Francophone setting, the public discourses support the notion of "ecological transition", "the Great Transition". What could a state of transition – not development – imply of ecological changes for education, its foundations, goals, and actions? How can we educate humans to better reflect on the intimate dimension of life in an ever-accelerating pace, an unsustainable pace which is also present at university? It implies going beyond the sole cognitive dimension of learning and it englobes heart, body, and health in education (FORTES collective, 2020; see also Chap. 2 in this book). As such, it requires a fundamental political reflection and act of resistance for changing unfair economic, social, and cultural practices destructive for all human civilizations and for the earth (Wallenhorst, 2021). And the Norwegian university sector must take a lead.

¹⁷ See the Læreplan i morsmål for språklige minoriteter (NOR08–02), (<https://www.udir.no/lk20/nor08-02>)

¹⁸ A Danish documentary shown on Norwegian TV in February 2022 explained how dominant rhetoric in the US public debate since 1980 concealed deliberately the damaging effects of the petroleum industry loosing decades in the fight against climate change; many of the powerful advisers were financed by global petroleum firms, (<https://tv.nrk.no/program/KOID35004620>)

References

- Brossard Børhaug, F. (2021). Missing links between intercultural education and anthropogenic climate change? *Intercultural Education*, 32, 386–400. <https://doi.org/10.1080/14675986.2021.1889984>
- Convivialist International. (2020). The second convivialist manifesto: Towards a post-neoliberal world. *Civic Sociology*, 1, 12721. <https://doi.org/10.1525/001c.12721>
- Ferdinand, M. (2019). *Une écologie décoloniale: penser l'écologie depuis le monde caribéen. Anthropocène Seuil*. Éditions du Seuil.
- Ferdinand, M. (2020). Why we need a decolonial ecology. An interview with Aurore Chaillou, Louise Roblin, Malcolm Ferdinand. *Green European Journal*, April 6.
- Fløttum, K. (2017). Willingness of action. In K. Fløttum (Ed.), *The role of language in the climate change debate* (Routledge Research in Language and Communication) (1st ed., pp. 113–129). Routledge.
- Fløttum, K., & Espeland, T. J. (2014). Norske klimanarrativer – hvor mange “fortellerer”? En lingvistisk og diskursiv analyse av to norske stortingsmeldinger. *Sakprosa*, 6, 18. <https://doi.org/10.5617/sakprosa.932>
- Fløttum, K., Gjerstad, Ø., & Oloko, F. B. (2019). Les voix dans le discours climatique: essai d’une combinaison de la polyphonie avec l’analyse de contenu, l’analyse narrative et l’analyse rhétorique. *Cahiers de praxématique*. <https://doi.org/10.4000/praxématique.5747>
- FORTES collective (Ed.). (2020). *Manuel de la grande transition*. les Liens qui libèrent.
- Gregersen, T. (2021a). Bekymring for klimaendringer. *Energi og klima*, March 18.
- Gregersen, T. (2021b). Klimaendringene – en fjern trussel? *Energi og klima*, July 12.
- Hessen, D. O. (2022). Vil ha bærekraft inn i all utdanning. — Enorm påvirkningsmulighet. *Khrono*, June 2.
- Hilt, L., & Torjussen, L. P. S. (2021). Hva er bærekraftig utdanning? Grønne dyder og karakterdanning i den ‘antropocene’ tidsalder. In L. P. S. Torjussen & L. Hilt (Eds.), *Grunnspørsmål i pedagogikken* (1. utgave, 1. opplag) (pp. 69–94). Fagbokforlaget.
- Kvamme, O. A., & Sæther, E. (2019). *Bærekraftdidaktikk* (1st ed.). Fagbokforlaget.
- Maffi, L. (2018). Sustaining biocultural diversity. In K. L. Rehag & L. Campbell (Eds.), *The Oxford handbook of endangered languages*, Luisa Maffi (pp. 682–700). Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780190610029.013.32>
- Miljødirektoratet. (2021). *Klimaendringer i Norge*. Miljøstatus.
- Norwegian Ministry of Education and Research. (2018). *Melding til Stortinget (2018–2019). Langtidsplan for forskning og høyere utdanning 2019–2028*. Norwegian Ministry of Education and Research.
- Norwegian Ministry of Education and Research. (2019). *Ny opplæringslov. 2019: 23. Norges Offentlige Utredninger*. Norwegian Ministry of Education and Research.
- Norwegian Ministry of Finance and Norwegian Ministry of Foreign Affairs. (2019). *One year closer 2019*. E-989.
- Norwegian Ministry of Local Government and Modernisation. (2021). *Voluntary National Review 2021 Norway. H-2501 E*. Norwegian Ministry of Local Government and Modernisation.
- OECD. (n.d.). *Norway*. OECD Better Life Index.
- Sinnes, A. T. (2021). *Utdanning for bærekraftig utvikling*. (2. utgave). Universitetsforlaget.
- Sinnes, A. T., & Straume, I. S. (2017). Bærekraftig utvikling, tverrfaglighet og dybdelæring: fra big ideas til store spørsmål. *Acta Didactica Norge*, 11, 7. <https://doi.org/10.5617/adno.4698>
- Statistics Norway. (2022). *Emissions to air*. Statistics Norway. November 3.
- Todnem, R. (2022). Vil ha bærekraft inn i all utdanning. — Enorm påvirkningsmulighet. *Khrono*, January 27.
- UiB. (2020). *SDG – Quality in higher education: Developing a platform for sharing of ideas and practices within the universities: Report from a working group*.

UNESCO and UNESCO Global Independent Expert Group on the Universities and the 2030 Agenda. (2022). *Knowledge-driven actions: Transforming higher education for global sustainability*. UNESCO.

Wallenhorst, N. (2021). *Mutation: l'aventure humaine ne fait que commencer*. Le Pommier.

Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer.

Chapter 15

Scaling Up Alternative Pedagogies in Eco-communities: The Case of Arterra Bizimodu and the “EU4Transition” Project



Genny Carraro, Mauge Cañada Zorrilla, and Léa Eynaud

Abstract This chapter explores the way alternative pedagogies are experienced in eco-communities and highlights the role of European programs in scaling up transformative educational practices. The analysis is based on a specific case study: the ecovillage Arterra Bizimodu (ABM), located in the Spanish Basque country. After presenting ABM as a local initiative, the paper describes the ecovillage’s holistic approach to education. It then offers retrospective analysis regarding the involvement of ABM within a European program promoting alternative pedagogies (the “EU4Transition” project). Overall, the chapter thus sheds light on both the challenges and the benefits of engaging at various scales in the promotion of transformative educational practices for an ecological and social transition.

15.1 Introduction

This chapter explores the way alternative pedagogies are experienced in eco-communities and highlights the role of European programs in scaling up transformative educational practices. The analysis is based on a specific case study: the ecovillage Arterra Bizimodu (ABM), located in the Spanish Basque country. This initiative was born in 2013 with the idea that empowered local communities must be at the forefront of the creation of a fairer and more sustainable society. It was thus founded with the express desire to contribute to a greatly-needed eco-social transition.

G. Carraro (✉)

Italian Processwork school and Arterra Bizimodu, Navarra, Spain

M. C. Zorrilla

Arterra Bizimodu, Navarra, Spain

L. Eynaud

Campus de la Transition, Forges, France

Drawing on this specific case, the following paper is divided into three main parts. The first part offers a definition of ecovillages in general as well as a description of the ABM project in particular. It accounts for the genesis of this initiative, overviews its transition objectives and details its concrete organization.

The second part of this paper focuses on ABM's training activities and details its original approach to education. It insists on its deliberate holistic dimension, calling upon the "head" as well as the "hand" and the "heart" to promote an ecological and social transition.

Finally, a third part of this chapter describes ABM's involvement in a specific European project initiated in 2019: the Erasmus+ project "EU4Transition". After outlining the nature of this initiative, the part goes on depicting a week-long course organized by ABM as part of the project.

Retrospective analysis of this experience offers organizers the opportunity to reflect on the implication of local educational initiatives in large European programs. Overall, this paper thus sheds light on both the challenges and the benefits of engaging at various scales in the promotion of transformative pedagogies for an ecological and social transition.

15.2 Arterra Bizimodu: Description of the Project

15.2.1 *Definition of an Ecovillage*

Humanity is clearly facing times of transition. The challenges and crises we are experiencing today on the global scale are telling us we need to generate changes in all areas of the human doing, shifting from attitudes and behaviors of domination to collaboration. Ecovillages such as Arterra Bizimodu (ABM) clearly stand by that conviction.

To understand what Arterra Bizimodu is, it is first necessary to understand what the term "ecovillage" actually stands for. The definition put forward by the ecovillages movement offers a first insight in that direction:

An ecovillage is a human settlement, conceived on a human scale; it includes all important aspects of life, integrating them respectfully into the natural environment; it supports healthy forms of development, and it can persist indefinitely (Gilman & Gilman, 1991).

In a sense, ecovillages reflect the longest-lived settlement structures in human life: populated areas, towns, villages. Yet they upgrade these living modalities by adding to these well-known structures the express will of integration into the surrounding ecosystem, creating harmony and regeneration. As such, ecovillages distance themselves from the role of predators of resources. And they can be described as a desirable option for those who do not want to wait for a radical change to come.

As a matter of fact, ecovillage members usually gather around the willingness to start in the present moment the life model that they consider necessary or desirable for themselves and for future generations. They are people who want to start the

eco-social transition “here and now” by experimenting new ways of living together. This makes ecovillages unique laboratories for the future.

Finally, ecovillages can be defined as a place inhabited by a group of people who share a vision or purpose and who weave relationships with each other. As a matter of fact, ecovillages tend to self-manage most of the collective needs. They do so by resting on participatory governance methods which allow for cooperative action and decision-making. For every action they collectively decide upon, they look for the most sustainable ways possible at that moment in time and place. Four main dimensions of sustainability act as a guide in this process: ecovillages always take into consideration ecological, economic, social and cultural processes.

15.2.2 The Various Dimensions of Sustainability

Social Dimension Ecovillages are communities in which people feel supported by and responsible for those around them. Ecovillagers actively work to build trust, collaboration, and openness between people, and to make sure members feel empowered, seen and heard. Ecovillages provide a sense of belonging through deep relationships, common work, goals, culture, and processes, but do not demand that everyone is the same – unity and strength through diversity is important to the ecovillage movement.

Cultural Dimension Ecovillages aim to build or regenerate diverse cultures that support people to empower and care for each other, their communities, and the planet. As a consequence, many eco-villagers actively engage with practices that encourage people to feel deeply connected to each other, to the planet, and to themselves. Celebration, art, dance, and other forms of creative expression are embraced as central to thriving human life and communities.

Economic Dimension Ecovillages aim to build economic practices and systems that contribute to sharing of resources, mutual support, and strong local economies and networks that serve the needs of local people and ecosystems. Most ecovillages actively work to provide sustainable alternatives to the mainstream economy and monetary system and reclaim ways of thinking about wealth and progress that include all aspects of life. Local currencies, sharing, social entrepreneurship, circular economy and collaborative forms of ownership are central to many ecovillages.

Ecological Dimension Ecovillages provide for their daily needs of food, shelter, water, and energy while respecting the cycles of nature. They aim to integrate humans with the rest of nature in ways that increase biodiversity and regenerate ecosystems, and that give people a chance to experience their interdependence with systems and cycles of life on a direct and daily basis. Linking this together is the practice of integral or whole system design.

15.2.3 *Arterra Bizimodu: Genesis and Vision*

With this ecovillage concept in mind, we can now get to know Arterra Bizimodu. This ecovillage was co-founded in 2013 in a rural area. The project was called for and formed on a large piece of land left available a few miles away from Pamplona. On this piece of land stands an old rural school. The building was later transformed into an aparthotel which operated for only 4 years. In 2013, the place was in a state of semi-neglect and abandonment, along with the parcels of cultivable land pertaining to it. This is what led to the foundation of ABM.

As for today, ABM is located in a large building (about 8000 square meters), consisting of 55 small apartments to be inhabited, and about 1000 square meters of common spaces. The project also counts on three hectares of land, to which ecovillagers have added new farms, currently amounting to a total of five hectares.

In Arterra, practiced forms of living can be defined as “cohousing”. While each home or nucleus has a private and intimate space that can be described as an apartment, inhabitants collectively share common spaces and collaborate in different tasks.

Overall, Arterra Bizimodu intends to contribute to the broader process of creating full and supportive societies, capable of generating community and social health, through lived experience. It searches for humanly sustainable solutions to the challenges of today’s societies, and more specifically in rural areas.

The vision of Arterra Bizimodu also includes taking care of sustainability aspects in the ecological sphere. As such, the project is heavily based on permaculture principles. Participants aim to learn to be in balance *with* and *on* the planet. They engage in taking care of the Earth and its resources, be it for themselves in the present moment or for future generations.

Sharing is also a crucial facet of the project. ABM participants indeed conceive of their action as participating in the global transformation of current economic parameters into an economy for the common good. This radical transition involves promoting sufficiency as a political goal and as a lifestyle. It means reducing our footprint, but also generating, producing and sharing in new manners, as well as taking care of the satisfaction of personal and collective needs. In a nutshell, ABM aims at re-encastering economy into a flow of giving and receiving, thus producing a virtuous network which sustains itself thanks to this continuous movement.

Last but not least, ABM members aim to participate in a cultural transition. They want to move towards a world where societies are capable of anchoring values of equity, fulfillment, peace, sustainability, creativity, for present and future generations – a culture capable of caring for life in all its forms.

15.2.4 Arterra Bizimodu's Involvement in International Networks

Starting from this common vision, ABM members have specified the mission or purpose which gives life to the four processes reflected in their vision. Founding an ecovillage was seen as a direct contribution to the above-mentioned common good economy. Yet some of the co-founders also shared the certainty that they needed to go beyond the local scale to properly participate in a global transition. As a consequence, ABM has progressively developed a dissemination and networking activity. These practices echo the common conviction of participants that an ecosocial transition involves sharing knowledge and experiences with many other people and institutions.

Since 2013, Arterra has thus been an active member of several national and international networks supporting locally lead initiatives for sustainability, climate change, regeneration, and transformation (Global Ecovillage Network – Europe; European Network for Community-Led Initiatives on Climate Change and Sustainability – ECOLISE; Alternative and Solidarity Economy Network – REAS, the Commons network and many more).¹ Different events have also been held in collaboration with these networks of distinct size and scope which brought many people to ABM, for example events of RIE (Iberian ecovillage network) and GEN (Global Ecovillage Network): dance and music events, environmental activist events, etc.

Along with these grassroots engagements, ABM takes part in several projects at the European level to gather or spread information among like-minded organizations. One of them (in which Arterra Bizimodu holds a small role as active member) is aimed at harnessing knowledge for a citizen-led energy transition. Called “EC2”, this project will produce a “conceptualization of energy citizenship” and collect “actionable insights” on parameters favouring it. It focusses especially on the role of energy communities such as Arterra Bizimodu and how their organization can contribute to – or hamper – the emergence of energy citizens. The experience which will emerge will contribute to policy-making as well as the creation of tools and practices that allow us to transition in a sustainable, just and inclusive manner towards a low-carbon society with citizens at the center.²

Likewise, ABM is involved in the “CLIPS” project, Community Learning Incubator Project for Sustainability.³ This project has been developed in two Erasmus+ Key Action 2 calls: 2016–2018 and 2019–2021. It has brought together 9 national ecovillage networks in each of its calls. CLIPS is a solution-oriented program designed and developed primarily to guide community-led projects in their initial steps. It is a framework for approaching group development through tools

¹ See these networks' respective websites, [www.gen-europe.org; www.ecolise.eu; [https://reasna.org/](http://reasna.org/)]

² See the project's website, (<https://ec2project.eu/about-ec2/the-project>)

³ See the project's website, (<http://clips.gen-europe.org>)

identified by existing community-led projects. As such, CLIPS is targeted to collaborative projects that are expanding and scaling from the local to the global scale. The program has been created in a context of a perceivable shift towards connectedness, cooperation and community. It is useful for existing initiatives which are experiencing some challenges or which would like to assess their functioning through the CLIPS model, its methods and tools.

Overall, these various events, programs and memberships facilitate the creation of a network and are the seeds of important alliances. Scaling up is an issue for ABM as an ecovillage, but not only. As we are about to see, training activities also play a crucial role in the organization's activity.

15.3 Educational Matters in Arterra Bizimodu

15.3.1 *The Campus Project*

In 2013, the co-founding group of ABM immediately saw in the acquired space (building and land) an opportunity for the development of training activities: rooms, accommodation spaces, spacious dining room and kitchen, etc. More specifically, ABM members soon shared the dream of developing a “university for transition”. This idea (which they later called the “Campus for Transition project”) finally materialized along with other axes on which members drew their energy and common action: energy sovereignty with renewables, new governance models through sociocracy, the community as household, food sovereignty and self-production, collaboration in local, regional, and international networks. These are the axes that ABM aims to develop, improve through its action and transmit through the Campus.

Step by step, from year one, the Campus project has been taking shape. In the early years, it developed through training in the most salient fields of experience in ABM: in the social and cultural dimension – group facilitation, community building; governance – sociocracy, leadership, gender, group processes; in education through a small non-formal school that was active for the first 3 years of the project.

In a second stage, aspects of the ecological transition were included, allowing ABM inhabitants to show how their daily experimentations could enrich the discussion: in food and energy sovereignty, in permaculture etc., as well as in social and solidarity economy.

In 2020 and 2021 the ABM training offers were impacted by the pandemic. This gave the opportunity to ABM members to work on the development of a holistic methodology, through the development of transition indicators and innovative offers for the 2022–2025 stage.

15.3.2 *The Campus Methodological Framework*

ABM recognizes the importance of the interrelation and interdependence of various elements. Its approach to education is thus embedded into what can be called a “holistic framework”, taking altogether into account the “head”, the “heart” and the “hands”. Speaking to the person as a whole, this innovative pedagogy is seen as a radical and greatly-needed strategy for change in the transmission of knowledge about ecological and social transition. ABM also takes this approach a little further, recognizing the three great energies that are revealed in this framework: *consciousness, love, power*.

In this framework, the “head” is perceived as a place and as an expression of the ability to awaken, expand, open consciousness, look and see.

The “heart” is approached as a metaphor for love that links, unites, relates, cares for, and sustains the community.

Finally, the “hands” describe what materializes through action. It stands for the power which is manifested in the world and this power is recognized and self-recognized as part of the process, as it is the agent which allows us to generate resources at the service of the whole.

Overall, the interrelation and balance of these three great “energies” is the source that nourishes the shared dream and helps it materialize: “another world is possible ... and necessary”.

ABM Campus systematically integrates these different energies in its methodology, no matter which service is offered and what public is concerned. To do so, ABM applies the following rules:

- Share knowledge and questions, creative methods, prospective look (head);
- Take time for caring, building relationships and community (heart);
- Create a space for action, practice, materialization (hands).

15.3.3 *Pedagogical Processes*

ABM uses several tools to attend, stimulate and promote processes that members understand as focal. No matter the nature of the training “content”, these processes are part of the transversal agenda of each Campus course. They include the following:

- Learn and unlearn: accompanying human capacities as a strategy for personal and collective change. In order to embrace new behavioral patterns, to give space to our creativity we need to unlearn old ways of doing, abandon the individualistic approach we got drowned into and open our minds and hearts to welcome diversity and solidarity values.
- Appreciative gaze: develop a keen receptivity to human interactions so as to appreciate what is given and received.

- Materialization: foster people's ability to anchor new proposals and materialize them. Help them move from awareness to action.
- Give and receive feedback: accept the gaze of "others" as a source of knowledge.
- Conflict: surf the tensions that emerge, embracing the opportunity for change that they bring.
- Global, systemic look: understand processes as part of a living system.
- Prospective: attention to the impact of actions towards the future.

This list of principles is of course not limitative. Others may very well emerge in the course of the process. As a matter of fact, ABM rests on the conviction that any educational path remains partly unknown. Therefore, the educational team remains always open for emerging processes.

15.3.4 Involvement in European Educational Projects: Focus on EU4Transition

Collaborating in international educational projects is part of the future of the ABM Campus project. Since 2014 Arterra Bizimodu has thus participated in several international educational projects through the different networks it is part of. Along with courses dedicated to young people (there again in areas related to the ecosocial transition),⁴ the organization has lately engaged in a large project that will yet receive special attention throughout this paper: the Eu4Transition Erasmus+ project.

The European University for Transition (Eu4Transition) Erasmus+ project was initiated in 2018 among several institutions: the ESSEC Business School (France), the University of Humanistic Studies (Utrecht, Netherlands), the Universidad Pontificia Comillas (Spain), Arterra Bizimodu (Spain), Yasar University (Turkey), MTÜ Eesti Ökokogukondade Ühendus (Estonia), and the Campus de la Transition (France).

The objectives of the project are threefold:

1. Encourage a rapprochement between classical academic institutions and transition schools in order to:
2. Pool the practices of similar transition schools already existing in Europe, to enrich each the knowledge of other, to set up an adequate curriculum and to develop our collective and individual practices through common enrichment and;
3. Stimulate the development of this type of school across the European continent.

⁴Since 2016, ABM has indeed developed annual welcoming programs for European volunteers. The European Solidarity Corp project is a good example of this part of ABM's activity. This program for young people allows ABM to develop education through practice, refining the proposals each year. The volunteers who pass through Arterra can experience a sustainable lifestyle for 8 months, with all its benefits and challenges. Every year, a group of 6–11 young people spends 8 months living this intense and life-changing experience.

Overall, the project aims at developing and implementing innovative learning and research practices (e.g. new curricula, teaching methods, institutional network). In particular, it is intended to facilitate exchanges, flows and co-creation of knowledge and skills between the involved institutions. It addresses key topics relevant for our contemporary ecological transition at local and European levels such as the transition of governance, the main controversies on ecological transition, the economic transition, ethics and spirituality, construction, energy, local economy, finance, community, local transition, agricultural transition, climatology and empowerment by the sciences of engineering.

The project's deliverables include:

- a teaching guide on innovative pedagogy for transition studies
- a 3 part 50 h course material on systemic elements on ecological and social transition
- a MOOC on transformative pedagogy for an ecological and social transition
- local seminars with each partner organization and its ecosystem
- an international seminary to present and discuss our major findings
- and 3 Spring or Autumn school experiments in transition schools

In the last part of this paper, we will focus on the first autumn school of the project, which took place in ABM in October 2021. We will use this moment as a case study to assess the advantages and challenges for local initiatives to involve in educational projects at the European level.

15.4 Arterra Bizimodu and the Eu4Transition Project: An Assessment of the First Fall School

15.4.1 ABM's Involvement in the Project

The involvement of ABM within the Eu4Transition project is a typical example of the importance of weaving relationships in the international field. As a matter of fact, ABM joined the project thanks to the relationship established with the Campus de la Transition (relationships which themselves arose through prior collaboration with the Colibris network and the Oasis' Cooperative).

For Arterra Bizimodu, participating in the project Eu4Transition represents another step in the direction decided upon 8 years ago: collaborating with the eco-social transition. ABM members perceive this project as an opportunity to pass on to the academic world and to scientific theory the knowledge that has been “distilled” from the experiences of transition and regeneration that ecovillages and related movements have been developing for more than 40 years. In short, this project represents a chance for a local initiative such as ABM to reinforce its transformative impact.

One of the major contributions of ABM campus into Eu4Transition lies in its innovative and inclusive methodology which (although it is still in development) follows these guidelines:

- Arterra brings the awareness that changes are not only concepts, but also lived experiences.
- It underlines and shows the importance and influence of the community: the recommendation is to choose a life which cultivates the values of collectivism and common goods and the tools they provide, because we are all interdependent.
- Arterra Bizimodu invites project members to investigate another way of looking at the economy: ecovillage members are indeed convinced that it is only with the abundance shared in degrowth that we will be able to restore elements of a forgotten but essential social justice.
- In this project ABM maintains the compass always oriented towards ecological practices, because it's possible to live without destroying the home of all living beings, the Earth. We are urged to repair, regenerate our environment as much as possible, for our present and for the future; we are indebted to the following generations, and we must work to reduce that impact.
- We offer knowledge, but not certainties. The contribution of Arterra Bizimodu in this project is to offer experiences and processes full of life. The invitation for one and all is to accept personal and collective challenges, inhabit them, use creativity to invoke the new, and learn together to lead the transitions to come.

15.4.2 The Week Spent in Arterra

In October 2021, Arterra Bizimodu hosted the first fall school organized as part of the Eu4Transition project. The school's aim was to co-create a teaching guide and a university course to transmit and spread practices for a regenerative transition.

The program of the week aimed to frame the vision of the world around the eco-social transition, human relations with the Earth and the meaning of deep ecology. Scientific knowledge, activism and concrete actions were brought together to give participants the true flavor of a personal and collective transition towards a more sustainable way of life. The intention was to give participants the feeling that “we are all in this together”, that “we all have a voice”, and that it is through this meeting that people can understand how to bring about change in their family, workplaces, communities.

Overall, therefore, the fall school experience has been designed to deepen participants' knowledge and skills on transitioning their ways of living, producing and consuming, in order to become an active part of society for a new, just and sustainable time in balance with the planet.

School participants were thus invited to see, smell and taste the ecological realm by visiting local food production; which not only provides locally produced organic

food to the community, but also provides food to families outside the community. It also creates links with other local producers to improve local production and trade. Participants could not only see the production, but also benefit from it at each shared meal: they knew who were the people who produced and cooked the nutritious food that they put into their bodies.

In addition, participants could take part in different experiential exercises, sit or walk in the lawn grazed by the sheep. They were able to touch and feel different types of materials and renovation techniques used to improve the living conditions of the building that houses the community of Arterra Bizimodu; they were able to see and use the solar energy produced in the community, as well as enjoy hot drinks cooked with the heat of a self-built biogas digester fed daily with kitchen waste.

Most importantly, the Eu4Transition team and students were welcomed into the community where they were encouraged to meet and interact with community members. Conversation, more than any other form of human interaction, is where we learn, exchange ideas, offer resources and create innovation. The participants were won over by the “Art of Hosting” practiced at ABM. As the organization Art of Hosting states on its website, this practice has proven to be “a highly effective way of harnessing the collective wisdom and self-organizing capacity of groups of any size. Based on the assumption that people give their energy and lend their resources to what matters most to them – in work as in life – the Art of Hosting blends a suite of powerful conversational processes to invite people to step in and take charge of the challenges facing them” (Art of Hosting, [n.d.](#)).

Participants thus experienced the power of playful activities, deep sharing, detection and perception through the body of emotions triggered by the environment, by people, by gestures and conversations; fundamental ingredients for creating a group, for nurturing a sense of community. They lived in their own skin the power of community: able to create a safe space, to take care of daily needs, to celebrate and enjoy the small and big achievements of everyday life; they immersed themselves in concern for the common good and purpose.

ABM members deeply believe that the best way to integrate knowledge and invite transformative processes is to inhabit the experiences while relating to others, to the community around us. Alongside these experiential contributions, the school has also placed particular emphasis on a particular subject: pedagogy. For the AMB members who welcomed and prepared the school, one of the main messages of the school was indeed this: the transition must involve our minds, our hearts and our hands. In other words, teaching for transition and sustainability requires a transformation towards new ways of approaching education and life itself. To do this, the fall school led participants to experiment with the different pedagogies that ABM itself puts into practice. The objective was to give them the fundamental bricks to eventually enable them to assemble the most appropriate pedagogical approach to transmit concepts and practices on transition.

The Autumn school thus developed and experimented a rich program under the umbrella of “head, heart and hand”: the holistic pedagogy (HHH). The many topics

covered and the different pedagogical approaches presented during the week⁵ were shaped with a particular attention to find the right balance among the different proposals of the different speakers in relation to the “HHH” framework.

In order to ensure that the participants were able to experience these processes, various exercises were proposed:

- activities in which individuals were asked to associate objects, animals, habits to discover that we often go into automatic thought and that we are almost incapable of having our own idea or opinion about something;
- group exercises where participants were asked to role-play different situations, identify different emotions, needs, behaviors that each role or situation entails and how we can act differently if we end up inhabiting those roles;
- moments of grounded sensory connections where participants were invited to be in touch with nature and explore different senses (absence of sight, smell, hearing, bodily sensations, inner sensations) – accessing their intuition, their deeper connection to nature and to the whole.

15.4.3 *Bringing Local Experimentations to the European Scale: A Critical Assessment*

The challenges that Arterra Bizimodu might face when participating in this type of international project are related to existing prejudices about alternative lifestyles. In fact, it is often believed that people who adopt an alternative lifestyle are not well educated, do not respect the law and are on the margins of society. Contrary to popular belief, many highly educated people with incredible practical and curious skills regularly join the ecovillage movement, enabling small local organizations like Arterra to participate in and contribute to local and national government projects, international projects and the compilation of specific guidance documents.

Another possible challenge is related to the fact that some international projects have high budgets, which only large institutions can manage. This reality often prevents small but very valuable initiatives from applying, participating and contributing to the necessary ecosocial transformation.

On the other hand, organizations like Arterra can also pose a challenge to national and international government and academic institutions, as they profoundly challenge “business as usual”. Specifically, initiatives like ABM deliberately choose to put *life at the center* of their actions, rather than capitalism and exponential growth. However, this old but renewed way of thinking and living is very difficult – and not just for those who wish to maintain the *status quo*. In fact, the type of paradigm that

⁵ Successively: creating community, systemic thinking, rethinking, complexity, the earth-human relationship, the impact of Gaia hypothesis, the tragedy of the commons, stakeholders management, deep ecology, ecovillage transition, collapse - planetary limits, entrepreneurial climate in organization and employees attitudes towards the entrepreneurial transition.

ecovillages embody is not easy to embrace, as it dismantles our normal way of life. It compels people to set aside their selfish behavior and individualistic approach, give up some of their amenities (which come at a high cost to the planet), and instead welcome and actively participate in a society that encourages a slower way of life, which reminds us of the importance of the commons and which sees and experiences the system as a whole, of which we are only a small part.

After considering these typical pitfalls, positive feedbacks must now be made regarding the week in Arterra. First, ABM members see the challenges mentioned above as part of their job. They have made the development of these programs part of the daily agenda and they also incorporate transformative pedagogies in the way they impart and share knowledge, believing this to be an element that nurtures and keeps the conceptual approach alive. Multidisciplinarity then becomes a living element, and each shared moment is built on it.

Second, it is also important to note that the fall school at Arterra had positive consequences on many levels. In particular, the fall school effectively succeeded in bringing a new type of experience to many participants and encouraging the exchange of knowledge between scientific and non-scientific fields. As attendees understood, a lecture is of course loaded with information; but so is a breakfast in which a person knows and understands that the bread they find on the table comes from a conscious and intentional process: growing the spelt, grinding the grain and making bread with same place; cereals are grown with a *conscious* desire to take care of the soil as well as those who work the land; the bread is prepared with love and care, baked with local firewood, and welcomed and eaten with appreciation and pleasure.

In a nutshell, the week at Arterra therefore fulfilled its main objective, namely to bring the participants to grasp the meaning that the members of the ABM attach to the art of teaching: to ensure that people are aware that all their actions (through which they impact the world around them) are part of the process. To follow this line means to be aware that all tasks – including those of taking care of what we do and the impact we have – must be included in the political agenda. As such, the first fall school of the Eu4Transition project will therefore hopefully have succeeded in making the motto “life at the center” a reality, thus inspiring participants to continue the journey together.

References

- Art of Hosting. (n.d.) *What is the art of hosting?* Art of Hosting.
 Gilman, D., & Gilman, R. (1991). *Ecovillages and sustainable communities: A report for Gaia Trust*. Context Institute.

Chapter 16

The Campus de la Transition Pedagogical Project. The Case of the Oïkonomia Summer School (In Partnership with ESSEC Business School)



Pierre-Jean Cottalorda and Cécile Renouard

Abstract The *Campus de la Transition* is a nonprofit organization created at the end of 2017, which aims to be an ecovillage, (The Global Ecovillage Network (GEN) defines an ecovillage as “an intentional, traditional or urban community that is consciously designed through locally owned, participatory processes in all four [areas of regeneration](#) (social, culture, ecology and economy) to regenerate their social and natural environments” (Global Ecovillage Network. What is an ecovillage? Global Ecovillage Network, n.d.)) an eco-campus and a networked laboratory, bringing together training, action research, academic research and publication activities. In this chapter we firstly detail four key aspects of the method that has been progressively implemented in recent years: interdisciplinarity allowing students to ask the right questions and adopt a systemic approach, holistic head-body-heart pedagogy, transformative research as well as a territorial and social anchorage. In the second part, we present the first course built from the head-body-heart perspective and the six gates of the Great Transition Handbook: the Oïkonomia summer school. This 3-week course with a special emphasis on political science, finance, law and accounting brings together students from ESSEC Business School and other institutions, as well as a few young professionals. After a general presentation recalling its genesis, we outline the pedagogical targets, the team, the dynamics, some tools, the assessment methods as well as the feedback of the summer school.

P.-J. Cottalorda (✉)

ESSEC Business School, ENSTA Paris and Campus de la Transition, Forges, France

e-mail: pierre-jean.cottalorda@ensta-paris.fr

C. Renouard

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition, Forges, France

© The Author(s), under exclusive license to Springer Nature
Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,
https://doi.org/10.1007/978-3-031-39366-2_16

155

16.1 *The Campus de la Transition Educational Project. Fundamentals*

The Campus' pedagogical project is consistent with the approach proposed in the first part of the book. In parallel with the work of transitioning the site and developing the content of the courses, we constructed a project that is structured around four key aspects, developed in the following pages: interdisciplinary content for a systemic, critical and creative approach; a head-body-heart pedagogy; transformative research; a territorial and social anchoring.

16.1.1 *Interdisciplinary Contents for a Systemic, Critical and Creative Approach*

16.1.1.1 *The Great Transition Handbook: An Inter and Transdisciplinary Approach in 6 Gates*

The Campus approach was formalized in the *Great Transition Handbook*¹ (FORTES collective, 2020), through the framework of the 6 gates.

As a reminder, each of the six gates represents an entry point into the ecological and social transition, with the aim of encouraging a *questioning approach*, while providing precise keys for analysis. It is above all a question of posing the problems before finding the answers. These answers are never univocal, they require dialogue, deliberation and joint interpretation.

Each gate thus presents its own field of questioning, and favors the acquisition of skills, namely:

- systems thinking (Oikos): what have been the impacts of our lifestyles on our environment?
- critical and empowering thinking (Ethos): how to live well with and for others in just institutions?
- the capacity to solve problems in an integrated way (Nomos): What metrics? Which indicators? What models? Which law for institutions? What governance?
- prospective thinking (Logos): what are the narratives that can be put in place for the transition?
- the collaborative approach to action (Praxis): how to move from “thinking” to “acting”? What modes of action? How to think about the interactions and articulations between the different scales of action?
- the knowledge of oneself as a relational being (Dunamis): how to reconnect to oneself, to others, to nature? How to decide with others?

¹An English summary of the *Great Transition Handbook* is freely available online (FORTES collective, 2021).

These different gates and different areas of questioning formalize the approach of the Campus, initiated even before the publication of the *Great Transition Handbook*, which is to recognize the *systemic* character of the transition and the transformations to be made. The Campus thus addresses ecological, economic and social issues related to the transformation of economic models and lifestyles: starting with the observation or diagnosis, based on climate and life sciences, which gives rise to a highlighting of ethical dilemmas, a deconstruction of our dominant economic models and theories; then to the proposal of other approaches, both theoretical and practical.

Similarly, this approach is also *multi, inter and transdisciplinary*: there is a permanent concern to link knowledge, as most current developments require cross-fertilization between perspectives.

At the Campus, the approach is multidisciplinary from the outset, since our courses involve teacher-researchers from different disciplines. It is often interdisciplinary when there is dialogue between researchers to enrich an approach, methods and results related to another discipline. One of the challenges is that each researcher is well anchored in his or her discipline in order to enter into dialogue with the other, to provide insight and to allow him or herself to be questioned and enlightened.

For many of the topics addressed in the Campus' training programs, the approach is transdisciplinary, in relation to objects of study that cannot be properly understood by a single discipline and for which it is the object itself that will require recourse to various types of knowledge and practices. The transdisciplinary approach involves both researchers and practitioners and is a way of implementing a demanding dialogue between science and society (Brun et al., 2020).

A certain number of topics related to the ecological and social transition are among these. For example, with regard to the climate crisis: the IPCC's diagnosis (climatologists and researchers in the hard sciences) of probable warming as a function of GHG emissions needs to be articulated with the work of economists and management researchers to find ways of integrating data on emissions, natural resources, etc. into macroeconomic models. An interpretative and critical philosophical approach is also necessary in order to show the inadequacies of a particular theoretical approach, to highlight epistemological and ethical options, and to encourage a distanced analysis of what is at stake in research on the climate and life sciences, in measurement and evaluation systems, etc.

The perspective provided by philosophy, humanities and social sciences is extremely important. At stake is the exercise by each student, teacher, and citizen of practical reason, of the ability to discern individually and with others the paths to take towards sustainable and equitable societies.

The Campus' pedagogical approach is also *holistic*. It concerns all dimensions of the person: not only the head but also the body and the heart, the link to nature, to the living, to the emotions. The transition implies an integrative approach.

It is *open to the multiplicity of contexts and cultures*, starting from an anchorage in Western modernity, marked both by the democratic ideal and the capitalist logic of infinite accumulation: the latter implies hyperconsumption beyond reasonable

and sustainable needs, and an extremely important use of finite natural resources (which poses the question of access to these resources in the future).

A particular place is given to an *epistemological, anthropological and ethical questioning*, in order to deepen our particular ways of relating to the world, to human and non-human beings, to define the good life. The concern for a “concrete universal” is present: our collective has sought to value the richness of cultural traditions without ever renouncing the anchoring in a common humanity, the latter being able to widen to a fraternity with all the living and the living.

Thus, the courses offered by the Campus de la Transition follow this approach, formalized in the Handbook.

The contributions of these courses and the Handbook are mainly of three kinds:

1. to provide a variety of knowledge (with many references available for those who want to go further);
2. to invite crossings to be established and passages to be made, according to the subjects, between the six gates;
3. to propose an analytical and methodological framework to help in the reflection on the transition of any object, allowing not to forget any important aspects.

The Handbook is designed as a *common base of knowledge and skills*. But it does not claim to be exhaustive, nor does it claim to cover all the essential subjects. It seeks above all to propose a path, one or more itineraries: it values an evolving, dynamic, flexible and plural approach. First of all, it wants to help each person to set themselves in motion. It is a matter of training to transform and of understanding to act.

We have agreed that in the design of the courses offered at the Campus, all gates must be addressed.

The objective of our courses corresponds well to the subtitle of the Handbook: “train to transform”. More precisely, *three complementary types of transformation* are aimed at, relating to: (a) our daily lifestyles, (b) structures and institutions (economic, social, educational, political, etc.) and (c) inner transformations (reconnection to emotions, to nature, to others...).

For a student, a teacher-researcher, a professional or any citizen, the best entry point may vary, to go deeper into ecological and social issues and get moving. The routes are multiple, and that is why we have not numbered the chapters in the Handbook: it is possible to start reading with one of them without having read those before in the order presented in these pages. In the introduction, we give some examples of what a reading or course path may be, corresponding to a specific dynamic. These paths can also correspond to course paths.

We give two examples:

- From diagnosis to decision for a common world (Oikos → Ethos → Nomos → Logos → Praxis → Dunamis).

This itinerary is the one materialized in the book, since the gates are presented in this order. A look at the planet and the Earth system highlights the violence that human action – marked by the high ecological footprint of certain lifestyles, by the population explosion and by the primacy of non-ecological criteria – is

inflicting on ecosystems. This evolution requires the mobilization of tools of ethical discernment, in order to encourage a critical look at the rules of the game and the institutions, so as to promote collective structures that are coherent with ecological and social issues. To achieve this, it is also a question of modifying our narratives and seeking pluralism of rationalities, of views on our existences. These decisions will be sustainable if they are supported by a strong intention to implement them: hence the importance of reconnecting to oneself, to nature and to others.

- From action to contemplation (Praxis → Oikos → Nomos → Ethos → Logos → Dunamis).

For some, the gateway is practice, action in daily life and in the city, within a university, a company, a charity or a local authority; it invites us to dig deeper into the analysis of the impasses of “as usual” models, and to deconstruct the usual norms and devices, in order to give ourselves criteria for discernment and collective narratives of the good life; this leads us to revisit the conditions of responsible action thanks to practices of reconnection to oneself, to nature and to others, by cultivating various forms of “non-action”, of receptivity.

16.1.2 Head-Body-Heart (HBH) Pedagogy & The Experience of Living Together

HBH pedagogy is linked to the recognition that the intellectual acquisition of knowledge is not sufficient to foster the transformations aforementioned.

The first part of the book presented the fundamental aspects of this pedagogy. We would like to take into account certain aspects that are particularly valued in the training programs of the Campus at Forges, in the ecovillage where the project is anchored, notably the experience of living together that seeks to embody the challenges of a sober and united society.

The Campus seeks to train students by mobilizing their bodily, lived and embodied experience of the transition, as well as moments of discussion, sharing and listening that encourage the expression of feelings, reflexivity and the capacity for intellectual and practical choices. Learning comes from experience.

Since the beginning of the Campus, experience has been conceived as a structuring element of training and a condition for teaching that is up to the complexity of the socio-environmental issues of our time. This experience can be understood as a learning process, an awareness, a realization of one's relationship to oneself, to humans and to non-humans, whose object of study is this very relationship: living together.

This experience of living together was born in the town of Forges, first in the form of convivial and informal moments of restoration of the domain with the realization of a common ideal as a horizon, then it quickly became permanent with the arrival of the first permanent inhabitants of the place, the Forgeois, who then became the guarantors of the maintenance of the attention given to this dynamic.

Since then, the collective has grown stronger and a whole ecosystem has been formed and formalized with the aim of sharing this responsibility. A “common life” hub in the governance of the project has been created: it is a body that will allow for the reporting and further development of this existential dimension of the Campus project.

Through the opportunity to embrace our condition as interdependent humans, to confront otherness, to go through crises and to experience the importance of living together and connected, this permanent common learning becomes an essential part of our courses. The experience is offered as a testimony to visitors who can be inspired by this concrete, real and joyful path of transition.

This experience of living together, in an ecovillage, in a collective, is embodied for the students in different ways: through the meals shared with the inhabitants, the visit moments, the activities shared with the inhabitants (vegetable garden, cooking), the domestic services in which the students participate and which contribute to the functioning of this collective life (peeling of vegetables, washing up, etc.). Since many inhabitants have similar educational backgrounds and made committed or even radical life choices, these interactions also nourish the students’ professional orientation reflections.

The program of a typical day of the Oikonomia course detailed below gives a concrete overview of these different moments.

16.1.3 Transformative Research

16.1.3.1 The Campus Ecovillage in Forges and the Action Research Projects

On the Campus site, experiments are being conducted in various areas of daily life, and are linked to action research projects, which seek to define the conditions for a sober and united life, at different scales. The experimentation carried out in Forges (85 kms from Paris) aims to be documented, in order to feed the reflection on the means of modifying lifestyles and economic models in France and on an international scale. This action research is part of the transdisciplinary perspective mentioned above: it is a question of crossing the perspectives of practitioners and researchers, to deepen and accompany the concrete problems that arise, by bringing out relevant research questions. This approach links research and action in the field, and is intended to be transformative because it aims to stimulate change in the various areas of our collective lives.

The BatEr project addresses the issue of housing in the era of transition. It starts with the concrete case of the 3000 m² château that the Campus occupies. This thermal sieve, heated with oil for several decades as a boarding highschool, before the Campus started on site, is simply unheatable in its current state without exploding the budget in euros, and the carbon footprint of the Campus. The project is therefore working on a renovation that is consistent with ecological issues, while ensuring

that the place will ‘gently’ shake up the students in training at the Campus, thus with conditions that are neither too comfortable, to make them think, nor too ‘uncomfortable’ (according to current cultural norms), to avoid them entering into frontal opposition and closing themselves off from the teachings.

The Mobility project was the Campus’ first real action research project, funded by the Michelin Corporate Foundation. The aim is to work towards more sustainable and/or inclusive mobility in the semi-rural area of Montereau-Fault-Yonne, where the Campus is located (more specifically in the town of Forges). After a year of inventory and meetings with various stakeholders in the area, as well as a benchmark of initiatives in this direction in other similar areas, the project chose to focus on the theme of soft mobility. Indeed, the territory is almost totally deprived of a bicycle system and the last phase of the project will focus on this issue. A traveling bicycle workshop offering repair and self-repair will be set up during the first half of 2022. This will be an opportunity to meet again with the inhabitants and stakeholders of the territory, with a particular interest in the brakes and enthusiasm regarding the use of bicycles, in order to evaluate the potential of a bicycle system and what is missing for it to happen.

The ORFEE sustainable technologies project is funded by ADEME Ile-de-France to try to understand the brakes and levers to sustainable technologies in the ecovillage among the different audiences received. This project started in spring 2020 and will end in March 2022. For this study, we are taking advantage of the many sustainable technologies implemented before and during the project: dry toilets, solar ovens, solar showers, space management during winter to heat less, muscle-powered mixer, etc. The main obstacles observed are the imaginary, the will to commit to a sustainable technologies approach, time, skills and often complicated trade-offs. The first levers identified are to take care of the meaning and aesthetics of sustainable technologies, to accompany people and groups with pedagogy in the long term and to set up an adapted governance involving all stakeholders. This action research is therefore part of the pedagogical project developed by the campus: it feeds it (since the people hosted, especially students, who live on the campus are invited to discover sustainable technologies and to use them in their daily life on the campus) and at the same time, it is also fed by the feedback of the different people hosted on these sustainable technologies.

The MC2 (Campus Carbon Management) project dates back to the beginning of the Campus, but was only really launched in the summer of 2020. Since the founding of the Campus, because of the preponderance of the carbon indicator in current social debates, we wanted to take this issue head on. This resulted in a first carbon assessment of part of the organization’s activities, which was presented in the fall of 2020. CO2Logic, a carbon accounting consulting firm, provided us with valuable methodological support at the end of 2020 to correct certain errors in our first carbon assessment and to answer certain questions that we had not managed to resolve. We then took advantage of Carbone 4’s skills sponsorship throughout 2021 to consolidate our methodology. From this support, we are drawing a more solid methodology that we will implement in 2022 to assess the carbon footprint of the average inhabitant. A new measurement campaign will then be necessary. Finally, and more

globally, this project addresses the question of the place of the carbon indicator in the governance of the Campus, notably via the BatEr and ORFEE sustainable technologies projects.

The Biodiversity project is a nascent project on the Campus. It is being built in response to the gradual implementation of the permaculture design of the Campus. The idea is, on the one hand, to take a reflexive step with regards to the application of design and, on the other hand, to feed this design with an analysis of the state of the art on these issues. Like the MC2 project, it raises the question of how to take into account biodiversity, which is much more difficult to quantify, in governance.

The relational capacity indicator (RCI) has been designed and used within the CODEV program (Ezvan et al., 2019) (ESSEC Business School) prior to the creation of the Campus. It emerged from research conducted since 2007 on the contribution of different actors to the quality of social and ecological links at the level of companies, territories or countries. Several case studies have been carried out: the oil industry in Nigeria, plastic recycling in Indonesia and Mexico, connecting slums to water in India, setting up a tire factory in Tamil Nadu, etc. A global reflection was carried out on the company and the economy with a relational perspective (Renouard, 2007, 2013; Giraud & Renouard, 2012; Bommier & Renouard, 2018). As an extension of this work, a research project conducted at the Campus and supported by the Ademe (French agency for energy management) and the ESF (European Social Fund) analyzed the contribution of ecovillages to improving the social and ecological fabric of territories (L'Huillier et al., 2022). This work, carried out by CODEV and the Campus, can be used in training programs in a variety of ways, including: measuring the quality of life in territories; the contribution of ecovillages to the development of psycho-social, emotional and relational skills; relational quality as a guideline for reviewing economic models, corporate responsibilities and lifestyles.

16.1.3.2 Integrating Experiments/Action Research into Courses: Energy-Building, Mobility, Food, Appropriate Technologies, etc.

Action research projects are regularly mobilized as part of the training given at the Campus de la Transition. The students who are trained at the Campus are stakeholders in the experiments carried out as part of these projects: they integrate our sustainable technologies approach, contribute to our carbon footprint, particularly by commuting to the Campus, and live in the castle during their training. The wood-fired boiler set up at the end of winter 2022 was designed to involve students in the loading of wood and to help them better assess the energy issues for our societies. Questionnaires were sent to some of those who attended courses, to try to measure “avoided emissions”, i.e. changes in behavior linked to participation in a course that led to questioning and decisions: for example, some of those questioned emphasized that they had greatly reduced their meat consumption or lowered the level of heating in their homes.

The various experiments give rise to presentations and exchanges.

On other occasions, the skills of the action-research teams are also put to good use via bicycle repair workshops, repair-café type workshops and wood workshops

for example. These different workshops are an opportunity to witness our mobility and sustainable technology projects by acting with one's body.

Other types of workshops related to our projects can be designed on a case by case basis. Here are some examples proposed in 2021: Working group on heating management for a happy sobriety (BatEr project); Designing a trailer from recycled elements over 2 days with the T-Campers (ORFEE and Mobility projects); a day without high-tech with the Oikonomia Summer School (ORFEE project); calculation of carbon footprint, with Nosgestesclimat or MyCO₂, and often with a second time of appropriation and action for an academic audience (MC2 project); a second time focused on the responsibility of companies for a professional audience (MC2 project)); case study on transportation and mobility basins: diagnosis, constraints and levers (Mobility project); course and participation in the reconfiguration of compost management on the Campus as part of the permaculture plan.

16.1.4 A Territorial and Social Anchorage

16.1.4.1 Promote the Meeting with the Actors of the Territory

Anchoring is done gradually; a certain isolation is linked to the location of the Campus in a small village of 400 inhabitants. The participants in the online sessions of the AcTeS (Accelerating the Ecological and Social Transition) course come from different backgrounds, bringing a real richness to the group: self-employed, employees from large companies, local authorities, some of whom have strong links with the region (employees from the Seine et Marne department, farmers, etc.).

In some courses, the testimonies of farmers or entrepreneurs, echoing the work carried out in the framework of the CODEV research program (at ESSEC) and then also at the Campus, on the systemic responsibilities of the company (economic and financial, social, societal and environmental, political) were also valuable. The presentations allowed the students to identify the characteristics of the territory where the Campus is anchored and to discover the levers and obstacles to the transition of the territory.

16.1.4.2 Connecting the Cry of the Earth and the Cry of the Poor: Ways to Deepen and to Be Found

To promote this social and territorial anchoring, various means and resources have started to be mobilized. This work must be continued and is key to honoring the link between social justice and ecological justice and to promoting social diversity.

The experiences to date concern:

- Testimonies of social actors: for example, the testimony, during an AcTeS course, of a director of a home for the elderly about discernment in the context of the Covid-19 crisis.

- Meetings with people from the territory, or elsewhere, in a precarious or fragile situation; for example, during the T-Camp 2021, a work on a territory crossed by multiple socio-economic and cultural issues, the triangle of Gonesse.
- Activities together, for example: a participatory work camp in December 2021 with young people from the vocational highschool to create the alcoves in the rooms on the second floor of the castle; the workcamp for the village hall in September 2019 with young people from the neighboring town of Surville and their educators.
- The participation of people in courses at the Campus in activities outside of Forges, in the territory (for example in Surville, a neighborhood composed of large social housing complexes where people in precarious social and economic situations live, located in Montereau-Fault-Yonne, 5 km from the Campus); this needs to be developed in the coming months and years.

16.1.4.3 A Privileged Resource: Partnerships with Local or (Inter) National Associations

From the start of its installation in Forges, the Campus team on site has sought to develop certain links. These are still few and far between, due to time constraints. However, it seems very important to take care of these partnerships at different levels, to link up with actors who have skills that we do not have, and to open up to different realities and avoid withdrawing into an isolated bubble.

Since the beginning of the project, the Campus has wanted to respond to the social issues that the Great Transition will have to address. In particular, since the beginning of the project, we have welcomed two refugees, in connection with the JRS charity which accompanies migrants. We have positioned ourselves as a place of welcome. First, Ahmednour, an Ethiopian refugee, and, from January 2021 to spring 2022, we have welcomed Barakat, an Afghan refugee, who obtained his right to asylum in April 2022. They find a home, friends and stability on the Campus. And they make the residents more aware of migration issues, for political or environmental reasons.

16.2 Case Study of the Oikonomia Summer School

16.2.1 Presentation, Genesis and Pedagogical Objectives of the Course

Genesis The Oikonomia summer school, developed by the *Campus de la Transition*, in partnership with ESSEC Business School, was initiated in the fall of 2019 following the success of the “Enterprise and Co-Development” course given by Cécile Renouard at the Campus, over 1 week, in the spring of 2019. Following this week,

all 20 students wrote and signed a letter to the school's management so that proposals of the same type could be generalized to all students at the Campus.

From this was born the idea of a longer, more complete course, which constitutes a pilot and ambitious experiment for the students of the *Grande Ecole*. The proposal is to offer students a general and complete perspective, both systemic and holistic, on the challenges of the Great Transition, leading to a practical case study.

While the *Great Transition Handbook* was being written, the program of this summer school was conceived and designed as the first form of systematic application of the major lessons of this collective work. Thus, it is the first course explicitly articulated around the 6 gates. The head-body-heart pedagogy, already present on the Campus, is deepened, while a final methodological structuring element completes the construction of the program: Bill Sharpe's dynamic approach of the three horizons.

It was then decided that in order to diversify the course's audience, about 15 places were reserved for ESSEC students, while other places were open to different, complementary profiles.

The Pedagogical Goal The objective of the summer school is in line with the Campus' "understanding to act" approach, as described above.

Since the course is validated by a certain number of ECTS credits, this implies that a significant amount of time is devoted to classical teaching, offered by recognized teacher-researchers, in a classroom. It constitutes the basis of knowledge and reflections on which to base the rest of the program. However, it represents a little less than half of the formal training time, most often in the morning.

The first 2 weeks are designed to explore the Oikos, Ethos, Nomos and Logos gates. The Dunamis dimension accompanies the entire program through small rituals (morning word, evening word), but also through specific activities, notably personal rereading and appropriation. Finally, two thirds of the third week are devoted to workshops on the transition to action (Praxis), mobilizing all that has been seen so far.

Knowing the profile of the vast majority of students, most of whom are called to managerial or executive responsibilities, the angle chosen for the course, beyond general perspectives on the Great Transition, has to do with economic questions and models of collective organization of our production, consumption and more generally life activities. The aim is to equip students, who are most often very much anchored in institutional thought patterns and not very critical of these patterns, to enable them to imagine other modalities of collective life, more just and sustainable. Thus, the second week concerns the disciplines of management and organization of the common home, which are political science, finance, accounting and law.

Some facts:

- a 3-year renewable partnership agreement between the Campus and ESSEC
- a 3-week program in early July for 15–25 master's level students
- 15 days of teachings and workshops

- 8 ECTS, including 13 academic 3-h conferences, 11 3-h workshop sessions, and 3 full days of collaborative work, similar to a hackathon, at the end of the program. The whole corresponds to 100 h of formally organized activities. The personal work of the students, sometimes accompanied, especially during the evenings, and the contribution to the collective activities of the castle, amounts to about 60 h.
- 2 experiments so far: a first 100% remote version in 2020, because of the health crisis, which suggests that one can still do interesting things without physical presence, and a second version on-site in 2021.
- The first class had 22 students, including 13 from ESSEC. The others were from master programs at SciencesPo, or at the university (law, management, theology) or were in professional activity (engineering, research in SHS). The second class had only 14 students (including 11 from ESSEC) and 3 engineering or management students. The uncertain environment linked to the Covid-19 crisis, which is still very disturbed, is probably the main reason for this number, which was slightly lower than expected.
- The pedagogical cost of the course is borne by ESSEC for its own students, who therefore only pay for accommodation. The others pay the full cost of accommodation and training.

16.2.2 Syllabus and Program Highlights

Understanding the dynamics of the summer school offered at the Campus for the past 2 years implies adjusting the viewpoint on two complementary scales: that of the day, which has its own dynamics, its various highlights – rituals, teaching time, collective work, reflexivity – and that of the 3 weeks taken as a whole, a pedagogical object in its own right, which has an explicit purpose, going in the direction of “training to transform” the students.

Moreover, it is a whole team that was able to organize such a course, and it is appropriate to describe its functioning.

16.2.2.1 A Team of Organizers and Speakers

The innovative pedagogy of the Campus implies particular modalities of organization of the collective life, for the remote version and of course for the on-site version. Thus, four people are mobilized on a daily basis to ensure its proper functioning:

- The academic director is the one who organizes the course, the contact with the partner, the teaching curriculum and the links with the various participants. The director is present during the course on a daily basis, firstly to ensure the common thread and academic continuity between the various teaching times, to welcome and introduce the speakers, particularly for the morning sessions and of

course during the milestones marking the session (project jury, pedagogical meetings with the students, etc.)

- The external speakers are present for a day or half a day
- Two facilitators and moderators take turns to be with the students, to lead the various review sessions and to respond to the students' needs.

In the end, students are always in the presence of at least one facilitator and one speaker, and are regularly joined by the academic leader. Attention to each individual, to conviviality and to the quality of relationships is one of the essential characteristics that we wish to show and transmit, and the presence of such a team allows us to make it real and concrete during the formally organized activities as well as during time off. In the same way, this important presence allows and maintains a rich and constructive dialogue with the students, an indispensable element to accompany the appropriation of the teachings and the constitution of their critical and enlightened opinion on the complexity of the situation.

16.2.2.2 A Typical Day at the Oikonomia Summer School

The day is punctuated by times that will be found throughout the course. It begins, for some of the students, with collective work in the kitchen (peeling and preparing vegetables), in small groups of 3 or 4. This time spent in the kitchen, in addition to contributing to many interesting reflections, is one of the privileged moments of meeting the inhabitants of the ecovillage (Table 16.1).

The morning meeting, a time for oneself and a collective time to launch the day, is the first moment spent with the whole group. This morning meeting is articulated in 4 parts: a time of silence and refocusing, a turn to speak where each one will be able to express one's inner weather, the sharing by one of the students of a text of potentially varied nature, or more rarely of a piece of music. And finally, a short game which implies a small sports activity by way of a physical energizer.

The morning time slot is most often associated with academic teaching, which we try to make as interactive as possible and where the speaker never speaks for more than 50 min. The classic proposal is to have two complementary interventions

Table 16.1 Schedule of a typical day at the Oikonomia summer school

7h30–9h	Breakfast
7h40–8h15	Collective work in the kitchen
9h–9h30	Morning meeting
9h30–12h30	Academic training
12h30–13h30	Lunch
14h30–17h30	Training application workshops and group work
18h30–19h	Collective work in the kitchen or garden
19h30–20h30	Dinner
20h30–21h30	Evening word – Review of the day

followed by a time of exchange and debate with the speaker of 30–40 min; the two being separated by a musical or outdoor break.

After a lunch break, and a small game to revitalize the group at the beginning of the afternoon, a second teaching session takes place between 2:30 and 5:30 pm. On the program, a workshop directly applying the morning's training (practical case study type), or a collective work that opens to other sensibilities or practices: testimony of committed actors, collective intelligence or eco-spirituality workshops, collective games on action strategies for the transition...

A second break – nap, soccer, reading, discussion, board games – leads to a second time of work for the collective, still in small groups, in the kitchen or in the garden, before dinner.

Finally, the evening word, a reflective time of rereading the day where each one takes the time to appropriate what they have retained, by writing it down in their logbook to which we will return.

16.2.2.3 Overall Dynamics of the Course

The program is described in the Table 16.2, with the color code that enables a clear understanding of the articulation of the main time slots. Each half-day does not constitute a monolithic block with a single pedagogical contribution, but remains at the crossroads of two or even three complementary approaches:

- in dark gray: group time, workshops that allow the development of group cohesion, that call upon emotional and relational intelligence, a practical and non-academic exercise, or that question the individual positioning of the students, for example through a testimony;
- in light gray: the relatively classic teaching times, even if the exchange times with the speakers are privileged in class, but also in a more informal way, during the meal times for example, which contributes to pursue reflections often very rich and carrying for the students;
- in white, group workshops on case studies or practical cases that lead to academic work or to a deliverable by the students.

The overall dynamic implies during the first week to start from solid observations, from the side of hard sciences (physics, climatology) and economics to quickly question the responsibility of the parties involved, personal and institutional, from the point of view of anthropology and ethics. The approach is interdisciplinary, such as the “interdisciplinary perspective on tomorrow's energies” proposed by a physicist member of an interdisciplinary laboratory at the University of Paris. It is during the first week that the group is created, that various activities are proposed in the awareness of its own impact (e.g. exercise of personal carbon accounting MyCO₂), accompanied by exercises of eco-psychology around the “Work that Reconnects” from Joanna Macy.

Table 16.2 Overall program of the the Oikonomia summer school

		Morning	Afternoon
Week 1: Oikos & Ethos	Monday	Inclusion & collective rules	Construction of the group Economic stakes of the great transition
	Tuesday	6 gates approach and head-body-heart pedagogy	Ethical discernment Responsibilities of economic actors
	Wednesday	Interdisciplinary perspective on the energies of tomorrow	MyCo2 What personal impact? Work that connects: an eco- psychological approach (Macy & Brown, 2021)
	Thursday	Climate and impacts on human activities	Case study on international migration
	Friday	Otherness and relational anthropology	Acting on the company: Testimony about course and lobbying the boards of directors of large groups
Week 2: Nomos & Logos	Monday	Ethics and governance of the commons	Introduction to permaculture and practical activity in the garden
	Tuesday	Which finance as a lever for the great transition?	Case studies on environmental accounting: The CARE model
	Wednesday	Accounting methods for a more just and sustainable world	Embodying the narratives of the transition, co-constructed with the students
	Thursday	Imaginaries at the service of the transition	Collective intelligence workshop
Week 3: Praxis	Monday	The legal instruments of the ecological transition	Reflection on sustainable technologies experiences on campus
	Tuesday	Great transition and what “just” relationship to technology	Practicing action strategies, individually and collectively
	Wednesday	Action strategies and collective commitment modalities	Group work: The H1 findings of the three horizons dynamic (bill Sharpe)
	Thursday	Group work: Which industrial sectors on the horizon of 2050?	Group work: Imagining a desirable H3
	Friday	Group work: Meeting of actors (e.g. DDD Renault)	Group work: Restitutions, debriefing and closing

The second week will allow us to examine these major issues through the prism of *oikonomia*: political science and democracy, finance and green finance, environmental accounting and legal levers. One day is dedicated to Logos, to the imaginary for the transition, to be co-constructed and embodied while important concepts for the transition are also introduced: permaculture and collective intelligence in particular.

The last week is resolutely turned to the side of action through the practical implementation, in the framework of a thought experiment, of the transition of an industrial sector for 2050: textiles, mobility on the ground or in the air. The students

are called upon to implement the method developed in the Great Transition Handbook, mobilizing all the knowledge acquired during the course, in order to couple the sieve of the 6 gates with the dynamics of Bill Sharpe's three horizons. In a sequential manner, the students, in groups of 4 or 5, must develop a desirable horizon for their industry, identify the obstacles and the levers of action in order to define, in contact with experts in the sector, a possible trajectory of transition. The presence of supervisors, professionals or academics specializing in the sector, and the meeting with experts working in the industry are the two guarantees of coherence and realism necessary for the interest of such an exercise. This is the final prospective project of the course.

This dynamic, and its purpose already mentioned above, is recalled in the framework of a red thread, followed by the course coordinator, whose role will be to make the link between each of the lessons and pedagogical time, and to create a coherent whole from disparate parts.

16.2.2.4 Knowledge and Skills Acquired

Without being perfectly exhaustive, here are the essential points proposed during the course:

4. The global, systemic and transdisciplinary vision of the challenges of the Great Transition
 - the definition and appropriation of the notion of Great Transition
 - understanding the planetary limits and associated crises
 - the link between environmental crises and major social issues
 - discernment of the individual and collective responsibilities of the actors
5. Mastering the generic skills specific to the issues of the Great Transition
 - attention to orders of magnitude
 - methodological mix of quantitative and qualitative approaches
 - highlighting cognitive biases
6. The deployment of specific disciplinary tools: political science: commons and democracy; finance: risks and radical uncertainty; economics and law...
7. Multi-scalar and multi-dimensional work:
 - the articulation between various spatial and temporal scales
 - the combination of tools and know-how from a wide variety of disciplinary fields, in a coherent manner
8. The implementation of a strategy for the transition of an object
 - the dialogue between various stakeholders
 - exposing desirable horizons, by mixing various frames of reference
 - the definition of low and high sustainability trajectories

16.2.2.5 Educational Tools of Interest

Morning and Evening Rituals The morning meeting and especially the evening meeting are the result of 3 years of training experience at the Campus, with an essential place given to the reflexivity of the students in relation to what they experience and learn. The morning meeting is above all a community space, which contributes greatly to the atmosphere of the class, marked by benevolence, attentive listening and attention to others. From there, it is a determining element of the group's cohesion, making it possible to overcome any form of inhibition with regard to postures or thoughts.

The evening meeting is a space for rereading, either alone, in a small group or as a whole class, using various modalities: active listening, writing in the logbook, role-playing... It allows each person to question what they have retained from the day, what they have appreciated, and conversely, what has posed a question or a problem and which deserves to be explored further. Finally, it is a link to take a step back, beyond what was said during the day, to make the link between all the approaches and activities proposed.

The Log Book Keeping a logbook on at least a daily basis, potentially more often, is one of the important exercises that we propose to the students. On a completely private basis (the notebook will never be consulted by anyone but the student), they note things that stand out, that raise questions, that they wish to continue to explore... and in which they can also refer to the emotions they have experienced, as well as to the personal path to which they lead. The notebook thus becomes the reflection of one's progress during the course, with the major milestones of the course. It will serve as a basis for the writing of the noteworthy report.

The Noteworthy Report Written in the first year, and oral in the second, in 10 min in front of the whole class, the noteworthy report is a means to capture the essential work on the personal trajectories of each student. It allows at the end of the course through a few lines or sentences to capture what has marked the student the most, what stands out for them from this course, in what way they have been able to evolve, and according to what aspects.

It represents a very important moment in the course in both formats, highly charged with emotions, and significant for everyone.

16.2.2.6 Student Assessment

Assessment is an essential issue for a course that provides ECTS credits. It is done in two parts:

1. The noteworthy report is assessed according to the commitment of the students, and the finesse of analysis of the course by each of them. It is thus less the content than the questioning process that is assessed here. This grade represents 1/3 of the total.

For the first year of the summer school the grade was individual. The second year saw the emergence of a collective reflection that mobilized the entire class in relation to the individual nature of this grade. From numerous exchanges in meetings with and without the course managers, the students set up a life-size shared governance experience and a collective discernment whose conclusions were proposed and accepted by the Campus: this grade will be collective with an oral presentation of the noteworthy report in front of the class and according to the same criteria, this time applied to the whole group.

2. The final prospective group project represents $2/3$ of the final grade. It is defended in front of a jury of experts, supervisors and professionals from the sector, and gives rise to a final grade for each group.

16.2.3 Main Pedagogical Lessons

16.2.3.1 Conditions for a Constructive Dialogue with Students

Throughout the course, students were regularly given the opportunity to express themselves on the content and process of the course, and this was something that was widely encouraged. This was done on a daily basis, both formally during the evening word, and informally, for example during meals. An open discussion session was also set up to get their explicit feedback on the various components of the course. Finally, the noteworthy reports were an opportunity to share a review of the course in a very free way.

Several elements came out of these moments that allowed us to ensure the positive impact of the course, but also to see how to continue the permanent effort of improvement of the offer.

16.2.3.2 Highlights Noted by Students

To start with the positive, the majority of the pedagogical goals seem to have been reached, judging by the participants' enthusiasm. They cited the following elements:

- the academic quality of the speakers and the content of their teachings was unanimously praised
- the systemic approach which, like a puzzle that is gradually being put together, sheds light on the complexity of the issues. Some students were able to report during and after the course that certain lectures or moments of the course had an awakening effect, for example with regard to the ability to adopt a critical approach to the axioms of orthodox economics.
- The academic mix in the origin of the students, which again creates a space for discussion and enrichment. This was notably the case between students with a management, political science or engineering school profile.

- The pedagogical framework, the head-body-heart approach and the benevolence, which allows each person to find their place, at their own level of maturity with regard to these issues, in order to better appropriate them.

In a less positive way, some elements of the content or organization may have raised questions, or even made people uncomfortable: the need to clarify the link between each intervention, including in a formal way, and how each one contributes to a coherent whole. On the other hand, the core message of some of the lessons, which were far removed from traditional mainstream teachings, may have been considered too political. This was noted by a minority of students, among those furthest from the problems of the Great Transition, in a punctual manner and in particular on the lessons dealing with economic questions. The option taken is to open up to a pluralist and critical perspective. Finally, the temporality of the group project did not work well in several remote 2-h sessions during the first edition and worked much better on-site over 3 days during the second.

16.2.3.3 Issues Raised

Three main lines of questioning emerge from these two summer school experiences.

The first is about how to support students who are potentially close to a change in personal trajectory. The fact that they are plunging or plunging again into anxiety-provoking and distressing questions deserves to be followed up and guided as gently as possible. This is notably the interest of the head-body-heart approach, with its community dimension and the time for listening and speaking to express and re-read one's emotions. This type of support is therefore offered throughout the course, providing the basis for the tools to be used afterwards. However, no formal follow-up is given, which opens the question of how to offer resources to those who might need them after the course. Exchanges between participants are already taking place on the social networks initiated during the course.

A second issue is related to the attention to be paid to the rather heterogeneous levels of maturity of the participants on transition issues. Most of the students have a "conscious" profile, being committed or very committed, for example in ecological organizations. For cases like these, acculturation to the Campus was very simple and natural. On the other hand, a minority (2 students for each year) may have had a more classic "good student" profile, who always applied what was asked of them, without necessarily asking themselves many fundamental questions. For them, the choice of course may have been guided perhaps by a curiosity to discover other things, but more often and in a pragmatic way, to quickly obtain 8 ECTS. In fact, being able to have a coherent and engaging discourse in front of this heterogeneity of audiences could have been difficult, and even sometimes a little frustrating for the students concerned, or the facilitators of the course. Listening, paying attention to each person and taking time when necessary with the students concerned most often helped to remove any discomfort. If no student has ever expressed the wish not to continue the course, the management of this heterogeneity remains an important point of attention for which refined strategies must be thought out.

The third question concerns the assessment of the course itself. We chose not to carry out a quantitative assessment for several reasons. The main reason is the desire to have a global perspective on the entire course program, rather than a sequenced and then aggregated perspective on each of the modules, as is the case in the traditional school questionnaires. This is in line with the concern expressed in the reflection proposed by the Nomos and Logos gates on the relevance of quantitative perspectives on performance. The noteworthy report thus contributes to the overall assessment by the students and will question the personal trajectory of each student confronted with the teaching provided. Assessment meetings to formalize feedback with the organizers and facilitators of the course were also systematically organized in order to establish the successes, the areas of progress, and hence prepare the next edition.

A successful education is one that sets people in motion, intellectually, but also in terms of commitment, through day-to-day contributions – eating less meat, flying less, etc. – or through professional choices or citizen or even political commitments. That said, things that are sometimes subtle and difficult to account for can play an important role: the choice of a word or a formula in the presentation of a course; the emphasis placed on a particular illustration of an argument that is more personal than another, etc. It would be useful to be able to devote time to identifying what makes it possible to assess each of the transformative dimensions targeted: the transformation of commitments to sober and supportive lifestyles, the transformation in the consideration of necessary structural and institutional changes, the inner transformation – the latter of course, not being able to be the subject of a value judgment, but being assessed through the keeping of a learning diary or by the aforementioned noteworthy report.

16.3 Conclusion

The two sessions of the Oikonomia summer school, held in 2020 and 2021 in partnership with ESSEC, have allowed us to experiment with the pedagogical proposal developed from the Great Transition Handbook. The inter- and transdisciplinary perspectives showed their relevance in shedding light on the complexity and according to the students, they seem to have emerged better equipped intellectually, personally and professionally to respond to the major challenges of the transition. The session contributed to the formation of a community in which, with 18 months of hindsight for the first class, the links and exchanges remain close; finally, it allowed a greater commitment for many of them, notably through their participation in various ecological organizations, all contributing to the construction of a more just and sustainable world.

If the method experimented with at the Campus de la Transition seems to be bearing fruit, as shown by the qualitative analyses already mentioned, it is appropriate to ask ourselves how this effort could be continued on a larger scale. The Campus is explicitly designed to mix audiences and life paths, to provide space for

traditional teachings, but also spaces for emotional expression, as well as a form of physical and territorial anchoring. This is not the case with the vast majority of academic institutions, which are designed for top-down lectures or classrooms in a quasi-industrial way. Moreover, how can we offer such close and individualized support to classes of 200, 500 or 1000 students? Transdisciplinary academic teaching seems quite replicable in more traditional institutions without the need for major adjustments. On the other hand, the question arises without obvious answers, as to the body-heart accompaniment and civic learning in the classical academic context.

References

- Bommier, S., & Renouard, C. (2018). *L'entreprise comme commun: au-delà de la RSE*. Éditions Charles Léopold Mayer.
- Brun, É., Ponge, J.-F., & Lefeuvre, J.-C. (2020). *Paroles de chercheurs: Environnement et interdisciplinarité*. Éditions Quæ.
- Ezvan, C., L'Huillier, H., & Renouard, C. (2019). Measuring and enhancing relational capabilities – In defence of a relational view of the firm. In A. Lindgreen, F. Maon, J. Vanhamme, B. P. Florencio, C. Vallaster, & C. Strong (Eds.), *Engaging with stakeholders: A relational perspective on responsible business* (1st ed., pp. 45–62). Routledge.
- FORTES collective. (2020). *Manuel de la Grande Transition: former pour transformer*. Les Liens qui libèrent.
- FORTES collective. (2021). *The great transition guide: Principles for a transformative education*. Campus de la Transition – Laudato Si' Research Institute. https://campus-transition.org/wp-content/uploads/2021/07/The-Great-Transition-Guide-Principles-for-a-Transformative-Education_0.pdf
- Giraud, G., & Renouard, C. (2012). *Vingt propositions pour réformer le capitalisme*. Nouvelle éd. Champs 1031. Flammarion.
- Global Ecovillage Network. (n.d.) *What is an ecovillage? Global Ecovillage Network*.
- L'Huillier, H., Argoud, F., Ezvan, C., Renouard, C., Cottalorda, P.-J., & Raynal, J. (2022). *RCI-E : Une mesure du bien-vivre dans les écolieux. Construction d'un indicateur de capacité relationnelle dans les écolieux et application à 10 lieux*. Ademe.
- Macy, J., & Brown, M. Y. (2021). *Écopsychologie pratique et rituels pour la Terre: revenir à la vie* (3e éd. ed. revue et augmentée). le Souffle d'or.
- Renouard, C. (2007). *La responsabilité éthique des multinationales. Éthique et philosophie morale*. Presses Universitaires de France.
- Renouard, C. (2013). *Éthique et entreprise*. les Éd. de l'Atelier.

Chapter 17

Some Practical Tools and Methods to Carry Out Transition Pedagogy in Higher Education Institutions



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec, Jonathan Dawson, Alexander Federau, Perrine Vandecastele, and Nathanaël Wallenhorst

Abstract Teachers may be skeptical about the possibility of implementing transition pedagogy, as outlined in the first part of this book, given the current context of higher education. Here we synthesize therefore the pedagogical tools that we have identified in the courses offered by establishments that have practiced a transition pedagogy for a long time, as well as those being used at the Campus de la Transition since 2018. We also draw on interviews with experts and practitioners, psychologists, teachers and explorers of new practices. (Interviews with Chrysoline Brabant – clinical psychologist and certified coach, Mark Swilling – founder of the Sustainability Institute, Jacques Tardif – professor at the University of Sherbrooke and specialist in university pedagogy, Laurent Van Ditzhuyzen – co-founder of the Université du Nous, Thibault Griessinger – PhD in cognitive sciences and founder of Acte Lab, Hubert Trapet and Valérie Fayard – Emmaüs France CEO and vice-

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition, Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l'Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*, Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_17

chair). The chapter starts with the lightest tools, which can be set up quite easily in a classroom, moving towards the most ambitious, and resulting in a coherent picture of the higher establishment in service of the Great Transition teachings.

We are well aware of the constraints with which the teacher must juggle: the lack of time to provide extensive application exercises, group size and space configuration in the lecture halls, assessment logic and student learning strategies, the lack of means to bring in external speakers, legitimate career strategies for research professors, the location of the university and sociology of the students, public policies for higher education going against the transition challenges, etc. Given the demand for tools to enable a concrete transition pedagogy offer, the modest ambition of this chapter is above all to offer an organized synthesis of the different tools of transition pedagogy in the Anthropocene (Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023) from several educational and socio-cultural fields. Teachers who are already implementing pedagogies rooted in experience will find known practices in these proposals.

17.1 Tools for a Posture that Can Be Put to Work at Different Scales and Different Rhythms

To introduce more practical tools, it is important to remember that a toolbox cannot replace the profession and experience of the teacher. The tools described below and in the appendix can be used as a synthesis, or inspiration to begin the implementation of transition pedagogy in a practical way, but they are only there to initiate and support the posture and pedagogical state of mind that each teacher develops and makes progress in his or her practice.

Beyond the pedagogical methods aiming to schedule a learning pathway, let us recall the importance of remaining open to unteachable moments, those moments in teaching that cannot be scheduled, which go beyond the ordinary school framework, and which change the human being (Ball, 1999; Meirieu, 2012; Biesta, 2017).

The last remark concerning the handling of these pedagogic tools concerns the iterative approach which can allow the progressive transformation of teaching. A progression and a coherence can be observed in the three levels of transformation of practices mentioned below: the transformation of entire modules can only be possible if a new pedagogical culture has been gradually disseminated from daily practices. Conversely, modules targeting the learning of certain skills will facilitate the implementation of new practices in all the classes of a course, by developing a common culture of cooperation or communication, for example. We must therefore think about the implementation of these tools using an iterative and progressive logic, starting with simple tools and gradually making them more complex.

17.2 Mobilizing the Head, Heart and Body Within the Existing Framework of Higher Education

Within the framework of a conference, a lecture in an amphitheater or a tutorial, in the infrastructures, with the existing equipment, and in front of students accustomed to teaching methods still widespread in higher education, practices involving the body and the heart make it possible to facilitate the learning of the complex and rich material of transition related teachings.

A large part of the tools we offer come from the field of collective intelligence facilitation, popular education, theater and coaching. For teachers who have not attended one or the other of these fields, these tools may seem difficult to offer in view of the group dynamics and the educational culture in which the students are immersed. A few days on a facilitating or self-learning course (Poupard, 2017) can, however, provide the appropriate capacities and serve as a basis for experimentation for teachers who would like to get started and develop their pedagogical repertoire. For the sake of synthesis, we have chosen not to present all the tools in detail, but to refer to relevant references to discover them better.

17.2.1 Better Mobilizing the Head in Learning

Higher education addresses firstly the head, but still too often fails to sufficiently anchor knowledge in order to make it applicable to specific work situations encountered by the students. Here are some tools to improve head mobilization in learning.

First of all, students consolidate transmitted knowledge better by knowing the educational goals of a session or an exercise and by understanding the learning pathway they are going to follow (Courau, 2001). To become aware of what they have learned, time for debriefing or “nourishing feedback” is very useful at the end of the course or at the beginning of the session to verbalize and share learning.

The experiential learning model presented by the Kolb cycle is very enlightening on the different stages of learning, from experience to application (Kolb, 1984). Thus, starting from the personal experience of each person can be a way of bringing out knowledge that is already present but unaware of. After a stage of theoretical recovery which completes and structures the knowledge that emerged during the first phase, it is then important to mobilize this knowledge in order to anchor it. It is in particular the role of the application exercises which make it possible to concretely handle theoretical concepts and to become aware of the concepts’ acquisition level – while possibly passing by the possibility of failure. Thus, starting a course with scenarios, educational games or questions relating to personal experience helps to arouse the curiosity and commitment of students. This requires them to mobilize their knowledge while leaving the possibility for the teacher-expert to intervene to enrich this knowledge.

Beyond anchoring knowledge, it is also possible to mobilize debate methods developed in popular education or collective decision-making exercises (Quinoa, 2011). These allow students to become aware of the mental models and subjectivities that structure their rationality and/or can interfere with the learning of political notions such as those addressed in transition education.¹

17.2.2 Learning with the Heart: Mobilizing Emotions and Relationships

The heart, that is to say the emotions and the relational aspect is less taken into account in higher education practices, it nevertheless plays an important role in learning.

Creating a safe environment and a caring atmosphere is an essential, if not the primary, element to consider. These aspects are offered in particular by ensuring that the conditions for full student availability are laid down by the care taken in the dynamics of the group, especially at the start of a course. What is called a “safety framework” in facilitation consists in specifying the “rules of the game” of interactions within the group from the very beginning of a course. For example, 4 rules can be proposed: speak with intention and listen with empathy, do not judge the ideas/questions of others and be benevolent, participate actively and be co-responsible for the success of the course, preserve a spirit of light heartedness and good humor.

Icebreaker-type inclusion exercises and time dedicated to presentations allow everyone to feel recognized and welcomed in the group. Offering a minute for focusing at the start of each class is a very simple tool to set up, refocus and open up a collective space. The attention given to establishing a friendly, attentive and benevolent atmosphere promoting the joy and pleasure of learning depends as much on the encouraging and confident posture of the teacher as on the type of exercises offered – exercises based on cooperation, creativity or games² for example. These moments dedicated to creating a group and opening a protected learning space are low investment in terms of the quality of attention and cooperation that they allow to develop.

Autonomy also promotes commitment to learning, in particular by making the group responsible for time management, by opening the possibility of taking breaks and by offering students the opportunity to invest in an activity or in a sub-group on a voluntary basis. This notion of individual sovereignty, which can be posed in the security framework explained at the beginning of the course, is all the more important since the activities invite personal commitment: no one should feel obliged to participate in an exercise that makes them feel uncomfortable. We will not repeat enough that these details stated at the start of the course or the year (on the right to

¹ See the interview with Thibaud Griessinger in the present book.

² See the interview with Mark Swilling in the present book.

make mistakes, the right not to understand, the importance of questions, the establishment of a climate of trust and discussion) are absolutely crucial in creating favorable conditions for learning.

A large group can impress and make it difficult to speak up. Nevertheless, collaborative digital tools exist and can facilitate interactions between the public and the teacher, in particular by “anonymizing” the questions asked, which can reassure some more timid students. Teaching techniques can also encourage participation: suggest standing up or lifting a colored card to answer closed or multiple choice questions, for example.

Relationships within a group are also structuring. Confidence and a sense of belonging, which are important levers for engagement in learning, can be strengthened through teamwork. This works well if enough attention is paid to creating teamwork culture that includes both, recognition of the multiple skills that each and everyone can bring to the collective and the ability to express their needs and receive constructive criticism from other members. The tools of non-violent communication can be used in this respect, for example. Maintaining work teams for the duration of a course can also help strengthen this feeling of belonging.

The appropriation of factual evidence may be slowed down by emotions, a true mirror of personal values and subjectivities. Allowing students to express their emotions, and therefore to become aware of their values, can be done by asking questions relating to these feelings, even when the content of the course is essentially scientific or normative.³ The appropriation exercises proposed in the *Great Transition Handbook* are a good illustration of mobilizing individual introspection to support the assimilation of theoretical content. As the statement of facts is not enough to provoke mobilizing emotions in all students, activities that engage the senses such as documentary screenings, field trips, games and scenarios inspired by the theater of the oppressed according to Augusto Boal (2002) may be necessary to actually engage the learning drive. Thought experiments and artistic propositions (storytelling, painting, collage, etc.) offer the possibility of feeling distant realities using the empathic force of the imagination.

Emotions are perceived through physical feelings and sensations for which the body is the soundbox. Involving the body more broadly in pedagogy and paying attention to the material arrangements of the classes initially allows us to get back in touch with our own material and work tool. This then makes it possible to benefit from the power of the relationship between the body and psychology, which is particularly important in view of the transformative ambition of transition pedagogy.

Breathing, meditation, stretching, posture and warm-up exercises from sport disciplines (especially martial arts or yoga⁴), artistic (especially performing arts) or spiritual disciplines and psychological practices, allow the body to be occupied rendering the mind available for learning while strengthening the capacity for attention

³ See the interview with Mark Swilling in the present book.

⁴ As developed by the Research for Yoga in Education organization, (<https://rye-yoga.fr/ressources-pedagogiques/exercices>)

to feelings. Everyone can then have better access to their emotions and use their body as a learning tool.

17.2.3 Taking into Account the Needs and Relying on the Power of the Body

To conclude, it is beneficial to take into account the physiological needs of the body to punctuate the course and adapt the proposed activities. For example, the class can start with a minute of focusing or stretching exercises. Small cooperative or classroom energizers can also be proposed during the break of a 2-h course. These help to create the benevolent and positive climate mentioned in the previous paragraphs. When possible, tables can be moved: a circular or U-shaped layout of the room promotes interaction. The absence of a table can also be considered: it is not always necessary to take notes on a computer to get the most out of a lesson and it is still quite possible to take a few notes without a table! To go further, it is also possible to create “theatrical” exercises that will turn intellectual concepts into physical ones – making the abstract concrete by analogy. For example, it is possible to concretize the notion of systemic through a collective exercise where everyone moves at the same time and where everyone must constantly stay at an equal distance from two people in the group.⁵ It is also possible to use the family constellations from psychotherapy, which consists of starting from spontaneous body intuitions to represent unconscious patterns and knowledge in space.⁶ Thus, we can suggest that students choose a body posture that, according to them, illustrates the interaction between the economic system and the planet’s resources.

If digital tools seem essential in a project pedagogy or even are imposed for logistical or health reasons, they do not prevent offering exercises involving the heart and the body for distance learning. However, for face-to-face learning, offering disconnected learning spaces (by removing tables if the computer is not essential or by offering to put the phones in airplane mode, for example) can allow students to be fully present and active in class. We can also encourage note-taking on paper – manual writing allows better cognitive integration of content.⁷ It is also possible to enrich webinars and MOOCs with physical exercises to be performed during the session.

⁵These systems games are presented in particular in the work of Macy and Brown (2014).

⁶Introducing family constellations by Éric Audière, (<https://www.constellation-familiale.net/introduction-aux-constellations-familiales>)

⁷Interview with Chrysoline Brabant, clinical psychologist and certified coach.

17.3 Implementing Transition Pedagogy Within a Module or a Course

A teacher holding a course over several hours, whether it is a few hours a week or a whole week in block for example, will ask him or herself how to use the six gates and the pedagogical consolidators of transition pedagogy to build his or her lesson plan. We are offering here a pedagogical approach which allows the teacher to make choices relating to the organization and roll out of his or her teaching, as well as to the assessment of the learning undertaken.

- What are the group's specific educational goals towards which I teach and the course in which the lesson takes place?
- What connections can be made between the theme of the course and each of the six gates of the Great Transition Handbook?
- Which teaching staff and which speakers?
- How does one schedule the successive passage points through which the students go to receive a transformative experience?
- What modalities and what activities rooted in reality and mobilizing the head, body and emotions can I design to address each of these passages and support the acquisition of transversal skills?
- What assessment to account for and raise awareness of the learning achieved, especially on crucial concepts?

17.3.1 Contextualizing the Lesson in the Students' Curriculum and Specifying the Educational Goals and the Intention

Not only is the classroom the place for the transmission of general or specific knowledge, but it is also one of the places for learning the transversal skills described in the first part (systemic thinking, ethics and responsibility, mental models, etc.), which has the goal of effecting a transformation, even relative. Taking into account the specificity of the group (type of course, level of education, other classes taken) will make it possible to clearly identify the starting point and to deduce the end points that the teacher wishes to reach, in line with the time available – during classes and between classes. What is it important for the pupils to leave with, what should they know how to do and what should they be aware of at the end of the course? In a transdisciplinary and holistic approach, the subjects that can be approached are numerous. Also, having a precise intention in mind facilitates the selection of the points to be tackled as a priority and the construction of a coherent educational pathway.

17.3.2 Identifying How Each Gate Resonates with the Lesson Topic

Transition pedagogy offers an inter- and transdisciplinary approach. It seeks to go beyond the transmission of information in order to aim for a true understanding of the subject.⁸ The Great Transition Handbook's 6-gate approach makes it possible to both enrich the content approached from the perspective of other disciplines, but also to support the understanding of these contents by using activities that improve knowledge consolidation. This pedagogy thus makes it possible to reach the different sensitivities of the students whose centers of interest and learning motivations may vary.

Thus, if the lesson subject echoes more directly with one of the gates (an accounting lesson or teaching about political institutions are easily identified through the Nomos gate, a climatology lesson through the Oikos gate etc.), it can be contextualized and problematized when approached by other gates: "Why measure the evolution of the natural capital on which we depend?" Is a way of approaching the subject of accounting through the Oikos gate for example. Sifting through the subject of the course through the reading grid of the 6 gates – in particular with the help of colleagues from other disciplines, if necessary – makes it possible to identify passage points which make students understand the complexity of the subject. At the same time, it facilitates the construction of a systemic vision of the Great Transition's stakes thanks to the identification of the connections to be made between the different classes followed by the students.

17.3.3 Scheduling the Successive Passage Points/Gates for the Students to Take to Receive a Transformative Experience

To build the skeleton of the learning sequence proposed in the course, you must first organize the order of the gates the students will pass through. We must not lose sight of the intention and goals of the course which must guide the learning sequence organization so that it is as relevant as possible.

Some audiences are statistically more sensitive to one or the other of the gates. Hence, it seems more judicious to start the thought process with this. However, the groups are made up of different individuals and some will find it difficult to become emotionally involved in the learning until the angle of approach that will affect them personally has not been addressed. This is the reason why it seems relevant to us to go through all the gates, possibly returning through some of them in order to allow all the class students to grasp on to the learning process.

⁸ Discover The Climate Fresk, (<https://fresqueduclimat.org/>)

Let us not forget that starting from personal questions and experimentation is a good reflex to arouse curiosity and commitment in students.

To illustrate these pathways, here are a few examples presented in the Great Transition Handbook's introduction.

17.3.4 Identifying the Activities and Learning Places Consistent with the Group Dynamic and the Time Frame

The activities are both a support for the learning of knowledge and that of learning by practicing transversal skills. The collective dimension is crucial and the activities chosen to start the lesson are decisive for the quality of the group dynamics, a powerful learning factor.

Short activities can be offered throughout the class to take into account the head, heart and body in the group of students (presented in the previous paragraph). Over a longer teaching period (several weeks or months), activities requiring several hours become imaginable alongside the lecture and/or tutorials. Here is a non-exhaustive overview, which can be completed and recomposed to adapt to the desires and constraints of the educator:

Oikos The Climate Fresk just like the Biodiversity Fresk⁹ are educational tools that support the understanding of the Earth system by mobilizing the learner in the construction of a visual representation of the system. More generally, offering presentations or organizing flipped classes gives students more time to better understand and apprehend systemic problems.¹⁰ This does not contrast with maintaining presentations followed by discussions from an expert, whether to provide knowledge on particularly technical subjects or to put other subjects in perspective. It is also interesting to rely on collective intelligence tools in the classroom (Arnaud & Ejeil, 2018) to bring out the multiple facets of a problem.

Ethos Games are widely developed in education networks for citizenship and solidarity, and for sustainable development.¹¹ They allow a playful approach to the issue of inequalities in access to resources and those of discrimination.¹²

Nomos Just like business management simulations, serious management games of a common good or negotiations between stakeholders at different scales (such as the

⁹Discover the Biodiversity Fresk, (<https://www.fresquedelabiodiversite.org>)

¹⁰See the Interview with Mark Swilling in the present book.

¹¹For a list of popular education resource sites see the list of the Adéquations association, (<http://www.adequations.org/spip.php?rubrique152>)

¹²See for example Bancon-Dilet (2012) or the guide developed by the organization for sustainable development education Quinoa (2011).

simulation modules of international negotiations for example) are particularly suitable for letting students think and make ethical choices or to embody in a simple way macroeconomic mechanisms and concepts such as the tragedy of the commons¹³ for example. Over the entire semester, a controversy mapping exercise can also be carried out. This investigation tool makes it possible to represent the structuring tensions, the stakeholder's interactions and the scientific or advanced justifications that underlie each person's positions.¹⁴

Logos Organizing and facilitating debates¹⁵ using, for example, the VaKE didactic (Børhaug & Harnes, 2020) or popular education methods, help to become aware of one's values and mental representations about oneself, one's actions and one's relationship to humans and non-humans.¹⁶ Working on performances and narratives is obviously possible using projections, theater, storytelling, etc., with students who can be actors or spectators.¹⁷ Theater can also be used for mock trials such as in the court for future generations¹⁸ and other playful dramatizations around social debates. The testimonies of actors in the field, professionals, or people concerned by an environmental and social problem are particularly powerful in arousing the desire to act because they embody concrete problems or alternatives.

Praxis Project pedagogy is obviously relevant for tackling questions of concrete and collective action, in particular multidisciplinary teamwork around the resolution of social or environmental challenges. Design Thinking methods,¹⁹ built on the basis of a cycle starting from observation to prototyping through the imagination of solutions mobilizing the head, heart and body, in a team to develop solutions for a determined environmental or social need.

The tools from the Theater of the Oppressed by Augusto Boal, initially developed to support local communities in defending their rights before dominant

¹³ To learn about cooperation and the mechanisms of governance of the commons see for example the game Commonspoly, (<https://commonspoly.cc/>)

¹⁴ Mapping of controversies, see a presentation of this pedagogy developed by Bruno Latour, (<https://controverses.org/en/controversies/>)

¹⁵ See the interview with Thibaud Griessinger, among others about the activities of the Chiasma cooperative which organizes debates to raise awareness of the cognitive biases that structure reflection.

¹⁶ The VaKE-process, (<https://www.youtube.com/watch?v=VytqZ56KVIY>)

¹⁷ Artistic practice as a teaching method will be all the more possible if it is encouraged as a full-fledged module in the curriculum.

¹⁸ Format developed by the Usbek and Rica magazine.

¹⁹ Design Thinking is a mindset in addition to being an innovation process developed at Stanford in the 1980s to create new services or products. Compared to traditional analytical methods, Design Thinking mobilizes empathy in addition to rationality and focuses on the experience and needs of the user. Visual representations and models engage the body as a support for creativity. This iterative approach is characterized by a cycle of understanding the need – inspiration – ideation – prototyping – feedback and thus allows a gradual improvement of the developed solution, through rapid testing and learning from failure.

political or economic institutions, are invaluable in identifying, thanks to the intuition of the body, individual or collective responses to be provided in an identified concrete situation (Boal, 2002). These projects result ideally from the issues of field actors.

Dunamis Observations and activities related to the subject, in nature or in the field, will support the environmental or social facts and findings discussed through the Oikos gate. The territory is a place to live sensitive and relational experiences whose transforming potential is incomparable with presentations on these same observations. In addition, outings such as those offered by nature education organizations or classes immersed in nature reconnect students with the concrete reality of the physical world. They also open the mind to contemplation and imagination, to the creation of concrete objects and the accomplishment of manual tasks. These moments in nature or around a manual activity are vectors of reconnection with others confronted with a shared effort (Espinassous, 2015). Giving room for individual resonance in the face of the power of the subjects tackled is important and can be organized through rereading sessions or discussions focused on personal feelings, on the basis of exercises from Joanna Macy's "The Work that Reconnects" and ecopsychology for example.²⁰

17.3.5 Which Teaching Staff and Which Speakers?

For activities, many toolboxes exist and will complete our chapter for teachers who would like to have practical worksheets. Using these tools in class sometimes requires skills, even training, but especially the teacher's appetite for artistic practices, holding classes, and facilitation. The work of a multidisciplinary teaching team – combining teachers, educational engineers, artistic speakers, facilitators – is ideal for pooling useful talents for this pedagogy.

17.3.6 Guiding the Bringing to Awareness of Learning Resulting from the Lesson Through Assessment

To use the power of curiosity, it is important to leave as much choice as possible in the activities, subjects and order of learning. The teacher can organize the framework, as well as the conditions to be fulfilled to validate the learning, and leave the students free in this framework. For example, there may be different themes to explore or activities to carry out to validate a course, but the course can be left free

²⁰ See the Work that Reconnects online resources, (<https://workthatreconnects.org/resources/practices/>)

with a sub-group organization by area of interest or level to deal with the different modules.

When it comes to transversal skills and complex knowledge, awareness of learning (experienced or to be undertaken) can be supported by the production of a learning journal. This diary can be the result of the regular rereading of days or weeks on the basis of simple questions starting from personal feelings, identifying the questions that remain open and questioning the new keys of understanding acquired. Leaving the possibility of presenting creative or artistic renderings also makes it possible to mobilize a wider range of skills than just written renderings – which give a central place to language in the development of thought.

More lightly, the course can start or end with personal assessment and collective *debriefing* slots on what was learnt. In an iterative logic, these appropriation exercises can invite connections with other addressed subjects and disciplines to gradually consolidate a systemic understanding of the transition.

17.4 Building a University Course: Proposal for a ‘*humane education*’ Lesson in the Common Core

The waves of degree accreditation – and therefore of curricula – offer a window for teaching staff to work on the revision of the complete architecture of a curriculum. If the political will of the management teams is present, favorable structural conditions must also be put in place, particularly in terms of infrastructure, student life or education obligations. Thus, beyond the dedicated courses, learning the common core of knowledge and skills that each student should acquire during their time in higher education can be thought out by considering the different learning spaces offered by the university curriculum to students.

17.4.1 Offering a Range of Theoretical Courses on the Common Foundation of Transition and Transversal Skills

Classes targeting the acquisition of soft-skills can be offered in addition to courses targeting the acquisition of skills and knowledge specific to the curriculum.

With the educational project’s coherence logic in mind, these transversal skills should be mobilized throughout the curriculum and the classes followed by the students. They will be all the more so, as teaching specifically working on these skills will have been scheduled in the students’ curriculum.

Alongside the classes dedicated to the contents of the *Great Transition Handbook*, others allow a reflective and meta approach to the six transversal skills detailed

above. They enable the student to become aware of the acquiring of these skills during his or her learning.

For example, a class on complex systems and systemic thinking will consolidate the understanding of the Earth system, economic models and their dynamics (Oikos); philosophy classes will lay the foundations for practicing ethical discernment (Ethos); while a class on theories of change, between social sciences and cognitive sciences, will support awareness of mental models, brakes and levers to the dynamics of change (Nomos). A prospective class may be relevant to learn how to build a shared vision (Logos). Regarding the learning of cooperation, bases in social psychology and elements of sociology of organizations consolidate the understanding of group dynamics and the forming of collective intelligence (Praxis). Finally, classes in life sciences and/or on the history and geography of the territory will accompany the reconnection with others and with nature, associated with a class on ecopsychology which can be a support to work on the knowledge of self (Dunamis).

17.4.2 Collective Projects, Seminars and Cultural or Sporting Activities

In addition to classes dedicated to theoretical teaching, seminars and collective or personal projects offer a space for learning through action in a short and collective format. Projects to create solutions or actions with a social and environmental impact on the campus territory provide the framework for concrete research. They will be even more transformative due to students being free to choose the topic on which they wish to invest. Starting from one of their existential questions nourishes engagement in learning and allows them to better understand how they can contribute to change in their own way. An individual research thesis on a free theme is another option for combining initiation and learning through action.

Seminars on questions of orientation and self-knowledge can be set up at specific times. They offer a place to breath and question the development of a unique and singular professional project, in the spirit of the Japanese *Ikigai* which invites to find the intersection between what a person loves and knows how to do, what the world needs and what it is possible to pay oneself for.²¹

Finally, certain manual practices (permaculture, crafts), sports (in particular martial arts and derivatives) and arts (theater, dance, singing) offered in groups and over the long term bring to life moments when the body, head and heart work together towards the same goal, thus creating listening and cooperation within the group. Drama classes and writing workshops in particular allow us to work on the place of emotions in human relationships, develop empathy and deploy emotional intelligence.

²¹ We can also consider that the main thing is to identify what we like to do and what the world needs, and then find a way to live economically.

17.4.3 International and Intercultural Experiences in the Campus Neighborhood

International exchanges or internships are invaluable in the curriculum to positively confront students with cultural differences. Essential intercultural skills for cooperation between different types of actors can also be developed in the campus neighborhood, which is not out of touch in the FORTES philosophy. Partnerships with local structures are an opportunity to meet people close to home, to use the neighborhood as a learning ground and to discover other realities.

More particularly, immersions, civic training courses or projects in connection with organizations at the front of the social emergency and vulnerabilities should be a compulsory passage in all courses. This would make it possible to confront social issues, less perceived and less well understood than climate issues today, by exchanging and sharing with people with different cultural backgrounds and living in precarious situations.²²

17.4.4 Student Life to Experience Transition on a Daily Basis

Being immersed in a daily life that is consistent with ecological and social requirements makes it possible to anchor sustainable practices in the lifestyles of students, teachers and administrative staff. Thus, the food offered at the university canteen can be the result of a responsible purchasing policy both for the products and for the choice of the service provider, which can be a responsible structure, embodying the regenerative economy. The school travel plan can promote the use of soft mobility. The campus can itself be a third place of learning with dedicated spaces such as Learning Labs, Fab Labs, vegetable patches and gardens.

The schedules can also offer the possibility of starting the days with body wake-up exercises or manual practices (housework, gardening or repairs).²³ It is about making space and time for yourself, to meditate, read or write about your desires and learning intentions.²⁴

17.4.5 Community Life and Volunteer Commitment

Participating in the transformation and/or governance of the campus is in itself a learning process for all university stakeholders, particularly with regard to collective action and political commitment. Community life, which is highly developed in

²² Interview with Hubert Trapet and Valérie Fayard, Emmaüs France CEO and vice-chair.

²³ See the Interview with Mark Swilling in the present book.

²⁴ Interview with Chrysoline Brabant.

some establishments, can be thought of in the tradition of popular education as the privileged place for experimentation with civic engagement and learning for democratic life (Dewey, 2011), both through the deliberation and decision-making processes experienced by the student and through the concrete need to assert the values that underlie their commitment.

17.4.6 *The Orientation, Assessment and Support Process*

Throughout the school years, the possibility of choosing classes and activities help to make the student a decision maker for his or her curriculum, and this in order to balance between the exploration of one's own pathway and the progressive construction of a coherent learning with a pathway which takes shape little by little. The use of a (e)-Portfolio, a collection of digital information describing and illustrating a person's educational background or career, experience and successes, serves both as an orientation support for the student and assessment for the teaching staff. Indeed, it reports on the student's progress through a selection of journal pages and reports which are representative of what the student is capable of producing and obliges him or her to mobilize the necessary reflexivity for the construction of a coherent pathway (Taddei et al., 2018). A proposal made in particular by François Taddei in his vision of a learning society, the dissemination of mentoring among teachers and tutoring systems offer the benevolent external perspective that supports the student in his or her orientation process:

Certain actors in the learning society, researchers or teachers in particular, must be trained, as mentors, scouts and facilitators, in a new professional approach which is at the same time inspired and backed by research, and nurtured by reflexivity. Focused on cooperation with peers and partners rather than hierarchical expression, oriented towards experimentation, its documentation and its assessment, it will be based on the most agile and iterative approaches.

The challenge is to move from a logic of control to a logic of trust, from a hierarchical logic to a logic of benevolent mentoring that helps everyone to progress by leaning on research and contributing to the development of knowledge. The important thing is therefore to bring together and support the actors of the learning society so that inclusiveness, trust, sharing and cooperation are concretely at work in digital or non-digital learning spaces (Taddei et al., 2018, 6, 28).

Mentoring can be provided by Master or Doctorate students, thus enhancing student volunteering as is practiced in some foreign countries.

References

- Arnaud, B., & Ejeil, C. (2018). *Le guide de l'organisation apprenante: plus de 100 outils et pratiques pour développer l'intelligence collective*. Eyrolles.
- Ball, G. D. S. (1999). Building a sustainable future through transformation. *Futures*, 31, 251–270. [https://doi.org/10.1016/S0016-3287\(98\)00133-5](https://doi.org/10.1016/S0016-3287(98)00133-5)

- Bancon-Dilet, É. (2012). *Jeux pour habiter autrement la planète: avec les 15-25 ans. Habiter autrement la planète*. Paris: les Presses d'Île-de-France les Éd. des Scouts et Guides de France.
- Biesta, G. (2017). *The rediscovery of teaching* (1st ed.). Routledge. <https://doi.org/10.4324/9781315617497>
- Boal, A. (2002). *Games for actors and non-actors* (2nd ed.). Routledge.
- Brossard Børhaug, F., & Harnes, H. B. (2020). Facilitating intercultural education in majority student groups in higher education. *Intercultural Education*, 31, 286–299. <https://doi.org/10.1080/014675986.2020.1727654>
- Courau, S. (2001). *Les outils de base du formateur*. ESF.
- Dewey, J. (2011). *Démocratie et éducation suivi de Expérience et éducation*. A. Colin.
- Espinassous, L. (2015). *Laissez-les grimper aux arbres: entretien avec Louis Espinassous*. Les Presses d'Île de France.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall.
- Macy, J., & Brown, M. Y. (2014). *Coming back to life: The updated guide to the work that reconnects*. New Society Publishers.
- Meirieu, P. (2012). *Apprendre oui, mais comment* (23rd ed.). ESF éditeur.
- Poupard, J.-P. (2017). *Devenir facilitateur: professionnaliser ses pratiques collaboratives en entreprise*. Imin30 publishing.
- Quinoa. (2011). *Education au développement : Manuel pour accompagner les citoyens vers l'engagement*.
- Taddei, F., Becchetti-Bizot, C., Houzel, G., Mainguy, G., & Naes, M.-C. (2018). Un plan pour co-construire une société apprenante – A l'intelligence collective, la planète reconnaissante. Ministère du Travail, Ministère de l'Éducation nationale, Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation.
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.

Chapter 18

“Work That Reconnects”, A Powerful Tool for Transformative Learning



Michel Maxime Egger

Abstract In education, the great ecological and social transition implies a transformative learning mobilizing the head, the heart and the hands. A powerful tool in this respect is “Work that Reconnects”, developed as soon as the mid-1980s by the American ecophilosopher Joanna Macy. The article first explains what is meant by the “Great Transition”, how this implies a thorough reform of education and it introduces “transformative learning” as well as “Work that Reconnects”. The second part presents five major contributions of this transdisciplinary and holistic methodology: the place given to emotions in the intelligence on planetary problems; the composting of sufferance, which characterizes eco-anxiety, into fertilizer for commitment; the acquisition of an ecocentered vision of the world and of oneself; the virtue ethics culture, in particular gratitude, compassion and hope; the incitation to action by getting from an ecology of constraint to an ecology of desire. The third part of the article outlines the conditions, practical modalities and tangible ways of proposing WTR and its contributions to transformative learning in the academic world.

18.1 Foundations and Approaches

18.1.1 Paradigm Shift

Albert Einstein said it best: “You cannot solve a problem with the same mind that created it”. This is precisely the case with the systemic upheavals we face with climate change, the sixth species extinction, growing inequality and exclusion, and pandemics like Covid-19. In order to respond to these challenges in depth, solutionism – one problem, one solution – is no longer appropriate and “sustainable development” in the weak and dominant sense is not enough. It is not just a matter of

M. M. Egger (✉)

(Founder of the) Laboratory for Inner Transition, Lausanne, Switzerland

making improvements and regulations in a system that, on the whole, remains the same, although this is necessary, but of bringing about a real paradigm shift. A profound transformation of our ways of being, seeing, thinking, living and acting. A radical questioning of our frames of reference, of our personal and collective beliefs – radical in the sense not of extreme politics, but of getting to the root of the problems. This is what is meant by the concept of “Great Transition” and the “six gates” approach proposed to achieve it in the *Great Transition Handbook*¹ (FORTES collective, 2020).

Such a transformation implies, by necessity, also “renewed educational approaches” throughout “life” (FORTES collective, 2020, 350). In a transversal, holistic, inter- and transdisciplinary approach, the aforementioned handbook thus proposes a “head-body-heart” pedagogy, which “integrates in a structuring way the relationship with emotions and the body” (FORTES collective, 2020, 355). It is thus explicitly in line with the culture of the transition movement, which also speaks of a “head-heart-hands” triptych with an emphasis on the dimension of commitment and action, and thus the development of a capacity to act based on a willingness to act. In all cases, the aim of education is not only to transmit knowledge and skills, but to enable the sustainable and transformative acquisition of the soft skills: being, thinking, living and doing, enabling “each person to accomplish their unique path in sharing and contributing to a community of destiny” (FORTES collective, 2020, 350) or to put it another way, to the common good.

18.1.2 *Transformative Learning*

A great deal of research has been carried out in recent years with this in mind. One of the fields of reference, well developed in the Anglo-Saxon world and still marginal in French-speaking Europe, is “transformative learning”. This approach was initiated in the 1970s by Jack Mezirow,² an American specialist in adult education. “Developed in contact with several theoretical influences (pragmatism, symbolic interactionism, constructivism, hermeneutics, psychoanalysis, critical pedagogy, etc.)” (Alhadeff-Jones, 2019, 263), it has been enriched by the many debates it has generated. Jack Mezirow (2000, 5) defines transformative learning as “the process of using prior interpretation to construe a new or revisited interpretation of the meaning of one’s experience as a guide to future action” and decision making.

In short, learning becomes transformative if it is liberating, if it produces in the subject a movement towards greater awareness and autonomy through a change in individual and collective structures and perspectives of meaning, inherited from society or developed uncritically in the course of life. It is about transforming ways

¹An English summary of the *Great Transition Handbook* is freely available online (FORTES collective, 2021).

²See, for example (Mezirow, 1991).

of perceiving, knowing, thinking, believing, feeling and acting as well as the principles, concepts and values that condition them.

While Jack Mezirow’s initial model was criticized for giving too much emphasis to rationality and critical thinking, subsequent developments by other authors have emphasized the importance of including other modes of knowing that mobilize the whole person: the body and senses, emotions and feelings, intuition and creative imagination. This perspective is in line with that of the *Great Transition Handbook*. The transformative processes to be implemented concern all the dimensions of our being-in-the-world: our relationships with others – human and non-human, the formation of our identity, our bodily awareness, our understanding of power and justice, our vision of the world and of living beings, our commitments to the transition to societies of joyful sobriety, justice and peace. The new learning dynamics that emerge are valid for individuals as well as for groups and organizations.

18.1.3 “Work That Reconnects”

A particularly relevant and powerful tool for embodying the perspective we have just outlined is “Work that reconnects” (WTR). A transdisciplinary and holistic methodology developed in the mid-1980s by eco-philosopher Joanna Macy, presented in a book with exercises (Macy & Brown, 2014) and another book that explains its meaning (Macy & Johnstone, 2012). Transdisciplinary, because it is at the crossroads of the “expansive circles” through which its creator passed with her university doctorate, her spiritual path and her commitment to citizenship: systems theory, Buddhism, anti-nuclear activism, deep ecology and ecopsychology. Holistic, because all the exercises proposed call upon all the dimensions – sensory, affective, cognitive and even spiritual – of the being. Mark Hathaway (2017, 1), an expert in environmental education and studies, defines WTR as “a transformative learning process that endeavors to help participants acknowledge, experience, and understand the emotions that may either empower or inhibit action to address the ecological crisis”.

The seriousness of the state of the planet is indeed the starting point for WTR. For Joanna Macy, we find ourselves in a situation of “radical uncertainty” – the word radical is back – where we have a choice of basically three stories. *Firstly*, “business as usual”, which does not question the dominant growth, productivity and consumerism model, and relies in particular on technology to solve problems. *Secondly*, the “great unraveling”, with the painful emotions and discouragement, even despair, characteristic of the eco-anxiety generated by current and future collapses and the collapsological discourses. *Thirdly*, the “great turning”, through the commitment to the “Great Transition” from a system that destroys life to societies that support it, because they are based on reharmonized relationships between humans and the other-than-human.

For Joanna Macy, our ability to respond to global challenges depends on the story we identify with. Humanity is at a crossroads and we are called upon to make

choices. A necessity of which a part of the younger generation is particularly aware. This is evidenced by the editorial entitled “Ecology or death” signed by the young French activist Camille Etienne (2021) at the end of 2021 in a special issue of the magazine *Socialter* of which she is the guest editor.

WTR is a contribution to the third story that Joanna Macy also calls “active hope”. Its aim is – through a deep connection to oneself, to others and to the living – to help people develop their inner and social resources in order to participate, to embody it in their being and their existence. WTR is therefore clearly aimed at “empowering” people and increasing their motivation to act. Its transformative potential is all the greater as the exercises take place in a group, with particular care given to the collective membrane and real support provided by the temporary community that is formed.

WTR is a set of practices that includes meditation, time for oneself, interactive exercises in pairs or groups, content input and forms of ritual. It is presented as a spiral that unfolds organically in four stages: “coming from gratitude” by marveling at the ongoing miracle of life; “honoring our pain for the world” by moving through eco-anxiety; “seeing with new eyes” by acquiring an awareness of the ecological self rooted in deep time; “going forth” by cultivating our desire and talents for engagement. These different steps form a whole that is more than the sum of its parts. Joanna Macy prefers to speak of a spiral rather than a circle, because “every time we move through the four stations we experience them differently” (Macy & Johnstone, 2012, 40).

Thousands of people, not only in the United States but on all continents, have participated in Joanna Macy’s trainings, workshops and rituals or held by organizations that spread her approach.³

18.2 Transformative Contributions of WTR

More concretely, what are the contributions of WTR in terms of transformative learning? They are of several kinds, in resonance with most of the “six gates” of the great ecological and social transition, and not only with that of *Dunamis* where WTR is presented in the *Handbook* (FORTES collective, 2020, 321–323). Without being exhaustive, five of them can be highlighted: emotional intelligence of planetary problems (*Oikos*), composting of eco-anxiety (*Dunamis*), acquisition of an eco-centric vision of the world and of oneself (*Logos*), cultivation of an ethic of virtues (*Ethos*), encouragement to action (*Praxis*).

³WTR workshops are offered in Belgium by Terr’Eveille and in France by Les Roseaux dansants. A calendar exists of all the workshops offered in the French-speaking world, which have multiplied in recent years, (<http://www.ateliersdetravaillequirelie.siteweb.fr/>). There is also a worldwide network, (<https://workthatreconnects.org/network/connect/>)

18.2.1 *Emotional Intelligence of Problems*

One of the characteristics of the WTR, perhaps even its main one, is the strong con-vocation of affects. This is often what participants remember most. For Joanna Macy, emotions are one of the main drivers of “the great turning”. There can be no transformation – individual and collective – without learning to stop being “brains on the end of a stick” and thus reconnecting the head and the heart.

Thanks to research in cognitive psychology and neuroscience, as well as the work of Daniel Goleman,⁴ we know the key importance of emotions and feelings – as well as non-conscious modes of knowing – in the learning process.⁵ Firstly, it is wrong to separate them from reason. Like body and soul, emotions and reason are inseparable, linked by complex interdependencies: there is an emotional dimension to rationality, just as there is a cognitive dimension to emotions. The latter are vectors and stimulants of reflective exploration. As the neurologist Antonio R. Damasio has shown, they are indispensable to the functioning of rationality.⁶ Edward W. Taylor (2001, 234) even refers to them as the “rudder for reason”. The conjunction between rationality and emotions is said to be a source of greater self-confidence, courage and strength for both internal and external action.

Secondly, as the etymology indicates, emotions are the “movement” of life within us. They are an essential part of our humanity. Without them, we would be robots. They play a key role in interactions with others, existential choices, prioritizing goals, responding to life’s events and circumstances, and making decisions. More specifically, they serve to comprehend – in the strong sense of “taking with” – the situation on a global scale, which is crucial for changing perspective and learning to “inhabit a common world” (*Oikos* gate).

In this respect, it is difficult not to be struck by the gap between, on the one hand, the abundance of information on the seriousness of the problems and, on the other, the insufficiency of behavioral changes. One reason, well studied by ecopsychology, is the division between the head and the heart. Facts, figures, images and arguments about current and future disasters feed the mind, but do not necessarily go down into the heart to the point where we feel the need for change.

At the same time, while there may be a form of indifference or insensitivity, in reality no one is totally spared from the suffering of the planet. Simply, human beings will guard against the emotions that inevitably emerge when they look reality in the face: fear, sadness, guilt, powerlessness, anger, feelings of injustice, disillusionment, discouragement, even forms of despair. They fear them because they are overwhelmed by them, challenge their way of life and make them feel vulnerable. To protect themselves from these unpleasant, difficult to live with and often socially discredited affects, one reflex is to develop defense mechanisms by dissociating the mental and emotional components of the experience. However, repressing,

⁴See in particular (Goleman, 2014).

⁵For a synthetic view, see for example (Taylor, 2001).

⁶See in particular (Damasio, 2010; Damasio, 2021).

denying or freezing one's emotions in order to escape their unpleasantness has the effect of numbing the mind, leading to withdrawal, escape into consumption and political passivity. "Each act of denial, conscious or unconscious, is an abdication of our powers to respond" (Macy, 1983, 16), writes Joanna Macy. Through this dissociation or inner division, which disconnects us from the source of energy needed for transformative action, the "inconvenient truth" (Al Gore) becomes a paralyzing truth.

To get out of denial and inertia, entering the *Oikos* gate requires an act of lucidity. But being lucid is more than being informed and intellectually aware. It is being touched, as one of the basic assumptions of WTR emphasizes: "Information about the crises we face, or even about our psychological responses to them, is insufficient; only when we allow ourselves to experience our feelings of pain for our world can we free ourselves from our fears of the pain — including the fear of getting permanently mired in despair or shattered by grief" (Macy & Brown, 2014, 66). In this regard, Joanna Macy likes to quote the Buddhist monk Thich Nhat Hanh who, when asked by disciples what to do about ecological perils, once replied: "What we most need to do is to hear within ourselves the sounds of the Earth crying" (Macy & Brown, 2014, 106). In the same vein, Pope Francis calls for "a painful awareness, daring to transform what is happening in the world into personal suffering, and thus recognizing the contribution that each person can make" (Pope Francis, 2015, §19).

Joanna Macy's belief is that emotions are therapeutic and empowering. They only become paralyzing if they are suppressed. Getting into your feelings is a *pre-requisite* for taking issues seriously, for making ecological degradation a real concern and for having the desire to engage. "When people are able to tell the truth about what they know, see, and feel is happening to their world, a transformation occurs. There is an increased determination to act and a renewed appetite for life" (Macy & Johnstone, 2012, 70). This is also true for university students, as Mathilde Vandaele, PhD student and assistant professor at the University of Lausanne, points out in her exciting master's thesis in environmental studies: "The acknowledgement of emotions in academia and the consideration of critical emotional awareness as an essential learning outcome would empower university students of any program to make adequate use of the motivational force of emotions in the face of climate change" (Vandaele, 2020, 52).⁷

In the step "Honoring our pain for the world", the WTR offers several exercises to evoke the suffering of the living, to allow participants to say how they experience it and what feelings it arouses in them. Examples include the "bestiary", a funeral ritual about the disappearance of animal species, and the "open sentences", a practice of empathic listening in pairs.

⁷The results of this dissertation were co-constructed with the sustainability science students who participated in the research. Most of the advances in this study were made possible by the discussions and ideas shared in the interviews.

18.2.2 *Going Through Eco-anxiety*

Once we have seriously considered the problems and felt the affects that this provokes, we still need to know what to do with them. Because emotions can invade or overwhelm us, to the point of being deeply disturbed, trapped by them, and suffering from them on a lasting psychological and somatic level. Psychotherapists, the media and opinion polls attest to this: a growing number of people suffer from distress described under various terms: eco-anxiety, solastalgia, collapsalgia etc.

Young people are particularly affected. A study published in September 2021 in the scientific journal *The Lancet Planetary Earth*, based on a survey of 10,000 young people aged 15–24 in ten countries, shows that almost 60% are “very” or “extremely” concerned about climate change and more than 50% also feel sad, anxious, angry, powerless and guilty (Lacroux, 2021). A phenomenon unthinkable just a few years ago at university, professors report seeing young people burst into tears at the mention of the sixth species extinction. Many find themselves lost and depressed after classes on global issues in the Anthropocene. A survey conducted by Mathilde Vandaele at the University of Lausanne shows the profound impact that studies on global sustainability issues can have. They are a source of emotional instability, existential questioning and increased vulnerability.

WTR is a proven tool for working through this uneasiness linked to planetary imbalances. Through the initial coming from gratitude, it creates an inner and energetic field that allows it to be illuminated differently. Through the membrane of the group, it offers a space for listening and support. Through the invitation to action, it offers what is considered one of the best remedies for eco-anxiety. But above all, through the step of “honoring our pain for the world”, it offers a process of metamorphosis of suffering feelings.

Three moments can be distinguished in this process. First, dare to look the planetary degradation in the face. Then, even if they are not easy to live with, do not repress the emotions generated by this act of lucidity, but welcome them without judgment and name them: sadness, fear, powerlessness, anger, guilt, despair... Finally, express and share these emotions. One then discovers that other people are experiencing the same feelings, which then become a legitimate and healthy reaction, not to say a paradoxical sign of “good health”. This makes one feel less alone, opening up a space where mutual understanding, compassion, solidarity and support can be experienced.

If expressing and sharing these emotions is tantamount to recognizing their value and legitimacy, it is not at the same time a question of cultivating them, with the risk of becoming even more engrossed in them. The aim is, on the contrary, to compost them, to transform their energy into fertilizer for commitment. For each emotion is like a medal with two sides: fear has confidence as its reverse side, anger has a thirst for justice, powerlessness has openness to other possibilities, sadness has love. Indeed, to take this example, if what happens to the Earth makes us sad, it is because we love it. By bringing out the energy of love enclosed in the energy of sadness, we awaken or revive the desire to take care of it.

Several of the exercises in the “honoring our pain for the world” step are part of this composting. Two rituals in particular can be mentioned. On the one hand, the “cairn of mourning”, where participants are invited to come and place in the center of a circle a natural element collected during a time of meditation in nature, recounting what it evokes as loss and degradation dear to their hearts and what it symbolizes as emotion. On the other hand, the “truth mandala”. In this powerful exercise, the invitation is to enter a sacred space in turn and express one or more emotions by grasping the objects placed there: a stick for anger, a stone for fear, dead leaves for sadness, an empty bowl for powerlessness, a cushion for any other emotion. All these rituals end with a time of communion and comfort between all members of the group. This may take the form of a song, a cathedral of sounds or an exchange of hugs.

This process of metamorphosis has many virtues. “They can bring us into a fresh relationship with our world, and not only arouse our passion to protect life, but also steady us in a mutual belonging more real than our fears and even our hopes” (Macy & Brown, 2014, xxiii), says Joanna Macy. Many of the participants in WTR workshops testify to the extent to which sharing emotions has not only liberated and reconnected them to others and to the web of life, but has also (re)ignited a spark of hope, revealed unsuspected strengths, and aroused the desire for creative responses.

18.2.3 *Experience of the Ecological Self*

Achieving the great ecological and social transition implies, as we have said, going to the roots of the problems. These are cultural, psychological and spiritual. According to ecopsychologists and Joanna Macy, they are linked to the fact that Western human beings have separated themselves from the rest of the living world. As a result, we have inherited a series of dualisms – crystallized by modernity – that underpin the system of growth, productivity and consumerism that is destroying the planet. Changing the paradigm means changing our mental images, revisiting our system of values, meanings and representations.

The emergence of a new way of seeing, ecocentric and not egocentric, is one of the major challenges of transformative learning in a Great Transition perspective. It concerns in particular the *Logos* and *Dunamis* gates. The aim is twofold. Firstly, to move away from the materialistic and disenchanted representation of nature as an object and a stock of resources, to give it a soul, to see it as a living, creative, symbiotic organism, where all beings – human and non-human – are interdependent and have intrinsic value. Secondly, to move from the idea of a “separate” self from nature to an awareness of a connected and linking self, emphasized by the *Great Transition Handbook* through the African notion of *ukama*. This overarching concept “refers to the “relationality” at work in the world between living beings, human and non-human, but also more broadly non-living”. Its application incorporates the “recognition of sensations and feelings in the learning process”: I am “because I feel, I sense, I am emotionally, sensitively and psychologically connected to my

natural and human surroundings” (FORTES collective, 2020, 352–353). Joanna Macy adds a temporal dimension to this awareness of identity: I am because I am part of “a continuing stream of life on Earth that has flowed for more than three and a half billion years and that has survived five mass extinctions” (Macy & Johnstone, 2012, 41). We are the product of a long evolutionary history that we carry into the last of our cells and the deepest parts of our unconscious.

The discovery of the hidden depths of our identity and its relational character is precisely what WTR aims at. Not by means of theoretical presentations, even if they are not excluded *a priori*, but through lived experiences of connection mobilizing the body, the senses, the imagination and even the unconscious. This can take several forms, depending on the exercises proposed, particularly in the steps of “coming from gratitude” and “seeing with new eyes”. In the “mirror walk”, each participant will, in turn, help the other member of their pair to discover – in silence and with all their senses – the wealth and diversity of the surrounding nature. Workshops can include time alone in the wilderness, especially in connection with a kind of “Gaia refuge”, a source place that has called us and where we feel good, to which we return and with which we build deeper and deeper relationships. This ranges from multi-sensory exploration of the living world to establishing a relationship of communion with an element – a tree for example. In the wake of the ecopsychologists David Abram and Bill Plotkin, it is a question of developing an intersubjective reciprocity in which we will, for example, touch and be touched, see and be seen, enter into conversation, address a non-human being by listening to it as if it were hearing and speaking to us.

As for the experience of deep time, it can be tasted in the exercise of “the milling”, when, with their eyes closed, the two participants who are facing each other hold hands while listening to a text that makes them relive the evolution and experiences of the human hand since the time when it was still a fin in the primordial ocean. A journey through time – in this case from the origins of our planet to the present day – is also offered in the form of a meditation accompanied by music or drumming. The “ecological unconscious” is mobilized here, not only linked to our parents and the generations that preceded us, but also to the Earth, the other mother from which we were born, which carries us and nourishes us. One of the pioneers of ecopsychology, Theodore Roszak (2001, 320), defines it as the “living record of cosmic evolution”, which inhabits and animates the most archaic strata of the human psyche.

All these exercises allow us to go beyond the limits of the individual, family and societal human ego to embody the “ecological self”, a concept dear to the father of deep ecology, Arne Naess. Not only are we part of the great cosmic whole, but nature – with all its kingdoms and cycles – is inscribed in our being. In our body and in our soul. The psychologist Chellis Glendinning (1994, 35) refers to this as the “primal matrix”: a dimension of the psyche in which we participate fully – through all our senses and breathing – in the rhythms and energies of the earth, the movements of the sun and the stars.

This bodily, psychic and spiritual reconnection with the Earth and all the beings that inhabit it is key not only to healing ourselves, but also to inspiring collective

action. As Joanna Macy says, “our view of what we’re capable is linked to our sense of who and what we are” (Macy & Johnstone, 2012, 85). Many studies “show that people who experience a strong connection with nature are more likely to support green political action and adopt sustainable lifestyles” (Hathaway, 2017, 6).

In this new awareness, the meaning of power changes. Power *over*, based on a model of possession and domination where the other is a competitor, is replaced by power *to* and *with*, centered on a model of cooperation where the other becomes an ally. Fear is replaced by trust. “The guiding question shifts from “What can I gain?” to “What can I give?” (Macy & Johnstone, 2012, 114). In doing and being rather than having, the power *to* and *with* increases from the moment it is shared, is part of partnerships and collective intelligence processes that make possible what we cannot achieve alone.

18.2.4 *Cultivation of a Virtue Ethic*

In the *Ethos* section, the *Great Transition Handbook* refers to the ethics of virtues as one of the major moral theories to inform decision making and action. By virtues the authors mean “traits of character or dispositions for action that should be cultivated by individuals who aspire to lead an ethical life” (FORTES collective, 2020, 117). They join, among others, Pope Francis who, in his encyclical *Laudato si’*, calls for the cultivation of “ecological virtues” as well as the philosopher Corine Pelluchon who has made the ethics of virtues a major cultural dimension of the ecological and social transition, beyond the duties or prohibitions that are not enough to make the transition from thought to action possible. It is, she says, “an approach to morality that is characterized by the fact that we are not exclusively interested in the norms and principles of action, but that the emphasis is placed on the concrete motivations of agents, on the set of representations, emotions and affects that determine their ways of being” (Pelluchon, 2017).

Virtues are also central to WTR. In developing the emotional competencies that are central to transformative learning, it is not only about learning to deal with difficult, low-vibrational emotions such as those that fuel eco-anxiety, but also about valuing and cultivating the positive, high-vibrational emotions that nurture ecological attitudes and commitments. The WTR promotes a series of emotions or inner dispositions that are largely in line with those mentioned in the *Great Transition Handbook*: humility, responsibility, sobriety, cooperation, respect and joy. Three, however, receive special attention and care: gratitude, compassion and hope.

First, gratitude. It is at the heart of the first step. Whether it is through a meditation on the four elements, open-ended phrases in which one recalls an enchanting place from one’s childhood or evokes moments when one feels truly alive on earth, or in exercise of “the milling” where one thanks other participants for their presence and who they are, the WTR offers multiple opportunities to experience it. It is a question of marveling, in the breath of a great thank you springing from the heart, at the permanent miracle of life, the generosity and beauty of living things, of all

that is offered to us at every moment: the air we breathe, the plants that nourish and heal us, the people close to us who love us... Joanna Macy highlights three components of gratitude: valuing what has happened, what happens and what is dear to us; acknowledging the event or person that caused it; and being able to put what happens to us – even negative things – into a larger picture that also contains the positive. A source of resilience, confidence and courage, gratitude strengthens our ability to face reality and digest negative information. One of its effects is to provide a remedy for consumerism by increasing contentment with what we have as opposed to dissatisfaction with what we lack.

Secondly, compassion. This is at the heart of the “honoring our pain for the world” step. It flows from our lived awareness of interdependence with others – human and non-human. Because of our ontological unity with all the living world, to which we belong and which is an integral part of our being, what we do to our bodies and souls we do to the Earth, and vice versa. The occasion for such an experience is, for example, the “Council of All Beings” that Joanna Macy co-created with John Seed, an Australian rainforest conservationist whom she met in 1985. In this ritual, participants are invited to “think like a mountain”, as Aldo Leopold puts it, and to decenter themselves. It is a question of putting down the garments of their human self to take on the identity of another being of nature, putting on a mask that represents the latter and giving it a voice. It is a way of embodying the “ecological self”, but also of entering into empathy and compassion with non-human beings whose experiences and feelings – also suffering – in relation to the evolution of the planet are expressed.

Finally, hope. “Active” adds Joanna Macy, who makes this the key to her third story, that of “the great turning”. For her, “yet the kind of responses we make [to the state of the world], and the degree to which we believe they count, are shaped by the way we think and feel about hope.” (Macy & Johnstone, 2012, 2). In particular, it is important to distinguish between “passive hope”, which amounts to waiting for solutions from the outside, and “active hope”, which arises from our inner desire and motivates us to act in order to make it happen. Inseparable from lucidity, and therefore different from optimism, it is above all “a practice”, a “process” whose “guiding impetus is intention” (Macy & Johnstone, 2012, 3). Something that one “does” rather than “has”. It consists of identifying “what we hope for in terms of the direction we’d like things to move in or the values we’d like to see expressed”, defining the role we want to play and then “take steps to move ourselves or our situation in that direction” (Macy & Johnstone, 2012, 3). Just as an oyster grows a pearl in response to trauma, we need to cultivate hope as a gift of our being to the world (Macy & Johnstone, 2012).

In this sense, the WTR can be seen as a tool to promote and build hope. Hope is at the same time the heart, the driving energy and the horizon. Each exercise participates in it in one way or another and contributes to its manifestation. It is therefore important to integrate hope into transformative learning approaches and, more globally, into innovative pedagogies for the Great Transition. This is all the more important as it is vital to respond to eco-anxiety and to resist the discouragement and despair generated by the negative information to which we are exposed on a daily

basis. This is, for example, the opinion of environmental education expert David Orr, who is close to ecopsychologists and considers hope to be an “imperative” in the face of current challenges. It requires, he says, “the courage to go further, dig deeper, confront our limits, work hard and dream our dreams” (Orr, 2011).

This same attitude is found in Mathilde Vandaele who, inspired by Joanna Macy, devoted her master’s thesis to hope as a generative and constructive force in the face of climate disruption (Vandaele, 2020; Vandaele & Stålhammar, 2022). The results of the empirical study she conducted clearly show the dual cognitive and emotional component of hope. The cognitive dimension enables the identification of desired goals, the conception of desirable and possible futures, and the imagining of the means and paths to achieve them – individually and collectively. The emotional dimension refers to the motivation to act and the ability to initiate and sustain a movement, despite uncertainty and adversity. Mathilde Vandaele, who promotes it in academic institutions, defines “constructive hope” as a “positive emotion and an existential necessity to navigate the waters of uncertainties and global environmental threats. It gives students the strength to face the future and it prevents them from falling into cynicism or passivity” (Vandaele, 2020, 58).

The more hope is alive, the stronger the desire to adopt ecological behavior in terms of both lifestyle changes and proactive political commitment. In fact, we enter a virtuous circle: if hope is a source of action, action in turn feeds hope. Commitment to a cause or goal that transcends us gives energy and meaning.

18.2.5 Encouraging Action

These considerations of hope, at the intersection of virtue and practice, lead us to another contribution of WTR to transformative learning for the Great Transition. This is the fourth stage of the spiral – “going forth” – which takes us right into the *Praxis* gate. It is about discovering what we can concretely do to manifest active hope in everyday life, existence and structures, and to contribute to the emergence of a society that sustains the living.

Joanna Macy proposes several avenues for individual and collective engagement, which are generically in line with the countless paths proposed by the *Great Transition Handbook*: actions of resistance and regulation; the creation of alternatives; reflective work to change worldviews and value systems; a path of consciousness and spiritual transformation. To this could be added changes in our lifestyles and the weaving of what she calls “rough weather networks”, i.e. community spaces of resilience in the face of collapse.

Whatever the axis or axes chosen, the important thing is to move from an ecology of “must”, lined with obligations or injunctions of all kinds, to an ecology of “desire”. For only a strong aspiration for a destination that fires us up can give us the energy and determination to overcome the obstacles that will inevitably arise on our way. In other words, the key is to connect to our deepest personal desire: what is most alive and vibrant within me? What story do I want to get involved in? What

world do I want to live in? What can I do to build it and make it happen? It is indeed necessary to free ourselves from the feeling that we must solve everything, often very or too heavy to bear. “Instead you focus on finding and playing your part, offering your gift of Active Hope, your best contribution to the healing of our world” (Macy & Johnstone, 2012, 41).

An exercise in pairs, which may or may not be done while walking and in resonance with the energy centers of our being (*chakras*), consists of bringing out a project of our dreams and aligned with our life mission, discerning our inner gifts and talents as well as the outer resources already there or still to be acquired, flushing out the brakes and obstacles outside and inside, defining the first steps to be taken, then presenting it to the living before sharing it with the other members of the group, who can offer advice and help. Another exercise, called “dialoguing with Mara⁸”, aims to strengthen our resolve by drawing on the power of Earth and Heaven to identify and overcome doubts, fears and other temptations that may be holding us back or preventing us from moving forward in “the great turning”. Joanna Macy recommends not listening to the inner voices that whisper that our goals are unrealistic and that our efforts will be for naught.

Either way, it is about cultivating the dimensions of life that are most important to us and for which we have said thank you, about seeking intelligent and creative responses to the problems and challenges we have recognized, about developing constructive actions, individually and collectively, that will embody the emerging new consciousness. Joanna Macy recommends following “the inner compass of our deep gladness” and keeping the fire of enthusiasm alive, a resource that is not only renewable but actually inexhaustible. This is achieved by working from what motivates and delights us, but also by learning to see results with new eyes, as “successes” and “failures” are not necessarily what we think.

In this stage, imagination plays an important role. Rob Hopkins (2019), initiator of the Transition Towns movement, has shown the power of mobilization with his “What if...” approach. Two magic words that tell us that in order to invent tomorrow’s world and build new possibilities, we must first dream them with others, and therefore free our personal and collective mental images and stimulate our creativity. In order to emerge and unfold, the power of the imagination needs several things. Firstly, preserved spaces, far from screens and daily hustle and bustle, to daydream, meditate, savor the present moment, take time with loved ones and reconnect with life. Secondly, a strong aspiration for the desired change. Finally, a transversal pillar of the “six gates” approach, the ability to collaborate with other actors, such as elected representatives, companies, institutions and civil society organizations.

These different conditions are offered by a WTR workshop. If the latter does not, strictly speaking, provide for the creation of narratives of desirable futures, there is nothing to prevent it from being proposed in a workshop, drawing inspiration from

⁸In Buddhist mythology, Mara represents an antagonistic figure who challenges the Buddha and tries to distract or divert him from his path.

the many initiatives that are flourishing everywhere. There is, however, a very touching exercise, at the junction of active hope and commitment, which mobilizes our imagination by projecting us seven generations later, in a time when the Great Transition has successfully taken place. A dialogue takes place between people of today and representatives of that future generation. The latter come to express their gratitude for what has been achieved and which allows them to live a dignified life in a healthy environment, but also to ask their great ancestors (the present generations) how they experienced ecological and climatic disasters, what their first steps were to get out of them and what motivated them in depth. Most of the participants experience these meetings with great emotion and emerge from them full of hope and with a galvanized desire to get involved.

18.3 Academic Implementation

How can WTR and its contribution to transformative learning be proposed within the academic world for the Great Transition? This is not at all obvious, as university teaching is still marked by transmissive teaching methods, a lack of openness to inter- or trans-disciplinarity, and a mode of knowledge centered on rationality, most often disconnected from the heart and the hands. At the same time, as we have seen, WTR has a lot to offer, with – to support it – a significant potential range of scientific references. Its inclusion in the university environment is all the more necessary, timely and even urgent – particularly in courses of study dealing with global ecological challenges – as the generation in training is being hit hard by the eco-anxiety syndrome and will have a crucial role to play in the Great Transition: “We are the first generation to experience the consequences of climate disruption, and the last to be able to do something about it,” says Camille Etienne (2021, 9). And she adds: “It is never too late for it to be worse. But it is still time to make it less unfair”. The development of strong sustainability awareness and skills is therefore crucial, not only in intellectual but also in socio-emotional terms.

18.3.1 *Practical Conditions*

WTR has the advantage of being very flexible and adaptable to all kinds of contexts and audiences. While a full workshop is usually held over 4–5 days in a natural setting, it can be run for varying lengths of time, from 1 to 2 h to 1 or 2 days, also indoors. As a chaplain who has already offered three such workshops at the University of Lausanne points out, complete workshops are not without their difficulties and drawbacks: major organizational efforts, mobilization of two facilitators for a small number of people (generally ten to sixteen), limited and difficult to measure lasting impact on participants, tension between, on the one hand, the need for transparency and information about the activities beforehand and, on the other, the

need for a certain restraint or discretion so as not to frighten people and to preserve the freshness, or even surprise, of certain exercises, etc. On the other hand, short workshops with *ad hoc* choices of exercises lend themselves well to a wide variety of occasions and events. But their short duration does not allow them to go very deep and the effects are less lasting.

Whatever the duration, since WTR workshops usually involve emotional sharing, physical contact, meditation exercises, and various practices that not everyone is immediately receptive to and which may lead to a departure from their comfort zone, it is important that participation is voluntary and informed. This also means that not everyone who needs it will have the courage to commit to it.

Another condition is that a safe framework is clearly defined and maintained, that the facilitators are well trained and experienced, and that they are able to put what is going to be experienced – especially in terms of difficult emotions – into a meaningful and wise perspective. Exercises and sharing of emotions require a high degree of trust and letting go to be effective, deep and fruitful. Appealing to the affects as well as to the expression and acceptance of intimate experiences and suffering feelings is not trivial. There are risks of emotional slippage, psychological decompensation and even manipulation, of which one must be aware.⁹

18.3.2 Concrete Ways Forward

Based on experiences and projects at the University of Lausanne¹⁰ and the University Paul-Valéry of Montpellier¹¹ as well as the stimulating reflections of Mathilde Vandaele, several avenues for implementing WTR in the academic environment are possible. Here are some of them, not exhaustive:

⁹On these aspects, see (Roethlisberger, 2021), (Romanens & Guérin, 2021).

¹⁰Several of the proposed ideas exist or are being implemented on the Lausanne university campus, through the Competence Center in Sustainability, which is a service to the management, (<https://www.unil.ch/centre-durabilite/en/home.html>). In April–May 2021, for instance, the “Escapes durables” took place, offering workshops on ecopsychology and sustainability including WTR, (<https://www.unil.ch/centre-durabilite/home/menueinst/actions-et-outils/les-escapes-durables.html>). The idea now is to make these activities sustainable by offering face-to-face and online meetings, conferences and workshops throughout the year. A highlight is the creation of a “Transition Space”, a form of center dedicated to supporting the university community in relation to eco-anxiety. An “Inner Portraits” website offers a space to break the taboo of emotions, inviting people to talk about how they experience the ongoing ecological transitions and to express their feelings about the collapses, (<https://wp.unil.ch/portraits-interieurs>)

¹¹Some of these ideas come from interviews with: Angela Biancofiore, professor of art and Italian literature at the Faculty of Arts, member of the Centre de recherche sur les Suds et les Orientés and co-director of the GIS Théorie et pratiques du Care at the Université Paul-Valéry de Montpellier, (<https://tepcare.hypotheses.org/>); Sarah Koller, researcher in Environmental Humanities and – when the interview took place – collaborator of the Centre de compétences en durabilité at the University of Lausanne; Xavier Gravend-Tirole, chaplain at the École polytechnique fédérale de Lausanne.

- Offering WTR workshops of varying duration on an ad hoc basis in courses, off-site activities or at conferences¹². This can be either for the whole university or within the limited framework of a faculty, an institute or a course.
- Offer one or more regular reception spaces – such as an eco-psychological center – where difficult emotions linked among others to eco-anxiety can be shared and composted, where students can come to talk about them, practice some WTR exercises and benefit from existential and emotional coaching. The facilitation of these spaces can be done partly by peers, i.e. other students with experience and good supervision, in particular with a referent teacher.
- Depending on the branch, use the dynamics of the fourth stage of the WTR to generate individual or group projects and activities linked to the Great Transition, with the support of a teacher-researcher and subject to evaluation. Such projects can be part of the institution's setting or, more broadly, of a territory, and be deployed in partnership with external actors.
- Develop training offers in socio-emotional skills – including Earth emotions – for university staff as well as students, incorporating WTR exercises¹³. More broadly, WTR could be part of continuing education programs for the ecological and social transition.
- Linking the spirit and exercises of WTR with other activities offered in the university setting, such as art, theater or sport.

Beyond the implementation of the various inputs we have mentioned, all these activities can only have positive effects on the culture and climate of the university institution and the student community, if only by stimulating inner dispositions such as gratitude, trust, solidarity, cooperation and community spirit.

18.3.3 *Conditions for Implementation*

Some of these ideas are already present in the academic world. Their existence usually depends on the goodwill of professors and the initiative of open-minded and pioneering individuals.¹⁴ Depending on the context, the introduction of WTR practices in the university environment can be complicated and difficult. It requires several conditions: strong conviction and motivation on the part of the initiators, identification and use of interstices and spaces of freedom in the structures, solid

¹²WTR workshops were held at two conferences – on ecopsychology in 2019 and on care in 2021 – at the Université Paul-Valéry in Montpellier.

¹³A training course in socio-emotional learning has been available since 2019 at the Paul-Valéry University of Montpellier for teaching and administrative staff, (<https://formation03.webnode.fr/>; <https://www.youtube.com/watch?v=63LJgZMXiEQ>)

¹⁴For example, it was after having experienced a WTR workshop himself with enthusiasm that the philosopher Dominique Bourg, then a professor at the University of Lausanne, introduced WTR exercises into the 2017–2018 *curriculum* of the Master in Foundations and Practices on Strong Sustainability.

argumentation based on references providing scientific legitimacy, the search for allies within and outside the institution, tact and intelligence in the formulation of projects¹⁵ or even inclusion in inter-university and national approaches following the example of the Grenoble Agreement signed in France in April 2021.¹⁶

These proposals directly linked to the WTR are complementary to everything that, more broadly and on the basis of the *Great Transition Handbook* in particular, could be put in place and changed in favor of “the great turning”, strong sustainability and an eco-psychological framework, whether at the level of the institution’s structures and governance, course and research programs, teaching methods, interactions between students and with the teaching staff, who are called upon to change their posture towards greater horizontality. In particular, it is important to develop critical thinking, complex and systemic thinking, holistic and inter- or trans-disciplinary approaches, and even to value (eco)citizen activism and extra-university commitments. Hence the importance of not living, working and studying in isolation, but working in partnership with external experts and stakeholders.

References

- Alhadeff-Jones, M. (2019). Transformative Learning. In *Vocabulaire des histoires de vie et de la recherche biographique* (pp. 263–265. Questions de société). Érès. <https://doi.org/10.3917/eres.delor.2019.01.0263>
- Damasio, A. R. (2010). *L’erreur de Descartes: la raison des émotions*. Nouv. éd. : O. Jacob.
- Damasio, A. R. (2021). *Sentir et savoir: une nouvelle théorie de la conscience*. Odile Jacob.
- Etienne, C. (2021). *L’écologie ou la mort, hors-série N° 12*. Socialalter.
- FORTES collective. (2020). *Manuel de la Grande Transition: former pour transformer*. Les Liens qui libèrent.
- FORTES collective. (2021). The Great Transition Guide: Principles for a Transformative Education. In *Forges – Champion Hall*. Campus de la Transition – Laudato Si’ Research Institute. https://campus-transition.org/wp-content/uploads/2021/07/The-Great-Transition-Guide-Principles-for-a-Transformative-Education_0.pdf
- Francis, P. (2015). *Laudato Si*. Vatican Press.
- Glendinning, C. (1994). *My name is Chellis & I’m in recovery from Western civilization* (1st ed.). Shambhala ; Distributed in the United States by Random House.
- Goleman, D. (2014). *L’intelligence émotionnelle: 1 & 2*. J’ai lu.

¹⁵In 2019, for her colloquium on ecopsychology, which gathered a large interfaculty audience, fearing resistance from psychologists, Angela Biancofiore chose “Narrativity and ecopsychology” as the title. A means that increased the acceptability of the project and gave her legitimacy as a professor working on the place of ecology in Italian literature.

¹⁶Some 20 higher education institutions – including HEC Paris, Polytech Grenoble and Essec Business School – signed the Grenoble Accord at the end of April 2021. They are committed to implementing action plans to achieve the 11 objectives of the agreement, which range from training students in ecological issues to reducing greenhouse gases. This initiative is supported by COP2 Étudiante, an association that wants to move higher education into the ecological transition, (<https://www.novethic.fr/actualite/environnement/climat/isr-rse/les-etudiants-creent-l-accord-de-grenoble-pour-pousser-leurs-etablissements-a-s-engager-dans-la-transition-ecologique-149762.html>)

- Hathaway, M. D. (2017). Activating hope in the midst of crisis: Emotions, transformative learning, and “The Work That Reconnects.”. *Journal of Transformative Education*, 15, 296–314. <https://doi.org/10.1177/1541344616680350>
- Hopkins, R. (2019). *From what is to what if: unleashing the power of imagination to create the future we want*. Chelsea Green Publishing.
- Lacroux, M. (2021, September 14). Tristes, effrayés, abandonnés... De nombreux jeunes en détresse face à la crise climatique. *Libération*.
- Macy, J. (1983). *Despair and personal power in the nuclear age*. New Society Publishers.
- Macy, J., & Brown, M. Y. (2014). *Coming back to life: the updated guide to the work that reconnects*. New Society Publishers.
- Macy, J., & Johnstone, C. (2012). *Active hope: how to face the mess we're in without going crazy*. New World Library.
- Mezirow, J. (1991). *Transformative Dimensions of Adult Learning*. Jossey-Bass.
- Mezirow, J. (2000). *Learning as transformation: critical perspectives on a theory in progress* (The Jossey-Bass Higher and Adult Education Series) (1st ed.). Jossey-Bass.
- Orr, D. W. (2011). *Hope is an imperative: the essential David Orr*. Island Press.
- Pelluchon, C. (2017). L'éthique des vertus: une condition pour opérer la transition environnementale. *La Pensée écologique* 1. Paris cedex 14: Presses Universitaires de France: e. [Cairn.info. https://doi.org/10.3917/lpe.001.0101](https://doi.org/10.3917/lpe.001.0101).
- Roethlisberger, M. (2021). *Prévention des risques psychologiques lors d'ateliers de sensibilisation à l'écologie*. Éditions le Souffle d'or.
- Romanens, M., & Guérin, P. (2021). *L'écopsychologie: comment renouer avec la nature pour agir autrement*. Dauphin éditions.
- Roszak, T. (2001). *The voice of the earth: an exploration of ecopsychology* (An Alexandria Book) (2nd ed.). Phanes Press.
- Taylor, E. W. (2001). Transformative learning theory: a neurobiological perspective of the role of emotions and unconscious ways of knowing. *International Journal of Lifelong Education*, 20, 218–236. <https://doi.org/10.1080/02601370110036064>
- Vandaele, M. (2020). *Hope as a generative force: a form of hope to be nurtured by academic institutions to foster proactive engagement among university students*. Lund University.
- Vandaele, M., & Stålhammar, S. (2022). “Hope dies, action begins?” The role of hope for proactive sustainability engagement among university students. *International Journal of Sustainability in Higher Education*, 23, 272–289. <https://doi.org/10.1108/IJSHE-11-2021-0463>

Chapter 19

A Few Avenues to Support the Actors Concerned in the Transformation of Higher Education



Cécile Renouard, Frédérique Brossard Børhaug, Ronan Le Cornec,
Jonathan Dawson, Alexander Federau, Perrine Vandecastele,
and Nathanaël Wallenhorst

Abstract Implementing a head-heart-body pedagogy in higher education institutions needs the mobilization of all the actors currently involved in education, to identify those who are absent today and surpass the logic that feeds on silo effects in order to support actors towards sustainable educational actions. By transforming campuses and courses, the university can thus become a learning organization where everything is about learning not only for students, but also for all actors in the university community. This chapter mentions first students, who are the direct beneficiaries of education as well as the future actors of the transition. Secondly, it calls upon teacher-researchers to incarnate the multifaceted role of mentors, which far beyond the transmission of knowledge involves accompanying the students in a holistic transformation. Third, it turns towards pedagogical support services, whose diverse disciplines and skills are essential to develop the pedagogical methods

C. Renouard (✉)

ESSEC Business School, Centre Sèvres, Mines Paris and Campus de la Transition,
Forges, France

e-mail: cecile.renouard@campus-transition.org

F. Brossard Børhaug

VID Specialized University, Stavanger, Norway

R. Le Cornec

University of Rennes 1, Rennes, France

J. Dawson

Schumacher College, Totnes, UK

A. Federau

Mobilidée, Geneva, Switzerland

P. Vandecastele

Campus de la Transition, Forges, France

N. Wallenhorst

Université Catholique de l'Ouest, Angers, France

© The Author(s), under exclusive license to Springer Nature

Switzerland AG 2023

C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*,
Anthropocene – Humanities and Social Sciences,

https://doi.org/10.1007/978-3-031-39366-2_19

required for transition education. Finally, the chapter underlies the role of public authorities to systematize good practices, to allow bottom-up incentives to grow, to put in place the necessary conditions and resources as well as to engage the whole of society.

Open towards their neighborhood, the envisioned Higher Education and Research establishments are learning organizations that contribute to the emergence of a learning neighborhood and by extension to that of a learning society, in the words of François Taddei.¹ The latter sees in the development of the capacity '*learn to learn*' a major stake for the uncertain century which is beginning. He recommends five actions to co-build a learning society (Taddei et al., 2018):

Encouraging experimentation with a learning approach in the backcountry to liberate initiative, popularizing the processes of reflexivity, documentation, sharing and assessment; creating digital learning ecosystems, including a learner's notebook, which allow everyone to document their learning, orient themselves, meet peers and mentors and think about their future by identifying needs, assets, areas of interest and difficulties; stimulating research and development on learning at all stages of life, by mobilizing all disciplines through the action-research approach and by creating participatory learning sciences; encouraging the professional development of the actors of the learning society in order to disseminate the culture of sharing and research so that the actors can contribute to developing the system at their level; inviting various local, national and international partners to co-build a learning Europe and planet (Taddei et al., 2018, 45–66).

We wish to draw inspiration from these broad and systemic proposals to identify the actors and levers necessary to support the educational transition in higher education in the Anthropocene (Wallenhorst, 2023; Wallenhorst & Wulf, 2023; Wallenhorst et al., 2023). Nevertheless, we believe that the transition in higher education cannot be reduced to the increasing digitization of learning. Here we will briefly discuss the actors – students, teacher-researchers, the importance of mentoring connecting research and the field in the service of all, and governance.

19.1 Students, Spurs of Transformation

Students are concerned both as actors of this transformation within their institutions and as future actors of the transition, which they must concretize both in their professional and personal life.

They have challenged higher education institutions and the government on the need for a transformation of teaching and practices, and have proved their capacity for mobilization, in particular through the *Manifesto for an Ecological Awakening* (Pour un réveil écologique, n.d.).

¹To deepen the concept of a learning society or planet, search for François Taddei and Marie-Cécile Naves' MOOC on the FUN MOOC or France apprenante websites, [www.fun-mooc.fr, <https://www.franceapprenante.com/>]

They continue to work actively on the steps to be taken to turn it into reality, in particular through the Education and Ecological Transition Platform.² Aimed at students and graduates, it offers an approach to identify the actors (teacher-researchers, administration, *alumni* and other students) and levers of action within their institutions in order to develop their schools and course content. It is regularly enriched by numerous student feedback.

As students, it is essential that this transition pedagogy allows them to appropriate these tools so that they empower themselves both in the development of a transition process and in its transmission. To do so, setting up a consultation process for all students who, through regular feedback, will in turn guarantee the development and identification of excellence initiatives promoting the transformative actions of institutions (Taddei et al., 2018, 53, 58).

19.2 Supporting Teacher-Researchers in Becoming Mentors

At the center of the transformative process of educational transition are teachers and researchers, who often hold both functions in higher education. As primary actors, they cannot be called upon without an intense reflection on the purposes of educational support, mentoring, and the means that are implemented to promote the culture of sharing and research more widely in the learning society.

The emphasis on research, mentoring and recurrent knowledge sharing is put into practice in multiple ways by the institutions mentioned in previous chapters. At Schumacher College, it is specified how important the duo tutor, mainly linked to the learning of content and the educational dimension - and facilitator, for logistics and human support, is. Other educational initiatives such as the PEERS program (Student and Teacher-Researcher Project in Social Networks) and the Lesson Study approach aim to train future primary school teachers to teach Education for Sustainable Development (ESD) in a French-Swiss action research (Pache & Robin, 2017). This action research reveals different teaching practices in these two countries often considered to be relatively close; future teachers become aware of the necessary adaptation of teaching methods and practices and the taking into account of interpersonal skills, they also experience an opening to the world through international educational exchanges and the need for a global and integrated approach in the construction, implementation, assessment and analysis of a lesson – which is reminiscent of the European approach advocated in the Taddei report (action 5).

Mentors are also essential actors for the transformation pathways as they are described by Gordon Ball “People can and do change” (Ball, 1999, 253). How then do we bring students to a qualitatively lasting change where the transformation of oneself is not conceived as a final destination, but a personal, cultural, emotional,

²Education and Ecological Transition Platform, [<https://enseignement.pour-un-reveil-ecologique.org/#/>].

intellectual and spiritual pathway? The crucial role of mentors is to cultivate the ground in which transformative experiences take shape. These experiences are destabilizing because we leave the realm of the familiar and we feel this state of imbalance intensely and sensorially. Mentors support the student to seek a new meaning in his or her existence, to accept the metamorphosis that he or she is going through, to help him or her to welcome a new connection and a new unity in the world while maximizing his or her capacity to act, their self-confidence and personal moral responsibility. The task is arduous and without the support of scouts and facilitators, we will not be able to achieve the desired qualitative transformation. Note, however, that transformative experiences cannot be predicted: multiple actors and dimensions are decisive. For these not to be only experienced on an intellectual level but also bring about a lasting emotional anchoring, collaboration between peers, a climate of trust and the constant support of mentors are fundamental. It is up to teacher-researchers and other mentors to create and seize the windows of opportunity that arise in the learning process, with the support of a united and collaborative governance (Ball, 1999).

19.3 Mobilizing Educational Support Services More Broadly Than on the Digital Transition of Teaching

As indicated previously, the implementation of a head-heart-body pedagogy requires a transformation of the roles and postures of the students and teacher-researchers as well as the interactions between them. This transformation of teaching methods and practices, one of the two main missions of Higher Education and Research establishments, relies on all actors in the university community and more particularly on the departments directly involved in the teaching mission.

Among them, educational support services³ were created or are in the process of being created to support and facilitate educational transformations. Depending on their size, they rely on a variety of skills and professions, themselves rapidly evolving: educational engineering, project management, technical and educational production and media coverage, mainly.

All French higher education and research establishments are now engaged in processes aimed at moving from an approach centered on teaching to an approach centered on competence, in particular in application of the 5 September 2018 law for the freedom to choose one's own professional future.⁴

³The names, scope of action and workforce vary depending on the institution and status (schools or universities).

⁴LOI n° 2018–771 du 5 septembre 2018 pour la liberté de choisir son avenir professionnel, September 5, 2018, [<https://www.legifrance.gouv.fr/jorf/jo/2018/09/06/0205>]

The main missions of the educational support services are:

- supporting the establishment of systems and the development of pedagogical practices,
- training doctoral students and to ensure further education for teachers in pedagogy,
- leading the reflection on pedagogy in conjunction with research teams,
- promoting pedagogical innovations – support monitoring and exchange of practices (Bertrand, 2014).

In the transformation process, the teaching of the actors and in particular that of the teachers and the guides themselves is crucial. Educational support services can therefore play a real role as catalysts in the deployment of a transition pedagogy. At the heart of the support, educational engineers are undeniable assets for accelerating and amplifying the dissemination of this educational approach. As presented previously, this approach is based on practices, methods and techniques that already exist and some have already been well mastered by engineers/educational engineers. In addition, already familiar with the practices of reflective analysis and facilitation, they will be able to integrate the new skills developed during these support experiences into their practice to possibly have them integrated into the skills repository of their profession. This implies freeing up time for them and granting them the autonomy and trust to develop their skills, and experiment in situ this holistic pedagogy offered through the 6 gates – instead of forcing them to follow a “production” logic, as is the case today.

Other departments are concerned with learning transformation’s implementation work. Further education (or lifelong learning) departments, guidance and professional integration departments are two other key actors in the transformation. It is important that all the departments involved in the learning missions work in a coordinated manner. This is often one of the missions of departments of studies or departments of learning and student life.

19.4 Necessary Political Support by Governance Teams to Accompany Change in the Educational Community

While it is essential that the educational transformation emanates from teacher initiatives, its “systematization” can only take place effectively and sustainably with strong political support and therefore a commitment from the school governance teams.

The FORTES collective’s Campus Life handbook sets out in detail the conditions and the main stages of the implementation of a governance adapted to the ambition of this Great Transition. We will focus here on the involvement of governance in the educational dimension of change. The concern for educational transformation is not new and has been the subject of numerous studies and reports

(Bertrand, 2014; Taddei et al., 2018) whose analyzes and recommendations converge on the importance of:

- deploying a systemic approach;
- favoring bottom-up methods and the empowerment of actors by supporting and facilitating rather than by piloting;
- providing means and especially *time* for the actors to test, make mistakes, assess, improve, share;
- involving students at all stages.

One of the difficulties, and therefore one of the levers, for a successful transition is the need to mobilize the target skills that we want to promote. All actors, including management teams, should be able to follow their own learning pathway through the six gates and thus develop skills in the previously presented five disciplines defined by Peter Senge (1994): team learning to promote collective reflection through dialogue, the shared vision to know how to link individuals together, mental models to learn to let go of one's prejudices, personal mastery to clarify one's approach to reality, and finally the conceptual lever on which the other four are based, systemic thinking to see the problems as a whole.

The educational transformation is not so much the goal of the change as the pathway itself. Having the pathway as a goal rather than an end state that we would try to maintain at all costs once reached allows us to remain in a dynamic of adaptability rather than in an injunctive feeling of having to systematically do and undo. The accreditation cycles of course offers, and the multiplication of calls for projects, help to increase the feeling of a succession of imposed sprints for all actors which in short, increases time pressure, decreases systemic vision and erodes personal motivation, truly driving change.

Furthermore, change management has become a theme in itself. If the contributions of research and feedback are precious, there is a real risk of failure and ethical questioning to entrust to a small group of experts the ambition to make everyone change. More than leading the change, it is therefore a question of supporting, guiding and facilitating it in order to move from a managerial approach (planning and budget, organization and personnel, control and problem solving) to an approach centered on leadership (setting direction, aligning people, motivating and inspiring) (Kotter, 1990). Whoever the actors involved, motivation based on the feeling of personal self-efficacy (Bandura, 1997) and the sharing of leadership are major issues for anchoring practices in the culture of the organization.

One of the responsibilities of the management teams is to make possible the emergence of a learning ecosystem and therefore put in place the conditions for its sustainable and autonomous functioning.

References

- Ball, G. D. S. (1999). Building a sustainable future through transformation. *Futures*, 31, 251–270.
[https://doi.org/10.1016/S0016-3287\(98\)00133-5](https://doi.org/10.1016/S0016-3287(98)00133-5)
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W.H. Freeman.
- Bertrand, C. (2014). *Soutenir la transformation pédagogique dans l'enseignement supérieur*. Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation.
- Kotter, J. P. (1990). *A force for change: How leadership differs from management*. Free Press\ Collier Macmillan.
- Pache, A., & Robin, V. (Eds.). (2017). Coupler les dispositifs PEERS (Projet d'étudiants et d'enseignants-chercheurs en réseaux sociaux) et Lesson Study pour enrichir les dispositifs de formation en EDD. In *Formation et pratiques d'enseignement en questions* (pp. 177–193).
- Pour un réveil écologique. (n.d.). *Manifeste étudiant pour un réveil écologique*. Pour un réveil écologique.
- Senge, P. M. (1994). *The fifth discipline: The art and practice of the learning organization*. Broadway Business.
- Taddei, F., Becchetti-Bizot, C., Houzel, G., Mainguy, G., & Naes, M.-C. (2018). *Un plan pour co-construire une société apprenante - A l'intelligence collective, la planète reconnaissante*. Ministère du Travail, Ministère de l'Éducation nationale, Ministère de l'Enseignement supérieur, de la Recherche et de l'Innovation.
- Wallenhorst, N. (2023). *A critical theory for the Anthropocene*. Springer-Nature.
- Wallenhorst, N., & Wulf, C. (Eds.). (2023). *Handbook of the Anthropocene – Humans between Heritage and Future*. Springer-Nature.
- Wallenhorst, N., Hétier, R., Pierron, J.-P., & Wulf, C. (Eds.). (2023). *Political education in the Anthropocene*. Springer-Nature.

Correction to: Learning to Engage with Complexity Through the Transformative Learning Approach of the Sustainability Institute in South Africa



Tom Renault and Reinhold Mangundu

Correction to:

Chapter 12 in: C. Renouard et al., *Pedagogy of the Anthropocene Epoch for a Great Transition*, Anthropocene – Humanities and Social Sciences, https://doi.org/10.1007/978-3-031-39366-2_12

The chapter was inadvertently published with an error in the co-author's name that was misspelled and reads "Reinhold Magundu" instead of "Reinhold Mangundu". This is now corrected.

The updated version of this chapter can be found at https://doi.org/10.1007/978-3-031-39366-2_12