

**TEACHING AND LEARNING  
STRATEGIES FOR SUSTAINABLE  
DEVELOPMENT**

# INNOVATIONS IN HIGHER EDUCATION TEACHING AND LEARNING

Series Editor: Patrick Blessinger

## Recent Volumes

- Volume 1 Inquiry-based Learning for Faculty and Institutional Development: A Conceptual and Practical Resource for Educators – Edited by John M. Carfora and Patrick Blessinger
- Volume 2 Inquiry-based Learning for the Arts, Humanities, and Social Sciences: A Conceptual and Practical Resource for Educators – Edited by Patrick Blessinger and John M. Carfora
- Volume 3 Inquiry-based Learning for Multidisciplinary Programs: A Conceptual and Practical Resource for Educators – Edited by Patrick Blessinger and John M. Carfora
- Volume 4 Inquiry-based Learning for Science, Technology, Engineering, and Math (STEM) Programs: A Conceptual and Practical Resource for Educators – Edited by Patrick Blessinger and John M. Carfora
- Volume 5 University Partnerships for Community and School System Development – Edited by Barbara Cozza and Patrick Blessinger
- Volume 6 Emerging Directions In Doctoral Education – Edited by Patrick Blessinger and Denise Stockley
- Volume 7 University Partnerships for Academic Programs and Professional Development
- Volume 8 University Partnerships for International Development
- Volume 9 Engaging Dissonance
- Volume 10 University Partnerships for Pre-service and Teacher Development
- Volume 11 Refugee Education: Integration and Acceptance of Refugees in Mainstream Society
- Volume 12 Contexts for Diversity and Gender Identities in Higher Education: International Perspectives on Equity and Inclusion – Edited by Jaimie Hoffman, Patrick Blessinger and Mandla Makhanya
- Volume 13 Strategies, Policies, and Directions for Refugee Education – Edited by Enakshi Sengupta and Patrick Blessinger
- Volume 14 Perspectives on Diverse Student Identities in Higher Education – Edited by Patrick Blessinger
- Volume 15 Language, Teaching and Pedagogy for Refugee Education – Edited by Enakshi Sengupta and Patrick Blessinger
- Volume 16 Strategies for Fostering Inclusive Classrooms in Higher Education – Edited by Jaimie Hoffman, Patrick Blessinger and Mandla Makhanya
- Volume 17 Strategies for Facilitating Inclusive Campuses in Higher Education: International Perspectives on Equity and Inclusion – Edited by Jaimie Hoffman, Patrick Blessinger and Mandla Makhanya
- Volume 18 Integrating Sustainable Development into the Curriculum – Edited by Enakshi Sengupta, Patrick Blessinger and Taisir Subhi Yamin

INNOVATIONS IN HIGHER EDUCATION TEACHING AND  
LEARNING VOLUME 19

**TEACHING AND LEARNING  
STRATEGIES FOR SUSTAINABLE  
DEVELOPMENT**

EDITED BY

**ENAKSHI SENGUPTA**

*Centre for Advanced Research in Higher Education,  
New York, USA*

*International HETL Association, New York, USA*

**PATRICK BLESSINGER**

*St. John's University, New York, USA*

*International HETL Association, New York, USA*

**TAISIR SUBHI YAMIN**

*International Association of Educators for World Peace,  
Germany*

Created in partnership with the International  
Higher Education Teaching and Learning Association



<https://www.hetl.org/>



United Kingdom – North America – Japan  
India – Malaysia – China

Emerald Publishing Limited  
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2020

Copyright © 2020 Emerald Publishing Limited

**Reprints and permissions service**

Contact: [permissions@emeraldinsight.com](mailto:permissions@emeraldinsight.com)

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

**British Library Cataloguing in Publication Data**

A catalogue record for this book is available from the British Library

ISBN: 978-1-78973-640-3 (Print)

ISBN: 978-1-78973-639-7 (Online)

ISBN: 978-1-78973-641-0 (Epub)

ISSN: 2055-3641 (Series)



ISOQAR certified  
Management System,  
awarded to Emerald  
for adherence to  
Environmental  
standard  
ISO 14001:2004.

Certificate Number 1985  
ISO 14001



INVESTOR IN PEOPLE

# CONTENTS

<i>List of Contributors</i>	vii
<i>Series Editors' Introduction</i>	ix
<i>Foreword</i>	xi

## PART I PEDAGOGICAL APPROACHES

<b>Chapter 1 Introduction to Teaching and Learning Strategies for Sustainable Development</b> <i>Enakshi Sengupta, Patrick Blessinger and Tasir Subhi Yamin</i>	3
<b>Chapter 2 Integrating Sustainability into the University: Academies for Learning</b> <i>Audrey M. Dentith and Nancy V. Winfrey</i>	15
<b>Chapter 3 An Interdisciplinary Problem-based Approach to Education for Sustainable Development</b> <i>Bland Tomkinson and Rosemary Tomkinson</i>	29
<b>Chapter 4 Using the SDGs to Promote Change and Nurture Connectivity in an Undergraduate Design Module</b> <i>Jackie Malcolm and Keith R. Skene</i>	41
<b>Chapter 5 Leading Assessment Practices to Foster Sustainability Learning in Engineering Classrooms</b> <i>Margaret Jollands</i>	57
<b>Chapter 6 Can the Anthropocene Provide a Tool for Meaningful Teaching of Sustainability in Higher Education?</b> <i>Patrick Baughan</i>	73
<b>Chapter 7 Deliberative Dialogue and Syllabus Deliberation as Innovative, Cross-disciplinary, and Sustainable Teaching Methods</b> <i>Sharyn Lowenstein</i>	83

<b>Chapter 8 Integrating Sustainable Development into the Whole Institution: Can the SDGs Bridge the Gap?</b> <i>Stefanie Mallow and Hilligje van't Land</i>	107
<b>Chapter 9 Integrating Sustainable Development into the Postgraduate Curriculum in the UK: A Mixed Method Study</b> <i>Gavin Melles</i>	123
<b>PART II INNOVATIVE CASE STUDIES</b>	
<b>Chapter 10 The Teaching Sustainability Mini-plot: A Faculty Learning Community Building Curriculum for Students' Sustainability Thinking</b> <i>Jenny S. Wakefield and Christopher E. Grice</i>	143
<b>Chapter 11 Study Circle as an Innovative Tool for Promoting Lifelong Learning and Community Empowerment</b> <i>Gwadabe Kurawa</i>	159
<b>Chapter 12 Student Perceptions of Engineers' Versus Teachers' Roles and Responsibilities in Contributing to Sustainable Development</b> <i>Karin Edvardsson Björnberg, Inga-Britt Skogh and Lena Gumaelius</i>	177
<b>Chapter 13 Whakawhitinga Kōrero: Dialogues on Sustainability</b> <i>Tonya Sweet, Andrea Milligan and Meegan Hall</i>	197
<b>Chapter 14 Campus as a Living Lab: Creating a Culture of Research and Learning in Sustainable Development</b> <i>Angelique Pilon, John Madden, James Tansey and John Metras</i>	213
<i>About the Contributors</i>	229
<i>Name Index</i>	241
<i>Subject Index</i>	249

# LIST OF CONTRIBUTORS

<i>Patrick Baughan</i>	Advance HE, London, UK
<i>Karin Edvardsson Björnberg</i>	KTH Royal Institute of Technology, Stockholm, Sweden
<i>Patrick Blessinger</i>	International Higher Education Teaching and Learning, New York, USA
<i>Audrey M. Dentith</i>	North Carolina A&T State University in Greensboro
<i>Christopher E. Grice</i>	Brookhaven College, Texas, USA
<i>Lena Gumaelius</i>	KTH Royal Institute of Technology, Stockholm, Sweden
<i>Meegan Hall</i>	Victoria University of Wellington, Wellington, New Zealand
<i>Margaret Jollands</i>	RMIT University, Melbourne, Australia
<i>Gwadabe Kurawa</i>	Inter-agency Network for Education in Emergencies (INEE), Manchester, UK
<i>Hilligje van't Land</i>	International Association of Universities, Paris, France
<i>Sharyn Lowenstein</i>	Lasell College, MA, USA
<i>John Madden</i>	University of British Columbia, Vancouver, Canada
<i>Jackie Malcolm</i>	University of Dundee, Dundee, Scotland
<i>Stefanie Mallow</i>	International Association of Universities, Paris, France
<i>Gavin Melles</i>	Swinburne University, Melbourne, Australia
<i>John Metras</i>	University of British Columbia, Vancouver, Canada
<i>Andrea Milligan</i>	Victoria University of Wellington, Wellington, New Zealand

<i>Angelique Pilon</i>	University of British Columbia, Vancouver, Canada
<i>Enakshi Sengupta</i>	International Higher Education Teaching and Learning, New York, USA
<i>Inga-Britt Skogh</i>	KTH Royal Institute of Technology, Stockholm, Sweden
<i>Keith R. Skene</i>	Biosphere Research Institute, Angus, Scotland
<i>Tonya Sweet</i>	Victoria University of Wellington, Wellington, New Zealand
<i>James Tansey</i>	University of British Columbia, Vancouver, Canada
<i>Bland Tomkinson</i>	University of Manchester, UK
<i>Rosemary Tomkinson</i>	University of Manchester, UK
<i>Jenny S. Wakefield</i>	Dallas County Community College District, Texas, USA
<i>Nancy V. Winfrey</i>	Center for Creative Leadership, USA
<i>Taisir Subhi Yamin</i>	International Centre for Innovation in Education

# **SERIES EDITORS' INTRODUCTION**

## **INNOVATIONS IN HIGHER EDUCATION TEACHING AND LEARNING**

The purpose of this series is to publish current research and scholarship on innovative teaching and learning practices in higher education. The series is developed around the premise that teaching and learning is more effective when instructors and students are actively and meaningfully engaged in the teaching–learning process.

The main objectives of this series are to:

1. present how innovative teaching and learning practices are being used in higher education institutions around the world across a wide variety of disciplines and countries;
2. present the latest models, theories, concepts, paradigms, and frameworks that educators should consider when adopting, implementing, assessing, and evaluating innovative teaching and learning practices; and
3. consider the implications of theory and practice on policy, strategy, and leadership.

This series will appeal to anyone in higher education who is involved in the teaching and learning process from any discipline, institutional type, or nationality. The volumes in this series will focus on a variety of authentic case studies and other empirical research that illustrates how educators from around the world are using innovative approaches to create more effective and meaningful learning environments.

Innovation teaching and learning is any approach, strategy, method, practice, or means which has been shown to improve, enhance, or transform the teaching–learning environment. Innovation involves doing things differently or in a novel way to improve outcomes. In short, innovation is positive change. With respect to teaching and learning, innovation is the implementation of new or improved educational practices that result in improved educational and learning outcomes. This innovation can be any positive change related to teaching, curriculum, assessment, technology, or other tools, programs, policies, or processes that leads to improved educational and learning outcomes. Innovation can occur in institutional development, program development, professional development, or learning development.

The volumes in this series will not only highlight the benefits and theoretical frameworks of such innovations through authentic case studies and other empirical research but also look at the challenges and contexts associated with

implementing and assessing innovative teaching and learning practices. The volumes represent all disciplines from a wide range of national, cultural, and organizational contexts. The volumes in this series will explore a wide variety of teaching and learning topics, such as active learning, integrative learning, transformative learning, inquiry-based learning, problem-based learning, meaningful learning, blended learning, creative learning, experiential learning, life-long and life-wide learning, global learning, learning assessment and analytics, student research, faculty and student learning communities, as well as other topics.

This series brings together distinguished scholars and educational practitioners from around the world to disseminate the latest knowledge on innovative teaching and learning scholarship and practices. The authors offer a range of disciplinary perspectives from different cultural contexts. This series provides a unique and valuable resource for instructors, administrators, and anyone interested in improving and transforming teaching and learning.

**Patrick Blessinger**

*Founder, Executive Director, and Chief Research Scientist,  
International HETL Association*

**Enakshi Sengupta**

*Associate Editor, International HETL Association*

# FOREWORD

Teaching is a practical approach to shape one's ideas through education. On the other hand, learning is the acquisition of knowledge or skills through study, experience, or being taught. It is the process of acquiring new or modifying existing knowledge, behaviour, skills, values, and preferences. Education is one of the most important factors for human development and society because it helps an individual to increase the mental and physical capacity as well as productivity. Teaching and learning strategies are a set of activities to accommodate different abilities, skills, and styles that allow every student/learner to participate and be able to achieve success.

Sustainability education is often referred to as Education for Sustainable Development (ESD), which has been defined as the type of education that allows every human being to acquire the knowledge, skills, attitudes, and values necessary to shape a sustainable future (UNESCO, 2014). ESD in Higher Institutions of Learning is based on student-centered approach with a focus on improving academic and higher-order thinking skills. It is also research based and aims at promoting environment for current and future generations. A well-structured curriculum should therefore include sustainable development issues, such as biodiversity, poverty reduction, climate change, sustainable consumption, etc. Council of the European Union (2010) states that ESD is essential for the achievement of a sustainable society and is therefore desirable at all levels of formal education and training as well as non-formal and informal learning. Institutions of Higher Learning all over the world are responding to political, economic, and social pressure to impart knowledge to students that will enable them to develop knowledge, values, and skills to improve the quality of life now and for the future.

In this book, authors provide practical examples and results from case studies in which teaching and learning strategies for sustainable development which enable students to use knowledge, skills, and values for sustainable development. The practical examples are from different countries, such as the United States of America, the UK, Sweden, New Zealand, Canada, Italy, Ghana, Zimbabwe, Nigeria, Australia, Costa Rica, Thailand, and others. There are numerous teaching and learning strategies, such as *Experiential Learning* in which students using prior experiences are engaged in critical thinking, problem-solving, decision-making, and applying ideas and skills to new situations; *Storytelling* in which students and faculty provide practical insight to environmental challenges that affect our planet; *Values Education* in which designed curricula contain attitudes and human values, such as social equity and peace, appropriate development, conservation, and democracy that are key in shaping a sustainable future; *Enquiry learning* in which students are given opportunity to think and develop problem-solving skills, discover, and create activities for sustainable development;

*Appropriate assessment* in which leading assessment practice is identified as fostering higher order thinking in solving complex multi-interdisciplinary problems; *Future problem-solving* in which curricula are designed to assist students to develop skills for analysing problems from a future perspective using research and group work; *Learning outside the classroom* in which students are provided with high quality learning activities by visiting local communities so that they appreciate first-hand experience and are able to practice skills of enquiry and value analysis and *Community problem-solving* in which students are given opportunity to develop practical skills that are needed in finding solutions to local challenges in the realm of sustainable future.

In a good number of cases, authors use multiple teaching and learning strategies which could be referred to as a hybrid approach for achieving sustainable development.

Apart from case studies, readers will also find the book useful to learn about a new program called ESD for 2030 which is intended to promote sustainable development for an entire institution which is referred to as “Whole Institution Approach for ESD.” The book provides immense contribution to our genuine desire of incorporating strategies of teaching and learning for sustainable development in our respective curricula. However, it must be borne in mind that there is no case of “fit for all” in developing strategies of teaching and learning for sustainable development. Each Institution of Higher Learning should develop its own strategies by taking into account its own circumstances and respective regional perspective.

**Andrew Ssemwanga (PhD)**

*Vice Chancellor*

*St Lawrence University – Uganda*

PART I

PEDAGOGICAL APPROACHES

*This page intentionally left blank*

# CHAPTER 1

## INTRODUCTION TO TEACHING AND LEARNING STRATEGIES FOR SUSTAINABLE DEVELOPMENT

Enakshi Sengupta, Patrick Blessinger and  
Tasir Subhi Yamin

### ABSTRACT

*One of the most important issues plaguing our planet is the depletion of natural resources and climate change, creating new disasters, and global challenges. The international community has expressed its anguish and concern for these problems through several international forums and treaties. As a response, Education for Sustainable Development is a program that aims to educate students on these issues. Teaching sustainability to young graduates needs to be holistic and pluralistic in nature. Discourses and modules on sustainability help in making them sustainability conscious which will enhance the competencies of people and help them to live and act in a more sustainable way. This book has several chapters written by academics across the globe who have spoken about their experience of incorporating sustainability into their curriculum and adopting various pedagogical approach that has helped their students to learn and understand the subject. Sustainability has been part of the teaching and learning in general, and as part of management, engineering, medical, and design courses, for instance. This book helps us to understand how such teaching and learning strategies can be made more effective for students.*

**Keywords:** Sustainability education; sustainable development; teaching strategies; curriculum strategies; citizenship education; pedagogical approach; stakeholders; social justice; awareness; sensitize; curriculum

---

Teaching and Learning Strategies for Sustainable Development:  
Innovations in Higher Education Teaching and Learning, Volume 19, 3–14  
Copyright © 2020 by Emerald Publishing Limited  
All rights of reproduction in any form reserved  
ISSN: 2055-3641/doi:10.1108/S2055-36412020000019001

## INTRODUCTION

We hold the future in our hands. Together, we must ensure that our grandchildren will not have to ask why we failed to do the right thing and let them suffer the consequences. UN Secretary-General Ban Ki-moon (2007)

Sustainable development was defined in 1987 by Brundtland Commission Report as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” The concept advocates a future in which economic, social, and environmental factors are balanced toward an all-round development agenda with a view toward improved quality of life for all. The world is moving away from its shareholder’s view of profit maximization and economic development toward one that is concerned about its stakeholders through social and environmental concerns. The major threats and damages caused to human through environmental concerns must be addressed through the sustainability paradigm. Sustainability is our focus toward future and is often considered as a long-term goal of our planet. Sustainable development is one of the various routes that one can adopt to achieve such a goal. Sustainable development affects all spheres of our lives, from our consumption pattern to good governance and includes technology transfer, teaching, training, and education in this field.

There are several underlying principles that encompass the sustainability concept in a holistic manner. These concepts range from poverty reduction, gender equality, environmental conservation, and preservation to social justice. The next generation needs to be trained and educated in sustainable development and that can only happen through a coordinated effort of both institutions of higher education and society. As [Stern \(2007, p. xxvi\)](#) noted,

educating those currently at school about climate change will help shape and sustain future policy making, and a broad public and international debate will support today’s policy-makers in taking strong action now.

Several studies have been conducted to measure the impact of sustainable education and the result has been very encouraging. Educating female students on sustainability has even resulted in larger impacts on carbon emissions abatement than direct low-carbon energy options ([Wheeler & Hammer, 2010](#)). [Muttarak and Lutz \(2014\)](#) explained that “public investment ... through education can have a positive externality in reducing vulnerability and strengthening adaptive capacity amidst the challenges of a changing climate.”

Academicians are constantly striving to formulate new educational approaches to motivate the learners on sustainability, create awareness, and help achieve necessary lifestyle issues. Government and other funding agencies are mobilizing support toward institutions of higher education to develop a new ecological vision and inculcate in young students a sense of global solidarity. There lies an urgent need to reorient the current teaching abilities to a curriculum that deals with sustainability and its goals. Students need to be sensitized about the natural resources that they have and how best that can be preserved. Policies, procedures, and governmental regulations go

hand in hand with such teaching and learning strategies which work toward economic prosperity of the region without comprising the natural resources. An action plan needs to be prepared along with allocation of resources by every institute of higher education which can facilitate and implement a proper educational plan promoting sustainability.

Sustainability education is not only meant for students but also for the faculty. Capacity building programs should be in place so that the teachers are aware of the subject and have adequate knowledge to teach students. Teaching and learning strategies have undergone several changes in the past from nature and non-human environment to that of human welfare and health environment. The approach needs to be holistic in nature and not confined to undergraduate students but can even start from a basic education level. The strategy mainly focuses on: delivering basic education to students; re-orienting the existing education program with a focus toward sustainability; creating a general awareness among public and training in sustainability with a goal toward achieving lifestyle changes and consumption patterns; and improved public policies and decision-making to create a more sustainable society.

To attain a transition toward a sustainable society one needs a better understanding of the subject and a more positive attitude toward the concept. Yet the fundamental question remains as to how best this can be accomplished and what path one needs to charter in future? Academics delving into sustainability found that the only answer to their question is education. Education is the main solution that can empower individuals with the competence to deal with such critical ingredients for change.

Educating citizens starts with schools by training young generations which will help them learn as to how to address the issues in an effective manner. Education for Sustainable Development (ESD) was an effort that was overseen by UNESCO. In the last decade ESD was launched to help chalk out an approach to teaching and learning that promotes sustainable development in educational institutions. Since then it has become a global movement and the understanding of the concept of sustainability has evolved. [UNESCO \(2005\)](#) defined it as:

Education for Sustainable Development means including key sustainable development issues into teaching and learning; for example, climate change, disaster risk reduction, biodiversity, poverty reduction, and sustainable consumption. It also requires participatory teaching and learning methods that motivate and empower learners to change their behavior and take action for sustainable development. Education for Sustainable Development consequently promotes competencies like critical thinking, imagining future scenarios and making decisions in a collaborative way.

## **LITERATURE REVIEW**

ESD advocates a holistic perspective both toward content and the pedagogical approach. This holistic perspective recognizes that behind inculcating a sustainable viewpoint lies several socio-cultural factors and a conflict of interest between

socioeconomic goals of society. These conflicts not only span over various disciplines but also tied to local and global perspectives with the present and future generations. Öhman (2008) identified three important aspects concerning holism: the first one being a connection between environmental, social, and economic dimensions leading to sustainable development issues; and the next being integration of the past, present, and future and a focus toward local, regional, and global issues.

While dealing with the issues of teaching and learning in ESD it focuses on developing skills and competence for sustainability. The approach is generally pluralistic in nature imbibing knowledge, views, and perspectives from different disciplines while dealing with sustainable issues. The thought behind incorporating various disciplines is that complexity of the issues and conflict of interest makes it impossible to teach a preconceived, pre-defined solution for every complex issue faced by the learners. This progressive and transformational approach develops the student's ability of critical thinking, enhancing their decision-making process through value-based and service learning. With the help of this approach students learn about the world based on their own understanding and develop competencies, which are needed to create a sustainable world. Holistic and pluralistic concept of sustainable education is intertwined and takes places through various interpretations of socio-economic and environmental perspectives.

According to Kopnina (2012) the concept of pluralism and holistic nature of teaching sustainability may be confusing as the subject has contradictions and paradoxes inherent in it. Kopnina (2012, p. 700) states that: "plural perspectives on ESD can lead practitioners into an essentially anthropocentric paradigm which can be counter-productive to the effort of fostering environmentally concerned citizenry." Wals (2010) also speaks about using deliberative method of holism and pluralism to solve the normative problems of teaching sustainability as no evidence has been gathered to reveal that simply teaching the concept of sustainability has resulted in changing human attitude and creating willingness among people to solve the sustainability issues plaguing our planet. Research on effects of teaching sustainability is rare and UNESCO (2014) in its recommendation has stated the need for more research, innovation, and monitoring needed to effectively develop the subject and the good practices of teaching sustainability.

A curriculum in sustainability requires faculty to identify issues, skills, and values essential to address the sustainability challenges and needs to integrate them in one unified course module as well as integrating it across courses and programs. Higher education institution (HEI) needs to identify which are the issues that need prioritization and reorient education toward achieving its sustainability goals. A reoriented curriculum helps to address the local issues and find a solution toward solving them. The curriculum is then culturally relevant and appropriate for the students. Certain faculty members have imported curriculum from other countries which may serve as a platform but needs customization to suit the local needs. A quality education in sustainability requires attention to individual learners need and a variety of techniques can be adopted by the teachers to attend to these needs. Traditional pedagogy of classroom teaching may not be enough in addressing the individual needs and experiential learning may be a better option for students to understand the basic concepts of sustainability.

## CONCLUSION

Teaching sustainability remains a contested arena with challenges of developing a suitable curriculum that addresses the needs of the local community and equips students with problem-solving abilities in sustainability. The challenge remains that the concept may remain as lofty rhetoric or idealistic aims with little understanding of the subject and developing a creative and innovative approach toward the subject. The book has highlighted the best practices of teaching and learning sustainable development in various countries across several disciplines which can be adopted by other institutions of higher education.

## CHAPTER OVERVIEWS

“Integrating Sustainability into the University: Academies for Learning,” by Audrey M. Dentith and Nancy V. Winfrey, describes a curriculum and a pedagogical approach for universities that addresses the goals of sustainable education. It describes two educative initiatives that were hosted by universities that broaden the reach of faculty to include the local and regional communities. The Academy for the Critical inquiry of the Cultural Commons and the Ecojustice Leadership Academy were created and delivered in two separate sites in the United States. A discussion on the theoretical framework for the work as well as the learning theories that inform this curricular approach are integrated into the description of these university academies. Finally, a report on the learning of participants and a summary of the results of these efforts are included in the chapter.

“The Teaching Sustainability Mini-Pilot: A Faculty Learning Community Building Curriculum for Students’ Sustainability Thinking,” by Jenny S. Wakefield, Terry DiPaolo, and Christopher Grice, is about sustaining our planet for generations to come where one needs to recognize that humans have immense impact on the environment and an open and ongoing conversation is needed to generate informed actions toward sustainability. A sustainable future must grow from a change mindset, one of critical thinking, problem-solving, and continuous learning and active practice. In higher education, we are uniquely placed to share with students a sustainability-infused curriculum and other sustainability innovations toward such a change mindset. This research chapter focuses on how, in Texas, 10 Brookhaven college faculty self-selected to participate in a Teaching Sustainability Mini-Pilot during Fall semester 2018. The innovation was initiated to encourage students to become mindful of sustainability, inspired to get involved in sustainability efforts, and to become immersed in satisfactory real-world learning.

Participating faculty had agreed to include at least one assignment tied to sustainability in one of their courses. To capture the experiences of faculty in the mini-pilot, institutional review board approval was acquired, and faculty participated in focus group sessions or individual interviews. Data were analyzed using phenomenology. Analyzing the data three major themes emerged. These clustered around the idea of salient thinking and caring sharing awareness of sustainability with students for their own sake. The three themes were: (1) making sustainability learning visible through story and participatory action; (2) making sustainability learning visible

through reflective discussions and paper submissions toward a changed mindset; and (3) making sustainability learning visible by starting with the text. The essence of the faculty experience was faculty concern for the future, a drive to share awareness with students of our fragile world, and a need to encourage students to take action for their own sake as well as their childrens' and grandchildren' sake.

“An Interdisciplinary Problem-based Approach to Education for Sustainable Development,” by Bland Tomkinson and Rosemary Tomkinson, is based on the work of Charles Engel. Engel advocated that higher education should take a lead in remediating global challenges particularly those of sustainability. In this context, Engel took a broad view of the concept of sustainability, based largely on the Brundtland view of global challenges. Engel also proposed that successful approaches to facing the “wicked” problems of sustainability should be explored across disciplinary boundaries. To this end, the University of Manchester has been running a series of course modules focusing on these major challenges, largely run on interdisciplinary lines. Initially, the concept was explored across science and engineering schools, with the support of the Royal Academy of Engineering. As a leading authority on the use of problem-based learning, Engel had advised on the use of this approach as a means of addressing the wicked problems in interdisciplinary groups. The pilot modules were extensively evaluated and reported. Since that time the course units have developed and diversified, with extension to other schools, universities, and countries, and to postgraduate as well as undergraduate courses. The concept has also been explored in hybrid online format.

This chapter will re-introduce some of the original ideas and bring together the many threads that have emerged over the past 20 years. Governments, worldwide, try to restrain higher education to short-term outcomes – for example, student employability – is this the only path for higher education to be treading? That is an interesting challenge in itself. What can higher education do to help its graduates to become agents for change in the remediation of global wicked challenges? Does this impact on how institutions organize themselves and their curricula as well as the overall philosophy of higher education?

“Study circles as an innovative tool for promoting lifelong learning and community empowerment,” by Gwadabe Kurawa, is based on The United Nations Sustainable Development Goal (SDG) 4 which aims at ensuring an inclusive, equitable quality education, and promoting lifelong learning opportunities for all. However, this may not be effectively realized, as this chapter demonstrates, through formal learning. Rather, an adoption of non-formal and informal learning along with formal learning is more likely to empower the general population to contribute toward development of a sustainable society. The chapter therefore critically examines the concepts of lifelong learning and the learning society and suggests that community learning can be a promising institutional medium for the promotion of adult and lifelong learning. The rationale for establishing community learning as a medium for lifelong learning is demonstrated through case studies from Zimbabwe and Sweden. This follows by comparing and contrasting the ways in which Sweden and Zimbabwe are promoting the lifelong learning for all.

“Using the SDGs to Promote Change and Nurture Connectivity in an Undergraduate Design Module,” by Jackie Malcolm and Keith R. Skenea, is