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# HIGHER EDUCATION FOR SUSTAINABLE DEVELOPMENT

Kerry Shephard

# Higher Education for Sustainable Development

DOI: 10.1057/9781137548412.0001

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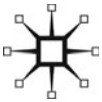
palgrave macmillan

DOI: 10.1057/9781137548412.0001





Softcover reprint of the hardcover 1st edition 2015 978-1-137-54840-5



First published 2015 by
PALGRAVE MACMILLAN

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Palgrave Macmillan in the US is a division of St Martin's Press LLC, 175 Fifth Avenue, New York, NY 10010.

Palgrave Macmillan is the global academic imprint of the above companies and has companies and representatives throughout the world.

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ISBN: 978-1-137-54841-2 PDF
ISBN: 978-1-349-56263-3

This book is printed on paper suitable for recycling and made from fully managed and sustained forest sources. Logging, pulping and manufacturing processes are expected to conform to the environmental regulations of the country of origin.

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

A catalog record for this book is available from the Library of Congress.

www.palgrave.com/pivot

DOI: 10.1057/9781137548412

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DOI: 10.1057/9781137548412.0001

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DOI: 10.1057/9781137548412.0002

# Introduction

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137548412.0003.

Institutions of higher education, worldwide, are responding to societal expectations to address environmental, social, cultural and economic issues that threaten the sustainability of life on Earth. Most campuses around the world are adopting, or talking about adopting, sustainable, even carbon-neutral, processes. Higher education disciplines are researching the sustainability problems that we face, to better understand them and hopefully to find enduring solutions to them. But there may be less collective resolve to address these issues through curriculum change. The oft-cited argument is that higher education has educated the politicians, managers, teachers, scientists and engineers who have taken us to our current and generally unsustainable position, and it is the education of future groups of these folk that will enable us to step up to new levels of sustainability. On this basis, curriculum change towards sustainability, for all students and not just for those who choose to study sustainability-related topics, is the critical next stage.

But curricula directed towards sustainability are not generally priorities in educational strategies extant in higher education today and hopes that higher education would lead to graduate behaviour consistent with appropriate societal change are proving difficult to realise. Those in higher education who advocate for sustainability are disappointed about higher education's intransigence and those who do not are doing their best, mostly successfully, to ignore calls for change. Conventional 'education for sustainable development' (ESD), or 'education for sustainability' (ES), is struggling to gain traction in much of higher education today, and extensive university academic engagement with ES/ESD as it is today seems at present an unlikely prospect.

The crux of the matter is, of course (or perhaps more reasonably, as argued within this book), an enduring dilemma of higher education, trying desperately as it does to be 'for knowledge' rather than 'for values'. Sustainability issues are replete with values-based dilemmas. Should nations, and individuals within them, limit their own well-being and development to support others? To what extent should we sacrifice human well-being to support other animal and plant inhabitants of our planet? And how much pollution is acceptable in our resource-depleted heavily populated world? Higher education's higher purpose has for a long time been the pursuit of truth untarnished by beliefs, values and dispositions. Perhaps this has been a backlash against the early origins of higher education, embedded as it was within values-laden professions of law and religion. Historical attempts to embroil higher education in

DOI: 10.1057/9781137548412.0003

the ambitions of certain sectors of society towards, or away from – for example, nationalism, socialism, fascism, communism, racism, feminism (and probably many other isms) – have struggled, until such time as the implicit values within some of these quests have become, by and large, adopted by the societies that sponsor higher education entities. At that point they also become part of higher education itself. It is, of course, possible that ES/ESD will go the same way. ES/ESD is clearly a values-rich concept, with direct links to related values-laden concepts such as global citizenship, equality, human rights and world poverty. At present this is a mission that appears to preoccupy a minor section of society in 'developed' countries. In turn it implicates a minority in higher education, with the majority fully engaged in disciplinary pursuits of, for them, greater academic importance. Eventually, sustainability may become a widespread and explicit part of societal functioning, perhaps in the same way that racial tolerance and gender balance have become in many societies. At that point, no doubt, sustainability will become an automatic and explicit part of higher education itself. The problem, perhaps and for some, is that sustainability is a pressing mission. This argument suggests that society cannot wait for higher education to learn from it; society needs to learn from higher education.

Many authors have recognised this fundamental dilemma. Higher education wants to teach knowledge, but society may need higher education to teach values that lead to prescribed behaviours (or certainly to at least support the acquisition of those values, and behaviours, that society values). Higher education doesn't want to teach values, certainly not values that it doesn't itself explicitly possess. As early as 1992, Jickling identified this dilemma with respect to environmental education and questioned the extent to which education should be teaching students to behave in particular ways (Jickling, 1992). (The discipline of education had addressed similar affect-laden challenges in school education for decades before that.) The dilemma has been formalised to some extent in subsequent decades with respect to the approaches that higher education might choose to take for these purposes (summarised helpfully by Wals, 2012, and substantially anticipated by Vare and Scott, 2007). One approach identifies the problems that the world faces as so severe that higher education needs to put to one side its reservations about values education and just get on teaching them (the 'instrumental approach'). The major alternative (the 'emancipatory' approach') recognises higher educations' opposition to teaching values and its strengths in

DOI: 10.1057/9781137548412.0003

teaching criticality. Emancipatory educators suggest that the instrumental approach is simply incompatible with higher education as it is today. Instrumental educators generally agree, hence their demand for institutional transformation so widely touted by advocates for sustainability. Instrumentalists might suggest that everyone in higher education would appreciate the luxury of teaching the emancipatory approach but there remain serious questions about the consequences of achieving critical but non-acting populations of graduates.

Meanwhile higher education can hardly be said to be taking decisive action. Bosselmann in 2001 described our collective response as a 'a circle of systemic non-competence' (Bosselmann, 2001, p. 168) and for many, this sums up the current situation just as well.

This short book suggests that while the sustainability mission does need to be central to higher education, the objectives and philosophy of ES/ESD as currently formulated are misplaced within higher education as it is today, but can be redesigned and refocused to harness the considerable strengths of higher education. This must surely involve seeking something that everyone in higher education can work towards, willingly, rather than something designed to separate us.

The first part of the book addresses misalignment between ES/ESD and higher education. It is substantially based on research that I conducted to better understand the perspectives of university teachers on sustainability education (SE). I travelled to six universities, in five different countries, to talk with university teachers and other university professionals to gain insights into their perspectives on SE. The research used a constructivist grounded theory approach to generate concepts with respect to sustainability education that could explain how these people do and could resolve their central concerns about it. The theory developed by putting to one side passionate expositions of barriers to ES/ESD and on what others should do to achieve sustainability education, focussing instead on what everyone involved can do and wants to do. The theory emphasises a central imperative that, by doing the job that they do best, and want to do, all in higher education have the capacity and willingness to contribute to ES/ESD in some way.

The second part of the book takes this grounded theory, and this ethos of all in higher education having a role to play, by and large on their own terms, and uses it to interpret and to rationalise teaching approaches relevant and appropriate for ES/ESD and for higher education. This section identifies roles for those who advocate for sustainability in

DOI: 10.1057/9781137548412.0003

higher education and for those who do not. It also accepts and embraces the role of values education in higher education, for sustainability and indeed for much else besides, but in doing so, emphasises the important educational links that exist between affect, influence, criticality, evaluation, higher education's roles and responsibilities and the academic freedom of university academics. Part II, therefore, identifies educational rationales that are aimed at unifying the efforts of higher education towards sustainability objectives, rather than dividing them.

## Explaining some terms

I don't think that I should try too hard here to define ES and ESD. As shall be explained in chapters to follow these are contested terms. Throughout this book, where I can, I have combined them into ES/ESD and only referred to them separately when I needed to. Both terms imply some hope for sustainability in the future (whatever that may be, but often incorporating ideas around conservation and the environment, society and culture, and economics), alongside an expectation that education is important and will be involved. In the context of this book for the most part I'm interested in higher education.

Perhaps going back a few years these terms evolved from environmental education (EE), at a time when the concept of educating 'about' the environment seemed insufficient (in comparison with education that would cause those being educated to somehow change sufficiently for the education to deserve the accolade 'for the environment'). But that was also a time when there appeared to some to be too much focus on the environment, with an implicit assumption that the environment didn't include the people, and that the people and their societies and their cultures needed also to be considered and indeed also allowed to develop further, and hence 'education for sustainable development'.

One reason for contestation is that those with a fond eye for the natural world feel that it simply can't cope with any more human development and in that context sustainable and development co-situated becomes an oxymoron. I admit myself to having some sympathy with that point of view. In general I prefer the term 'education for sustainability', but I accept the need to address development within this discourse and throughout this book I use the abbreviation ES/ESD to imply much of

DOI: 10.1057/9781137548412.0003

the mentioned concepts and for an all-inclusive term, to include EE also, I say 'sustainability education' (SE).

## On how to read this book

The core elements of this book started as a research article and as such were destined for very few specialist readers who like me publish in journals that support the academic field of enquiry that we identify as 'higher education for sustainable development or for sustainability'. Although I felt strongly that the contributory research and the resulting model of change have merit, I could not put my hand on my heart and say that I expected the enterprise of higher education to change as a result of my research article.

The article has evolved into a book and, with the encouragement of reviewers, has now been designed for a much broader readership. In doing so, I have had to develop new elements to add context to help the broad range of likely readers, and develop a style somewhat different (certainly less disciplined) from that generally found in research articles in the discipline of education. I have had to ask myself who might read this book and to think about the best way for different readers to approach this book. As you are reading this text, I assume that, you are in some way concerned about higher education's contribution to possible solutions to our global sustainability predicaments.

Passionate (for sustainability) change agent You may be determined that university teachers have to transform what and how they teach, and you are likely to be sceptical that asking all university teachers to teach just what they want to teach will achieve the outcomes that you hope for. You may be annoyed that in some senses this book appears critical of your efforts. I guess that if you think that your approach is working you will not be interested in this book. If your academic colleagues are teaching sustainability as they teach their disciplines; if your students leave your institution determined to live sustainable lives and to encourage others to do so; and if your institution is playing its part in addressing the global inequalities and conservation calamities that exist in our societies and in our environment, you should be celebrating, not reading my book. But if these things are not working in your institution, please do read my book, from beginning to end.

DOI: 10.1057/9781137548412.0003

Academic advocate for sustainability All I can do is to hope that this book does not disappoint you. You may have worked hard to transform your less sustainability-minded colleagues. This book advises you to stop doing that, to focus on the learning that your teaching efforts give rise to and to support your institution as it attempts to monitor its impact on the sustainability attributes of your students. Chapters 4 to 6 have been written for you in particular. I apologise that Chapter 4 may be heavy-going for many readers. It is about educational theory, after all.

Disciplinary-focused academics, sceptical that your role in Higher Education (he) has anything to do with sustainability You may even be a climate-change denier. This book does not attempt to change how and what you teach, other than to encourage you to address in a serious and deliberate way the critical skills that your students are developing. I have designed much of this book with you in mind, but I doubt that you will find time to read it. Perhaps if one of your students lends it to you will read Chapter 7 and may be then be inspired to jump to Chapter 4 or even phone someone in your academic development department to insist that they help you address criticality in your teaching.

Academic developers (also known as Educational Developers) No doubt our roles and modes of operation vary between institutions and nations. From my perspective this group should have two substantial roles. They should be, above all, research-active, tasked with the important role of discovering what is good and what is not so good about university functioning. Next on my list is a passion for changing how higher education operates, based on this research and operating through training, education, professional development, and research collaboration. With this in mind, I do understand how higher education has become so distant from the needs of the societies within which higher education operates. Few of my academic-developer colleagues, internationally, research sustainability issues in higher education, and the profession, by and large, leaves these matters of change towards sustainability to advocates working from within other disciplines. These advocates work with a substantial disadvantage, having, by and large, only limited engagement with the discipline of education. Meanwhile, many academic developers have immersed themselves in an enterprise of educational change that, I worry, is in danger of missing the point of higher education. If you do read this book, I think that your priority is to encourage your institution to expend less effort trying to discover

doi: 10.1057/9781137548412.0003

what students think about their teachers and more effort helping your institution to research what students are learning. You could start with Chapters 4 and 6.

University managers and administrators You have my sympathy. I have twice now played the role of Head of Department and I accept that it is a tough task that I do not do well. I cannot imagine how much tougher it would be to carry the burdens of higher office, or indeed to have significant administrative tasks in higher education nowadays. But (and here communicating my respect for higher education as agent for social change) perhaps the sustainability of human societies does depend on the decisions that you make. You have a tough role but an important one. You are a piece in my jigsaw puzzle and unlike all other pieces, every other piece interlocks with you. You are the oil that lets the cogs turn, and perhaps even the compass that gives direction to a wayward enterprise. You do need to read this book, but you may need to start with Chapter 7.

Dispassionate researcher If your interest in ES/ESD is principally a research interest, and you are able to maintain a dispassionate stance within this, this book may not be for you. You should be in no doubt that I have in this book allowed my emotional attachment to conservation, to global sustainability and to higher education rise to the surface. I have written many research articles with you in mind and published them in peer-reviewed articles. Please do read these. If, perhaps on the way to a conference in some far away land, you tire of watching movies or talking with a neighbour and want something to read, you will, I hope, at least read Part I. You will surely find fault in my research approach, but you may also find interest.

Readers from outside our Ivory Towers Readers with an interest in sustainability but no role in higher education may think this an odd book; as indeed I do from my position within a research-intensive university. For the most part the book is designed to contribute to change within higher education and supports the message that higher education itself has to want to change, as change forced upon it by governments and funding restrictions will fundamentally undermine its capacity to be the 'higher education' that it should be. So, in some ways this book is not for you. But, you may realise if you do read it, that I am personally committed to higher education's third mission, that of 'community engagement' and to 'the scholarship of engagement'. I do think that higher education does need to find itself in a situation where it wants to change, but I don't

DOI: 10.1057/9781137548412.0003

believe that change will be possible without community engagement. I hope that you will read this book, but I suspect that I shall have to write another to draw you into higher education's on-going adaptation to the 21st century. In the meantime, I note that I shall receive precious little academic credit from within academia for writing this book. (If that had been my motivation, I should have made it almost unreadable and published elements of it in almost unread academic journals.) And I probably do need to prepare myself for a great deal of criticism. As this book criticises everyone in higher education, I can expect no more in return.

Students and graduates I shall be delighted if current and past higher education students read this book. In my view you are members of our academic communities although I note that some of my academic colleagues despoil this perception by referring to you as customers. If you wonder if you should make the effort to understand my particular approach to sustainability education, you should start with Chapter 7. For current students, I hope that your higher education is preparing you to think clearly and strategically about these issues and to make choices that you are happy with. For graduates, perhaps this has been the case already. If you read my book you will gather that currently, and by and large, I think that higher education can do better. I hope that you will be perceptive enough, and sufficiently critical, to note that mine is but one interpretation of a complex situation, and to identify your potential roles within this challenging dilemma for higher education. If you think of yourselves as customers you will likely make different choices than if you think of yourselves as members of our communities. Personally, I do not want change to be forced upon higher education from outside. But we may need to rally our internal voices and be strategic about how we do it.

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DOI: 10.1057/9781137548412.0003

# Part I

## Developing a Grounded Theory of Higher Education for Sustainability

Consider the task.

In 2012, after many years of researching higher education for sustainability, I worried that this academic field of enquiry had reached an impasse. It appeared to me as if higher education was quite capable of carrying on as it had for many years, buried in contestation and poor communication, and generally oblivious to the sustainability concerns of many on our planet. It seemed to me that many of my academic colleagues at my own institution and more widely in the world were divided in their aspirations for higher education, in their concerns about the planet's problems and for their own roles in addressing these problems. Perhaps most worrying to me was my impression that higher education was capable of asserting that it was addressing the issues but not actually doing so and not monitoring the impact of what it was doing.

I had some sympathy with my colleagues in higher education because I couldn't myself in all honesty suggest a reasonable way forwards. I could, of course, suggest possible ways forwards, as indeed many others had done before, but I doubted that any of these would actually work within the higher education system that I knew. And

DOI: 10.1057/9781137548412.0004

let's be clear, I am myself part of this system, and I blame myself as much as I blame others for the situation we find ourselves in. Overall I found myself in a position where I no longer trusted the enterprise of higher education.

An opportunity came to take a year out from my conventional academic work and have a sabbatical year. I chose to focus my sabbatical year on doing my best to address the problem of higher education for sustainability and to seek, in some senses, a solution to this problem. An alternative interpretation is, of course, that I was seeking solace for my disaffection with higher education.

What emerged, to my surprise, was a combination of: much greater understanding of the situation university colleagues around the world find themselves in; confirmation that although higher education cannot simply solve the world's sustainability problems, it does nonetheless have a role to play; and that one way forwards might be to enlist the goodwill of everyone in higher education to do what they want to do rather than engender bad-will by trying to get them to do what they don't want to do.

How might that work?

DOI: 10.1057/9781137548412.0004

# 1

# Sustainability and ES/ESD Missions: Where Are We Now, How Did We Get Here and Whereto from Here?

**Abstract**: *Introducing the expectations that society has of higher education with respect to sustainability education with comments on higher education's responses. The chapter addresses: the Talloires Declaration; different approaches to sustainability education that arise under the headings 'environmental education', 'environmental studies', 'education for sustainable development', and 'education for sustainability'; the objectives of each of these described in terms of student learning; the barriers that limit higher education's activities and successes in these areas; the nature of the transformations that some anticipate; and criticisms of university teachers who are said to be disengaged. Chapter 1 concludes by providing a rationale for the research described in subsequent chapters.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015. DOI: 10.1057/9781137548412.0005.

## Some expectations and responses

Institutions of higher education around the world are responding to societal expectations that they will address environmental, social, cultural and economic issues that threaten the sustainability of human populations and of other inhabitants on our planet. Sustainability-related research in these areas is an important component of institutional research portfolios, and campus sustainability has become an integral aspect of institutional management in many parts of the world. This research may, one day, solve the sustainability problems that we face, and this research commitment, together with institutional commitment to sustainable operation, may contribute an appropriate educational role model both within the institution and more widely in local communities.

In addition, curriculum-based teaching and learning responses are underway that individually stem from different long-standing or recently developed research and education paradigms. These include environmental education (EE), 'education for sustainable development' (ESD) and 'education for sustainability' (ES). For the purposes of this book, these are collectively referred to here as 'sustainability education' (SE)' notwithstanding the great differences that exist between them, in relation to their aspirations and modes of operation (expanded in the subsequent sections). In line with different modes of SE, institutions also use different educational structures to reach students. Some have embarked on systematic 'greening of the curriculum' to enable students in every discipline to experience sustainability concepts (see, e.g., UK discussions on the Toyne Review, British Government Panel on Sustainable Development Third Report, 1997). Others rely on or extend traditional liberal studies approaches to ensure that many, most, or all students can benefit from a sustainability-inclusive curriculum. The aims and objectives extant in this broad area of SE also vary widely but in general terms include the hope that higher education will contribute to social change towards sustainability, via changes in choices that graduates will make before and after graduation. Each educational paradigm describes change in different terms, uses different educational frameworks and reaches out to different groupings of students, making comparisons difficult. And the changes anticipated of higher education may be substantial. ESD, for example, seeks 'commitment to rethink the purpose of education and to reorient curricular frameworks and pedagogical practice' (Ryan & Tilbury, 2013, p.1). Table 1.1 describes some

DOI: 10.1057/9781137548412.0005

key expectations of higher education and higher education's responses to them.

The hope that education would lead, in general rather than for a sub-set of sustainability-focused students, to 'environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making' (Agenda 21; United Nations Conference on Environment and Development, 1992, chapter 36, p.2) is proving difficult to realise, despite the worthy promises of those who have signed the Talloires Declaration. Ryan and Tilbury (2013, p.1), for example, claim, 'early pioneers in this area [ESD] have met with substantial obstacles'. Numerous articles, based on research in several countries, have identified the barriers that limit higher education's activities and successes in these areas or emphasise approaches necessary to overcome these barriers. For example, research by Cotton et al. (2009) noted several constraints on

**TABLE 1.1** *Society's expectations of higher education and higher education's responses*

Expectations of formal links between society's quest for sustainability and education have been with us for some time.

- The 1987 Brundtland Report suggested that 'the world's teachers ... have a crucial role to play' in helping to bring about 'the extensive social changes' needed for sustainable development (World Commission on Environment and Development, 1987, p.xiv).
- Agenda 21, agreed at the end of the 1992 United Nations Conference on Environment and Development, identified that 'Education is critical for promoting sustainable development and improving the capacity of the people to address environment and development issues ... It is critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making.' (United Nations Conference on Environment and Development, 1992, chapter 36, p.2).
- Nearly 500 universities worldwide have responded to these challenges. Two elements of the Talloires Declaration (University Leaders for a Sustainable Future, 2014) relate most directly to the teaching activities that occur within institutions. These are to 'Educate for Environmentally Responsible Citizenship' (establish programmes to produce expertise in environmental management, sustainable economic development, population and related fields to ensure that all university graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens) and to 'Foster Environmental Literacy For All' (create programmes to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate and professional students).

DOI: 10.1057/9781137548412.0005

the inclusion of sustainable development in higher education teaching, including perceptions of limited relevance, lack of leadership, competing agendas and dominant pedagogies inappropriate for 'education for sustainable development' outcomes. Others 'take offence at prescriptive constructions such as 'education for sustainable development' that reduce the conceptual space for self-determination, autonomy, and alternative ways of thinking' (Jickling & Wals, 2008, p.4). Some authors describe the complex (or 'wicked') nature of sustainability problems that make many students unwilling to actively engage or suggest that particular approaches, other than curricular change, may be necessary to achieve SE outcomes, such as co-curricular activities for students, specific teaching approaches ('interdisciplinary, experiential, holistic pedagogy' is promoted by Lugg [2007, p.108]) and integration of formal, informal and campus-based curricula (Hopkinson et al., 2008).

Other work emphasises the need for distinctive leadership to achieve the objectives of SE. Scott et al. (2012), for example, suggest that 'Higher education needs to transform itself if it is to assist societal transformation for a more sustainable future' and 'The key to progressing sustainability in HE is to identify and systematically build viable leadership capabilities, competencies, support systems and pathways' (Scott et al., 2012, p.3). These authors make several recommendations including 'Put in place the right incentives' And 'Engage the disengaged and the institution's senior leadership' (Scott et al., 2012, p.2), suggesting lack of progress in SE is at least in part due to the lack of suitable incentives to engage 'disengaged' academics. Similarly, Ralph and Stubbs state that 'Education and building the awareness of university staff of the importance of environmental sustainability to future generations was key to a successful strategy [for integrating environmental sustainability into universities]' suggesting perhaps that university teachers are currently unaware of the importance of environmental sustainability to future generations (Ralph & Stubbs, 2013).

My own work, with colleagues and with students at the University of Otago, in South Island, New Zealand, has added considerably to my own understanding of these complex issues. For several years now we have been developing research instruments designed to help us explore the worldviews of our students and how they change during their stay with us in higher education. We have integrated these instruments within a statistical longitudinal model of change that allows us to incorporate repeat measures from individual students over several

DOI: 10.1057/9781137548412.0005

years. We are deeply interested in change, but so far have not managed to demonstrate that it exists in the context of 'higher education for sustainability'. We do see substantial differences in worldview between different groups of students, but these differences do appear to be in place before students arrive at university (Shephard et al., 2014, 2015; Harraway et al., 2012). I have also researched the subjective viewpoints held by university teachers within my own institution about 'education for sustainability' and about their role within this enterprise. A colleague and I used Q methodology to research and to categorise the viewpoints that these university teachers held on these issues. We identified four groups of university teachers each with qualitatively different viewpoints. One group thought it their role to advocate for sustainability, while three groups thought otherwise (Shephard & Furnari, 2013). We suggested that those who do not accept advocacy for sustainability as a reasonable approach to university teaching might struggle to fully participate in ES/ESD. Their 'lacking suitable incentives', or being 'unaware of the importance of environmental sustainability to future generations' do not appear, to me, to be adequate rationales or descriptors for their limited involvement in SE. I emerged from this research with an enhanced appreciation of the essential quality of aspiration of higher education teachers. Whether or not individual university teachers embrace the sustainability mission, there is no reason to doubt their motives or passion for teaching, particularly within their disciplines. I find it difficult not to question whether the enterprises of SE, as applied to the higher education mission defined by, for example, Agenda 21, have so far adequately consulted higher education teachers, rather than simply expecting them, or requiring them, to change.

Perhaps, it is time to summarise the situation as I see it. From my perspective our planet, our species and our societies have questionable sustainability. The predicament of many other species on the planet is probably worse. Higher education is part of the problem and probably has the capacity to be part of the solution, at least in part through its teaching and learning activities. Many in higher education have promised much but higher education as a whole has probably delivered little. Some higher education practitioners think we should do much more and these colleagues tend to advocate for sustainability in their teaching and call for essential transformation of the higher education mission. Others, for whatever reason, tend not to advocate for sustainability in their teaching and tend not to call for this form of transformation. Meanwhile,

DOI: 10.1057/9781137548412.0005

the problems of the planet, of our species and of our societies appear to be getting worse.

The research described in the next two chapters of this book is based on some underpinning assumptions about change and the change processes most appropriate for higher education engagement with sustainability education. I acknowledge the need for change and respect the motives of those calling for change but I anticipate a different trajectory for change from that of some of my sustainability-focused colleagues. In particular, I accept and wish to work with the long-term resilience of higher education and its resistance to change and its commitment to its historical purpose and its own deep-seated values. Wholescale transformation of higher education seems to be unlikely in the short to medium term. My research in 2013 was not, therefore, totally open-minded. I was seeking a way forward that respected those who advocate for sustainability and those who do not.

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DOI: 10.1057/9781137548412.0005

# 2

# Educational Research to Find a Way Forward: Methods and Results

**Abstract**: *Describing the research undertaken by the author in 2013. It describes the methods employed in this research, the institutions visited and the results obtained. The chapter in particular addresses the discussions that the author had with university teachers and with those who support them in each university visited. It describes the constructivist-grounded theory research approach adopted and discusses the importance of coding in grounded theory research. The results provided are described as the constituent themes of a grounded theory for sustainability education, essentially an integrated set of conceptual hypotheses developed from empirical data. The themes emphasise the roles of three sections of university people: university teachers, academic developers and university administrators.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015. DOI: 10.1057/9781137548412.0006.



DOI: 10.1057/9781137548412.0006

## Introduction

Readers should emerge from Chapter 1 with some recognition that although the missions of 'education for sustainability' or of 'education for sustainable development' are complex and, to a degree, stalled, the planet, our species and our societies do need higher education to make progress. Progress depends on achieving some way for those who advocate for sustainability in higher education to find common ground with those who do not and hopefully to reach some sort of understanding whereby everybody involved contributes to a way forwards. Whereas some research is designed simply to understand the situation better, the research described here was designed to find a solution that was based on this understanding. In addition, the solution had to work within the demanding constraint that it could not depend on wholescale transformation of higher education, as this was unlikely to occur as part of it.

I have to accept that for many readers this paragraph simply will not make sense. For some the idea that research could be used to not just discover the problems and improve our understanding of them but also find a solution to them sounds rather unlikely. For others, the thought that such research could take place within one year and be undertaken by one person is likely to sound incredulous. In addition, it seems likely that many readers will by now realise that the research being described within this book is essentially qualitative, as much of the research described in the introductory sections was qualitative. Qualitative research works well for some but certainly doesn't for others. For many, qualitative research tends not to find answers to questions but to suggest other questions that haven't so far been thought about. As a scientist myself, I agree to a degree with all of these concerns. But wearing another hat, that of an educational researcher, and now persuaded (after working in this way nearly 20 years) by the necessity for and the power of qualitative research, I do have another perspective. This perspective is enhanced by several years of actively researching the broad field of enquiry of 'higher education for sustainability' and feeling strongly that our efforts must go beyond complaining about barriers to sustainability education, perhaps particularly when these barriers turn out to be our own colleagues. I emerge from that with a strong sense that my work could certainly do no harm to an already fragmented and dysfunctional field of enquiry and may, just possibly, do some good. So it is in that context that I hope that readers of this book unfamiliar with qualitative research and, in

DOI: 10.1057/9781137548412.0006

particular, with grounded theory will set aside their angst about these forms of research and engage with the book's contents, albeit with a sceptical bent. At the other end of the research spectrum will be determined qualitative researchers who doubt or dislike the particular approaches that I have adopted. Fair enough, I'm sure they can be criticised. And perhaps if you are minded to, you can do a better job than I have. Please do better research and find a better solution. I shall applaud your efforts if you do. I summarise in Table 2.1 what I did and how I did it.

Accordingly, the research described here sought to better understand the perspectives of university people as they grapple with often contradictory demands of massification, efficiency, research excellence, being the conscience of society, accountability, 'student as customer', and calls to address sustainability and a range of other competing or interacting agendas (such as, e.g., social justice) in their teaching. Rather than seek ways to force university teachers to do what they do not want to do, or cannot do, the ethos of this approach was to listen to the diversity of university colleagues' views of what they can do and want to do; and to try to make sense of these as parts of an emerging picture, where the researcher has the benefit of seeing all parts (whereas discussants may see only the parts in which they have a role). I travelled to six different universities, in five different countries, in three continents, in both hemispheres, to talk with university colleagues and gain insights into their perspectives on SE. It is important to emphasise that this research was not designed to compare institutions or countries and this was stressed in all interactions.

Choice of higher education institutions within which to explore university teachers' viewpoints on SE was both planned and opportunistic. My own university (University of Otago, New Zealand) was the first institution involved. Otago is part of the Matariki international partnership of mid-sized, traditionally focused, research-intensive universities (http://matarikinetwork.org/). I approached directors of higher education development units within several institutions in the partnership and arranged visits to the University of Western Australia (Perth, Australia), Uppsala University (Sweden) and Dartmouth College (NH. USA). Whilst in Perth, I was invited to visit Curtin University. Whilst in Scandinavia, I visited the University of Helsinki (Finland) to conduct research on another project. In all institutions I was invited to present one or more research seminars based on my recent involvement in SE research (Shephard & Furnari, 2013; Harraway et al., 2012; Shephard

DOI: 10.1057/9781137548412.0006

et al., 2014) during which I invited attendees to be interviewed or to take part in less formal group discussions. In some universities news of my visit and presentation was widely circulated and I prearranged some interviews.

The results described in this chapter are based on interviews and discussions with university teachers (including academic developers, described in some settings as instructional designers) from these institutions and with some university personnel who support university teachers to teach through administration and policymaking, including non-academic sustainability-focused personnel. Most often these formal interviews were with university teachers who volunteered because they were committed to the concepts of SE, but some teachers with very different perspectives did also volunteer. Some discussions were less formal and occurred in a range of situations, including group discussions following research seminars. In some cases these discussions were with university teachers less committed to SE, confused about its broader motives and underpinning principles, or positively 'against' some forms of it. Formal interviews were semi-structured, undertaken by me and aimed to draw out personal perspectives on SE, on departmental, institutional and professional body or disciplinary perspectives about SE and on personal and institutional strategies and outcomes. In all formal interviews, I kept notes, with the interviewee's informed consent, and these ended with me reading back key points to the interviewee to agree or to clarify. Some group discussions were too hectic for note taking, but I attempted to reiterate the major points made by the discussants to agree and clarify the points being made, to receive informed consent for these points of view to guide my research and understanding; and notes were made later. Some discussions were very informal and could best be described as semi-structured conversations. Overall, approximately 105 university teachers and related personnel were involved in interviews, group discussions and semi-structured conversations.

I had initially planned to analyse this wealth of data using a qualitative approach known as 'inductive analysis', essentially a process of exploring common themes that arise within the data. But, to be honest, I struggled with the diversity of the data and of the context within which this data was being collected. In particular, I was collecting the data over the course of a year, and inevitably was thinking about the data as I collected it. Another feature of the data presented itself to me at an early stage in the year. After each encounter I reflected on my notes and

DOI: 10.1057/9781137548412.0006

deliberately or otherwise considered what contribution it made to my broad understanding of 'higher education for sustainability'. Planned or otherwise, I found myself undertaking what education researchers call a 'constant comparative approach' to data analysis, one of the key elements of grounded theory method. So, my research approach from early on became grounded theory as described in Table 2.1. The grounded theory

**TABLE 2.1** *Grounded theory*

The methodology employed here was the constructivist grounded theory approach (Charmaz, 2006) where the viewpoints and stated experiences of the discussants and the researcher are accounted for as data and interpreted. In common with all grounded theory approaches (Glaser & Strauss, 1967; Strauss & Corbin, 1990) the research attempts the systematic discovery of theory from research data and has the goal of generating concepts or theories that explain the way that people manage to or attempt to resolve their central concerns, in this case with respect to SE. And, as a constructivist approach, data are co-constructed by researcher and discussants and shaded by the researcher's personal perspectives, experiences, values and geographical settings.

In this approach the researcher's developing understanding is essentially reflexive in nature, incorporating the researcher's own background, situation and development; how those influence his approach to the subject at hand; and operating reflectively and iteratively as new data became available (more formally described as the constant comparative approach, Corbin & Strauss, 2008). This was particularly important and relevant as data collection occurred over several months in 2013. The researcher made use of periodic opportunities to share his developing understanding with colleagues in each institution to inform the coding process and to refine the approach to data collection. This was necessary as one rationale for the grounded theory approach is that data collection continues until thematic saturation is achieved. Thematic saturation is possible only when the domain space for the research is defined and this became achievable only using an iterative and reflective approach in the research.

As one example of the constant comparative approach in operation, the coding system used to analyse the data was refined three times in this study, each in response to a particular insight provided by one research opportunity. Some insights were sufficiently troublesome to the researcher to cause him to reflect again on all earlier interviews and to recode their key elements. Another keystone of the grounded theory approach requires the researcher to reflect on the circumstances in which he came to his conclusions and to share these reflections with readers to open meaningful interpretations of the work. One element of this is particularly important here. By using this approach the outcomes of the research are collectively and progressively developed as the work continues. Every facet of insight gained by the researcher is incorporated into his developing understanding, and then, sometimes consciously and sometimes no doubt unconsciously, incorporated within research presentations and group discussions. The notion of researcher as dispassionate and unaffected within and by the research would not be possible using this research approach. To mark this reality, all situations, interviews, conversations and group discussions are described as discussions, and interviewees are referred to as discussants.

DOI: 10.1057/9781137548412.0006

approach encourages a researcher to not just collect data so as to analyse trends within it, but to incorporate this data within a developing theoretical framework that helps to explain the data and how it is generated. The theory is generated from the data and is grounded within it.

Not all grounded theory research ends with a model of change, although many grounded theories have sufficient explanatory power that they are difficult not to identify with change or potential change. But during 2013, I was also developing ideas and reading about critical thinking and critical reflection. I was struck by my own limited ability to think critically about much of my work. Even though I had read much about critical thinking and thought that by knowing about it I could do it, I was developing an increased awareness of my own limited ability. I found the work of de Bono (1999) to be helpful in converting my theoretical knowledge into practical ability. So I need to note here that this research was also an exercise in thinking. I benefited greatly from the Six Thinking Hats method of de Bono and incorporated these approaches into the reflective research process, particularly mindful that the outcomes of intelligent exploratory research should go beyond simple description of 'what is'. As explained by de Bono, 'western thinking is concerned with "what is" which is determined by analysis, judgement and argument. This is a fine and useful system. But there is another whole aspect of thinking that is concerned with "what can be", which involves constructive thinking, creative thinking and "designing a way forward" ' (de Bono, 1999, p.2). Although not described previously to my knowledge, an intuitive synergy exists between the grounded theory research approach and systematic thinking models such as de Bono's.

## Results

Quantitative researchers often find it amusing that much qualitative analysis involves converting hard-won qualitative concepts into codes involving numbers that can be manipulated like 'proper' data. Coding using the grounded theory research approach requires a framework, or taxonomy, in which coding elements can be situated. The framework should ideally arise spontaneously from within the data but perhaps inevitably may also be structured around the literature or on what personal experience might anticipate in the data. In this project, coding arose from within the data but generally referenced issues extant in the

DOI: 10.1057/9781137548412.0006

literature also. Coding initially explored the dichotomy of barriers to SE and solutions to these barriers, as these issues dominated earlier discussions. Several discussants, for example, identified the ephemeral and isolated nature of institutional initiatives around SE as a barrier to institutional change. It soon became apparent, however, that some discussions were enlightening to the researcher but difficult to code within this dichotomy. Some discussants, for example, and certainly not in all institutions, described their almost covert existence as advocates for sustainability in higher education. They felt unable to fully identify their passion with colleagues, or with students, for fear of ridicule or reprisal. A range of defence strategies were described that enabled these individuals to coexist with others in higher education. Other discussants, for example, identified with the broad mission of SE, but felt personally successful if even a tiny proportion of their students chose to adopt sustainability-oriented life choices. But to code these insights as barriers seems to trivialise their perspectives and this forced the researcher to re-examine the coding system used to analyse the data as it was emerging. Another framework for coding was possible from the categorisation and group descriptions available from prior research (Shephard & Furnari, 2013). To the researchers' surprise it was generally easy to identify (albeit informally), in each individual, combinations of opinions that were highly correlated to the four groups identified by Shephard and Furnari (2013). 'Advocates for sustainability' self-identified, but individuals who potentially represented other groups were also readily (although always informally) easily identifiable. The viewpoints of liberal idealists, inter-disciplinarians and anthropocentric independents all existed within the population of university people involved in this research. Academic developers who became involved in these discussions also identified the categories as highly familiar. But simply categorising discussants as having particular viewpoints, while possible, did not further the researcher's understanding of where interactions occurred or were possible. Similarly, a coding framework that identified role-related perspectives was attempted but proved to be of limited utility. For example, discussions with academic administrators charged with the responsibility to develop institutional policies around SE focused on a framework of what is not possible now, what is possible now, what might be possible in the future and what will probably never be. But this framework proved difficult to apply to data from university teachers themselves. In reality, as the data was collected, analysed and

DOI: 10.1057/9781137548412.0006

incorporated into a developing theory, all of these coding frameworks were used to degrees.

In broad thematic, but non-quantitative, terms, my research yielded the following.

## Barriers to ES/ESD

Much of my early data simply documented perceptions of barriers. Nearly everybody with a specific interest in sustainability whom I interviewed or who came to my presentations came with stories of how they were stopped from doing what they'd like to do by barriers. There was not enough money, or people were too busy, or the department wasn't sufficiently flexible, and so on. I don't think that I discovered anything new in this category, but my research reinforces that of others to suggest that university people interested in ES/ESD no doubt experience multiple barriers to ES/ESD. Most interestingly for me the realisation was that these barrier perspectives were essentially casting colleagues, rather than processes, as barriers. It wasn't just lack of money, or inappropriate systems. These who do not advocate for sustainability (because they don't want to, or feel they cannot, or have never considered why they should, or conceive the issues in different ways) have become barriers themselves.

## Focusing on what others should be doing

I became increasingly aware during the first part of the year of the extent to which calls for change, made primarily by advocates for sustainability, were essentially calls for others to change. Barrier discourses admittedly confused this analysis initially, as many claimed that they would change themselves if barriers didn't stop them. Nevertheless, barriers aside, very few identified changes that they needed to make themselves to advance the causes of ES/ESD. Those who had the greatest stake in ES/ESD, perhaps particularly those who published within this field of enquiry, made the greatest claims for the kinds of transformation that the rest of higher education would need to accomplish. Perhaps all movements in higher education that call for transformation inevitably focus on what others should be doing but this domination of 'the other' was more pronounced than I have encountered before; (e.g., I do find myself encouraging my colleagues to be more student-centred in their teaching than perhaps they are, but generally I accept my own part in this

DOI: 10.1057/9781137548412.0006

process and my own need to explore student-centredness as I support my colleagues to do so).

## Finding hidden curricular

Hidden curricula are most obvious when colleagues tell me that other colleagues mock them if they openly talk about or include sustainability issues in their teaching (unless of course the teaching is in a discipline that is itself about sustainability); so they include sustainability issues covertly. Hidden curricula are much less obvious when what is hidden seems normal, straightforward or acceptable to society. Teaching in this way probably and simply reinforces what is generally acceptable, as indeed 'unsustainability' generally is. Hidden curricular once interpreted and understood in this way occur everywhere I looked, or didn't look, as I found them impossible to avoid. The general assumption 'that my teaching has nothing to do with sustainability' can and perhaps should be reinterpreted as 'my teaching assumes that the context of my teaching, and of my students' learning, has nothing to do with the content that I am teaching and what students are learning'. During my year researching I became acutely aware of our ability to turn a blind eye to almost anything within the context of particular disciplinary knowledge. By and large, things hidden relate to affective outcomes such as values and attitudes and either intended or unintended influence.

## Teaching critical thinking

If I had a penny for every time that somebody somewhere in the world told me how important it was to them that their teaching encourages their students to think critically, I would have many pennies. Not enough to retire on, but certainly too many to carry around with me on my travels. Critical thinking appears to me to be used by many of my teaching colleagues worldwide almost as a natural expectation of quality teaching. During the year I became determined to better understand my own critical thinking abilities and perhaps to hone my skills at estimating the critical thinking ability of those with whom I conversed. I'm not sure now whether it is fair to assume that university teachers everywhere can think critically or even know what it is. Indeed I have wondered whether being able to think critically, or to reflect critically, can actually be an impediment to career advancement in higher education.

DOI: 10.1057/9781137548412.0006

## The pivotal position of academic, or educational, developers

Not every university I visited identifies the role of academic or educational developer, certainly in the way that I do. In some parts of the world these roles are subsumed into instructional design. Sometimes these roles are essentially technical roles, perhaps based on the assumption that there are certain skills involved in teaching that are too complicated or too trivial to bother academic staff with and that can be accomplished better in a technical department. Sometimes the roles are essentially teaching roles. Some people have the skills, for example, of knowing how to teach, that can be taught to university teachers, something akin to a schoolteacher teaching children how to read and write. I prefer the term educational development and as an educational developer myself my version of what is involved is different. For me educational development is a field of enquiry within the discipline of education, and those involved in this field are essentially educational researchers. I may have been teaching in higher education for 40 years but I don't necessarily know how to do it sufficiently well yet to instruct or train others how to do it. I'm probably quite good at supporting new university teachers as they learn to do it themselves, generally using research-led approaches. In my travels I met every form of academic or educational developer including some like me. Some of them have pivotal roles in supporting change in higher education and in supporting greater understanding of educational theory.

## Policymakers, administrators and academic leaders

University administrators were amongst the most willing to engage with me during my visits, particularly those with a sustainability bent. What struck me most about them and their roles was the extent to which they were connected to and within all facets of each university. I also identified a degree of power that comes with this connectedness and I was not entirely convinced by claims that they were the pawns of academic managers.

## Disciplinarity and multidisciplinarity

I was struck by the contrasts that I saw between those who worked within a discipline in a discipline-specific way and those who worked within their disciplines in a multidisciplinary way. Others may interpret subtle

DOI: 10.1057/9781137548412.0006

differences between multidisciplinary and interdisciplinary approaches but for me it was apparent that many with an interest in sustainability, and particularly in education for sustainability, thought, learned and, I daresay, taught in a manner that integrated expectations of learning from more than one subject area into much of what they did and talked about.

## Educational theory

Later in this book readers will get to learn about my own background and introduction to educational theory, and in some respects this knowledge is relevant to this theme: how I describe it and perhaps how you might interpret it. From my position at present it is apparent that some of my university teaching colleagues around the world do not have a background in educational theory or any particular interest in it. For them, educational theory belongs in the discipline of education. Many of those who find themselves learning about learning and teaching in professional development classes, perhaps in preparation for them becoming university teachers, ask to be spared from educational theory. Many of these claim that the tips and tools, nuts and bolts, of teaching are all that they require to teach in higher education. The problem is worse – I suspect – and I think I discovered – thematically speaking – in those who wish to change higher education. Many advocates for sustainability, for example, whom I encountered in my research year had developed personal theories of how to teach sustainability, or of how others should teach sustainability and saw no conflict between these theories and those of the discipline of education. Ideas about teaching values, attitudes and behaviours arose, interspersed with action, democracy and competence and often without any consideration of similar concepts within traditional education domains. (As I write this I wonder about my own grounded theory, soon to be revealed, and wonder about the extent to which it is grounded in educational theory. I also wonder about so much of the research published within the field of enquiry of ES/ESD; did these researchers and authors engage with educational theory before they attempted to change higher education with their own theories?)

## Community engagement

With respect to university teachers, some do and some don't, and those who do generally do it because they think that they ought to, rather than

DOI: 10.1057/9781137548412.0006

because their university expects them to. I developed a strong sense that community engagement was either a product of strong commitment to the traditional scholarly ideals of higher education, reflected in concepts like 'university teachers as critic and conscience of society', or a product of an interest in sustainability. Many advocates for sustainability had roles and interests that incorporated community engagement. In a chicken-and-egg sense I cannot tell which tends to come first. Similarly, some university teachers find ways for their students to be community engaged and these mostly appreciate the benefits to student learning that appear to be linked to community engagement. Perhaps coincidentally, there were strong overlaps between those who advocate for sustainability, those who work closely with or within their communities, those who encourage their students to engage in these ways and those who think, and likely teach, with multidisciplinary perspectives.

## Role models

I encountered some wonderful role models for education for sustainable development. They arrived at work on bicycles often in woolly jumpers. They told me how they integrate sustainability concepts within their teaching and appeared mindful of sustainability principles in everything that they talk about and did while I was with them. But I also encountered other role models for other important societal values. These people may drive big cars and dress in suits: but some of them were very active within the wider communities; some of them prided themselves on their particular style of teaching and of their perceptions of the ways that they encourage their students to think as they learned; some of them were true multidisciplinary scholars who made every effort to link otherwise narrow disciplinary discourse to the wider world. These folk did not, necessarily, advocate for sustainability.

## Putting the data together

Perhaps inevitably, what initially emerged from this analysis was simply a familiar description of higher education as it is. With respect to SE the combination of the themes described would be recognisable to all in the field, recounting a higher education effectively no different from Bosselmann's description 'The entire sustainability debate seems to run in a circle of systemic non-competence' (Bosselmann, 2001, p.168). The highly varied understanding about SE extant in higher education became

DOI: 10.1057/9781137548412.0006

increasingly obvious as this research progressed. Some university teachers are passionate about its themes, others ignorant of them. Some are interested, some profoundly uninterested or intentionally uninvolved. For many, aspects of SE were interpreted as values education (as interpreted previously by Shephard, 2008, and by Jickling and Wals, 2008) and for some of these, the general nature of values education, its tools and objectives and even the approaches used to evaluate its development are an intrusion into the personal freedom of students. For some others, this interpretation of values education appears to be central to their understanding of what higher education is for. In all institutions, some aspects of SE were functioning in a disciplinary context, but not demonstrably reaching all students (and indeed, very little work internationally focuses on assessing or evaluating the sustainability attributes of students or graduates in the general student body). It would be difficult to look at this data and not identify uncertainty about the future of the ES/ESD missions in higher education and limited commitment by higher education to the nature of change articulated by, for example, Agenda 21.

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DOI: 10.1057/9781137548412.0006

# 3

# A Grounded Theory about ES/ESD in Higher Education

**Abstract**: *Developing a grounded theory of higher education for sustainability. The chapter starts with a commentary on some of the internal contradictions in the domains of sustainability education with respect to student independence and academic freedom. The chapter discusses the implications of each of the themes, or conceptual hypotheses, that have arisen in this research and in particular focuses on how these themes, or hypotheses, cannot be fully rationalised on their own but need to be seen as an integrated whole (similar in some ways to the idea of parts of the jigsaw puzzle fitting together to create a picture that individual parts cannot reveal). The chapter ends by anticipating and discussing some of the criticisms that this grounded theory will attract.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015. DOI: 10.1057/9781137548412.0007.



DOI: 10.1057/9781137548412.0007

## Introduction

Partway through my research year, probably as I was getting more comfortable with my research approach, and certainly as I was practising systematic thinking processes, I realised that a reasonable metaphor for the research that I was doing was the jigsaw puzzle. I know this doesn't sound particularly academic, and I was advised so by one editor of a very respectable academic higher education journal, but for the diversity of likely readers of this book I think it's a helpful metaphor. So consider many parts of a jigsaw puzzle, all displayed in front of you, and then think about trying to connect them without the benefit of a guiding picture. And then consider that throughout the research process the jigsaw pieces change. It may be possible to fit them all together in a particular way and to create a picture that makes sense in one week, and then the next week one of the parts changes and the parts no longer fit together to create a picture. The constant comparative approach, which yields a grounded theory, is just like that. Now I must add other aspects of the grounded theory approaches: that of identifying or generating some core or particularly important variables (essentially fixing some parts of the puzzle so that other parts can be built around them), and that of selective use of the data (essentially throwing away some of the parts). At the end of Chapter 2, what had emerged was essentially a picture of higher education recognisable to everyone in higher education with an interest in ES/ESD. It was not a useful picture and certainly not one that gave hope for a better future for higher education.

What developed initially slowly and iteratively and only after most of the data was collected was a realisation that a different picture, or model, or theory, could be produced from the same data, but only with selective use of the data, or more technically, in grounded theory terminology, reduction of the data set and generation of core variables. The coding system that gave identity to each part of the puzzle, or core themes of the theory, was based on particular commitments, or passions, of discussants for their own contribution to higher education, with respect to sustainability. Perspectives that emphasised personal passions within higher education were retained and coded as belonging to particular sections of the developing picture, representing areas of responsibility or potential action. These sections were university teachers, academic developers and university administrators and policymakers.

DOI: 10.1057/9781137548412.0007

For me, personally, elimination of certain aspects of the data set and the realisation that there were, actually, two key core variables, occurred at the same time, in Helsinki, in a flash of group-inspired creativity. I was engaged in deep discussion with colleagues whom mostly I did not know well, but who held the same deep convictions as I do about the potential of higher education with respect to sustainability. Consciously or otherwise, the following emerged:

- Two types of data were set aside. Barrier perspectives, with respect to SE, were coded as such and put to one side. Passions that sought to solve the problems of SE but that focused on what others could or should do, rather than on what discussants would do, were similarly coded and set aside. Things set aside presumably contribute to another picture, model or theory.
- Two core variables were identified and articulated at the centre of the developing theory. The first was that hidden curricula are everywhere in higher education. Even the most mundane list of facts presented by the most transparent communicator brings with it a wealth of unwritten and unspoken assumptions and messages, not necessarily known, or understood, by the presenter or the receiver. Communication in such circumstances seems fraught with challenges. The second is that critical thinking is the surest way to uncover hidden meanings in opaque communication. Critical thinkers challenge the spoken and unspoken assumptions than underpin communications and reveal links between teachers, the wider world, and what is being taught. Critically thinking students will be aware of hidden curricula and will be prepared to interpret their teaching, and teachers, accordingly.

Like a jigsaw puzzle being built by fitting parts together by trial and error, without the benefit of the picture on 'the front of the box', a 'new' picture slowly emerged. This picture, or grounded theory, operated with all higher education practitioners essentially doing what they already do, and have a passion to do, but perhaps doing it better than they do at present. Advocates for sustainability should advocate, openly. Those who do not wish to advocate for sustainability should not. Barrier perspectives and insights that focus on what others should do are not welcome here. Much of what higher education says it does, such as evaluating impact and promoting community engagement and multidisciplinarity, need to be done, but better than occurs at present. And our thinking

DOI: 10.1057/9781137548412.0007

needs to hinge on the dynamic between hidden meaning and criticality. Dramatic transformation is neither necessary nor likely. In this model, or grounded theory, university teaching becomes emancipatory, whether mediated by sustainability-focused teachers or otherwise.

I admit that visualising this grounded theory as a functional picture of higher education is not easy. Most theories of higher education are not packaged as jigsaw puzzles. Most advocates for higher education for sustainability suggest that we should be teaching sustainability in higher education, by greening the curriculum or having compulsory sustainability courses for students and in general by redesigning the curriculum. I seem to be saying the opposite! For goodness's sake, don't encourage university teachers who do not themselves live sustainably focused lifestyles teach sustainability to our students! And much teaching in higher education can still be addressed towards sustainability without ever mentioning sustainability. How could this theory possibly work? And in what ways is it theory for education for sustainability? I accept that it would be so much easier to think of higher education as a process that taught all students the basics of sustainability and in the process somehow conveyed to them sustainability values such that we could anticipate that when students left us they would behave in ways that we do not and contribute to sustainability in ways that we are not. In some senses, particularly from a sustainability perspective, that picture makes sense. But it does not make sense from a higher education perspective, no matter how well packaged in terms of values education, democratic values, societal expectations, normative education or competencies. My new picture, albeit likely fanciful to readers at present, makes sense to me. I see before me empowered, freethinking, independent learners able to discern for themselves the hidden messages within the teaching that they experience in higher education. They will be able to see and understand the passion and perhaps the hypocrisy, or naivety, of lecturers who advocate the sustainability but who are themselves not making sustainably based choices in life. They will be able to see the absurdity of teachers who claim to be aloof from concerns about sustainability and yet continue to teach traditional business studies, social sciences, or to some degree, physics, as if the knowledge within these disciplines was in some ways values-free and independent from the human world around them. My students will also be able to question their own ability to make sense of the diversity of information in front of them and they will struggle. My picture of higher education is of a system designed

DOI: 10.1057/9781137548412.0007

to help students to achieve this enlightened state of struggling. And it hinges on higher education living up to some of its existing promises, not promising to transform to something that I suspect it's quite incapable of becoming. I think that this theory is plausible because it enables all in higher education to do exactly what they say they want to do, and say that they are capable of doing. It does not set one group of academics against another. Everyone has a role in my grounded theory and a role that each appreciates.

Substantive results from this research, described as constituent parts of the grounded theory, or jigsaw puzzle, are given in column 1 of Table 3.1

**TABLE 3.1** *Results described as parts of a jigsaw puzzle*

| Results as parts of the puzzle | Additional notes |
|---|---|
| 1 Higher education curricula are multifaceted and multilayered. Not everything is written into clearly defined learning objectives. | Many university teachers are aware of their potential effect on students' values. Some are quite open about these and may regard them as necessary elements of disciplinary teaching. Others develop strong protective mechanisms that limit the visibility of their personal values and academic passions. But some university teachers appear less aware of the possible interaction between their personal values, what and how they teach, the power relationships in higher education and what students learn. It seems unlikely that hidden curricula could ever be made formally transparent. |
| 2 Many university teachers want to encourage, or teach, their students to be critical thinkers. | Critical thinking is an important learning outcome for all students and central to the generally accepted ethos of higher education. There seems little doubt that university teachers expect that higher education experiences will transform their students. Higher education may need to be more specific about what transformations occur and should be able to demonstrate that this is happening. Most literature on transformational learning focuses on critical thinking but here this expression is used as an umbrella term to encompass a range of thinking abilities. But critical thinking also reveals hidden curricula and other links between teachers and what is taught. Critically thinking students will be aware and will be prepared to interpret their teaching, and teachers, accordingly. |

*Continued*

DOI: 10.1057/9781137548412.0007

**TABLE 3.1** *Continued*

| Results as parts of the puzzle | Additional notes |
|---|---|
| 3 Academic developers want to be part of the solution, not part of the problem. | Academic developers may be important in supporting university teachers to do what they want to do, but better than many do at present. Some academic developers, for example, can teach university teachers how to develop critical thinking skills in their students. |
| 4 University administrators and policymakers in higher education want to focus on achieving what is demonstrably possible to achieve, rather than on nebulous and unmeasured promises. | These colleagues also show strong commitment to the evaluation of impact to promote engagement with any change process. Evaluation of the extent to which students are transformed by their higher education experiences will depend on university administrators and policymakers finding ways to do it and helping it happen. |
| 5 Some university teachers are committed to multidisciplinary teaching. | Multidisciplinary teaching empowers students and teachers to understand other perspectives and this helps them to understand the assumptions that underpin each. But committed university teachers may need active support from university administrators and policymakers to enable more of it to happen. |
| 6 Educational theory/ educational philosophy can rationalise how and what we teach in higher education to avoid inappropriate 'values education'. | Some elements of educational theory may be universally beneficial to enable university teachers to do what they want to do, but better than they do at present. In particular university teachers need to better understand the nature of cognitive and affective learning. Academic developers may be able to help university teachers to better understand what and how they teach. |
| 7 Some university teachers suggest that higher education, particularly for the professions, works better for society when university teachers and students have practical experience outside of academia. | There is increasing awareness that community engagement provides high-impact learning opportunities for students. This may also have particular relevance to SE as sustainability and other values-based societal needs may be more visible outside of academia than within it. Committed university teachers may need active support from university administrators and policymakers to facilitate community engagement. |
| 8 Sometimes everything comes together so that disciplinary values, personal values and the societal expectations of higher education converge to produce happy academics. | While these colleagues may make exceptional role models for SE, their circumstances may not be more generalisable in higher education. Higher education needs to celebrate other academic contributions by promoting other role models that focus on critical thinking, multidisciplinary teaching and community engagement. |

DOI: 10.1057/9781137548412.0007

together with brief notes (in column 2) to describe how these parts of the puzzle might fit together.

The emerging model or picture does not guarantee that higher education will succeed to, or even try to, impart in its students 'environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making' (as suggested by Agenda 21). Indeed, the essence of the theory is that higher education as an entity should not set out to require these outcomes, although higher education will be interested in the outcomes that its efforts do generate. But it does suggest that, as an outcome, students could, perhaps will, develop the capacity to make up their own minds about their contribution to environmental, cultural and economic sustainability, and perhaps institutions will make this outcome a priority. The picture suggests that, at least, students will be empowered to judge and to select if they wish, a sustainable option for their lives beyond the university. Perhaps most importantly, the picture represents something that all in higher education could, maybe even would, work towards.

The process of assembling the parts into a whole is left to the next section of this chapter.

## Assembling the parts: a discussion

There are some internal contradictions within the domains of SE. Universities, as institutions, are traditionally charged with helping young people to critique the norms and values of society, not to simply accept them or to reject them with the guidance of their university teachers. Yet many institutions and individual university teachers have agreed to educate *for* sustainability, or *for* sustainable development, and to overtly or covertly encourage their students to contribute to a particular societal change (do read the Talloires Declaration if you doubt this, AULSF, 2015). Universities are recognised worldwide as guardians of academic freedom, yet some seek to impose particular teaching approaches and societal values on their academic staff. Even so, many university teachers seem uncommitted to these impositions and some even unaware of what their institutions have promised on their behalf (see, e.g., Dawe et al., 2005).

What has emerged is a grounded theory of how SE exists at present in higher education and of how it might develop whilst maintaining the

DOI: 10.1057/9781137548412.0007

liberal traditions of higher education. Central to these traditions are two complex aims. The first, focused on minimising the prescription of what university teachers should or should not do, is a commitment to respecting, even encouraging, academic freedom of university teachers to decide what to teach and how to teach it. The second, focused on supporting the development of criticality in students, is that higher education should be liberating for students in that it should help them to find their own place in society, not force them into some form of predesigned pattern or mould. Naturally both aims are open to interpretation and fully liberalised could be mutually exclusive. Passionate advocates for sustainability could attempt to limit the potential outcomes for students, but so could passionate teachers with other persuasions, and certainly the prescribed values of some professions make their place within these liberal ideals challenging (Shephard, 2008). From its inception, higher education has grappled with these challenges and will need to maintain interest in this on-going debate as it addresses calls for SE.

Table 3.1 represents, in effect, an integrated set of conceptual hypotheses developed from empirical data (as described by Glaser, 1998). One feature of this integrated hypothetical model, which makes the metaphor of the jigsaw particularly appealing, is that some parts of the puzzle did not make sense (with respect to SE) in isolation and could be fitted only when another compatible part emerged. An important juxtaposition (of parts 1 and 2) is described in the following section in depth to illustrate this point, and it is particularly important as the combination of these two parts started the process whereby other parts found places in the picture. Parts are described as numbers referred to in column 1 of Table 3.1.

## Parts 1 and 2 fit together

Some university teachers (perhaps those most readily identified as 'advocates for sustainability') emphasised the inevitability of multifaceted, multilayered curricula in higher education, elements of which may be only partially recorded and therefore somewhat hidden. For some this was because they personally felt unable to be totally open with their colleagues about what and how they taught. Elements of sustainability were present in their learner-support activities, but not necessarily apparent in their written curricula or listed intended outcomes (as also described by Cotton et al., 2009; Shephard, 2010;

DOI: 10.1057/9781137548412.0007

Winter & Cotton, 2012). For some others, the presence of hidden curricula was alternatively interpreted as an inevitable consequence of 'who' university teachers were, teaching openly and honestly, and represented the view that teaching can never be values-free (as described, e,g., by Margolis and Romero, 1998). But apparent in this research were also university teachers for whom these matters were simply not an issue. It would not be fair to say that these teachers denied the presence of hidden curricula, but it may be reasonable to suggest that they were not aware of or interested in what may or may not be hidden in conventional higher education curricula. As Bowers suggests, 'the language of the curriculum too often carries forward the earlier deep cultural assumptions and analogs that provided conceptual direction to the industrial/consumer/individualistic lifestyle that is rapidly degrading the self-renewing capacity of natural systems' (Bowers, 2010, p.54). This interpretation identifies hidden curricula essentially as a threat to sustainability as, on balance across higher education, they perpetuate consumer-focused lifestyles.

Almost all university teachers involved in this research identified a passion for critical thinking, and for teaching, encouraging or creating this skill, or cognitive ability, to or in their students. In a general sense the passion of these university teachers was similar to that identified in previous research. Shephard and Furnari (2013) found that all groups of university teachers (identified in research in one institution) agreed strongly that university education should be a transformative experience that develops professionals who are also contributing members of society, and that academic staff in higher education have a unique role to fulfil in preparing educated citizens who can find solutions to the pressing problems of the day. It seems unlikely, to this researcher, that all involved would have the same conceptions of transformational learning, or of critical thinking, but highly likely that they would share some central ideas within these broad concepts of learners able to understand and challenge the assumptions inherent to disciplinary content and to particular styles of teaching. Whether the educational basis for this transformation is that described by Mezirow (2000), or something else (e.g., the thinking approaches model described by de Bono (1999) and used within this research) is not as important here as an acceptance that most university teachers expect their teaching to be transformative, enlightening and liberating for their students.

DOI: 10.1057/9781137548412.0007

The interconnection between 'hidden curricula' and 'critical thinking as a general learning outcome' arose, at least in the mind of the researcher, most powerfully in a discussion in Helsinki. Hidden curricula, whether hiding sustainability messages or other codes, the personal attitudes of teachers or the particular value sets of institutions, become transparent to critically thinking students. The essence of critical thinking is to fully discover the assumptions inherent to the issues being explored. This attribute has long been respected in higher education as indicative of graduateness. It is also recognised within SE as an important outcome to, for example, enable learners to understand the unsustainability of consumer-based lifestyles (see, e.g., Thomas, 2010). But the key that holds parts 1 and 2 together is that critical thinking also empowers students to decode the deliberate or unintended companion or hidden meanings associated with knowledge in higher education and to identify the interplay between teacher and what is being taught. The importance of critical thinking and related abilities, variously described as criticality, to higher education have been emphasised on many previous occasions, in a range of contexts. Mezirow asserts that transformative learning, incorporating critical assessment of assumptions, develops autonomous thinking (Mezirow, 2000). Foucault, in exploring the links between power and knowledge, emphasised the need for critical analysis to uncover power relations in all discourse (McHoul & Grace, 1993). Barnett (1997) identifies the main purpose of higher education as the enabling of 'critical being'. Mann (2008, p.139) asserts that 'the prime purpose of undertaking a degree becomes inquiry into the world'. And Cardinal John Newman (1907) characterised the university as an institution for independent intellectual self-empowerment. Above all, students in higher education need this ability, attribute or disposition to fully understand what they are being taught in higher education.

The combination of these two parts of the jigsaw was liberating for this researcher, possibly for the discussants at the time, and potentially will be for higher education. These two parts to the jigsaw puzzle fitted perfectly. Indeed they snapped together as if drawn by magnets. Those university teachers who do not wish to advocate for sustainability generally do want to teach critical thinking and are confident that, for the most part, critical thinking also empowers disciplinary engagement. Those who do wish to advocate for sustainability are equally confident that unsustainability messages are inherent to higher education teaching and need to be exposed and analysed. *From this latter perspective*, critical

DOI: 10.1057/9781137548412.0007

thinking may enable students to better understand the unsustainability of conventional university teaching and the consumer-oriented hidden messages in teaching and language use; and empower students to make active and informed choices. Not only do these two parts fit together perfectly, both address the passions of those who describe them, rather than impose expectations of action on others, and they enable other parts to find places in the developing picture.

## Part 3 fits with several others

*Part 2 and Part 3*: The part of the puzzle that was critical thinking also fitted well with another, discovered early on, but free floating until a true home for it was identified. Academic developers included advocates for sustainability and those with different viewpoints, but (in this research) united around a passion for being part of the solution, not part of the problem. As a group they were aware of the difficulties that higher education has making sense of SE, possibly more so than many more conventional university teachers, but confused about their possible contribution. The parts of 'critical thinking' and 'academic developers' also snapped shut as if with a will of their own. Many academic developers understand critical thinking and how to encourage university teachers to develop this in their students. Many, perhaps most, university teachers who express a passion for teaching critical thinking appear (to this researcher) to have only a vague idea about what it is and how to culture and recognise it in their students. These people need the help of academic developers to do what they have a passion to do. These two parts fit together and the combination makes a powerful contribution to the developing picture of what 'higher' education could, perhaps should, be.

*Parts 6 and Part 3*: It seems possible that the changes promoted by actions described will change university teachers' perspectives on what and how they teach. For many educational experts, it seems obvious that those who 'advocate for sustainability' are engaged in some form of values education. Perhaps many other forms and styles of teaching also influence the values of students, but operate without the tacit knowledge of the teachers involved. Different educational models have emerged to help rationalise the extent to which values education underpins SE. These include the 'democratic approach' to improving students' 'action competence' developed particularly in Denmark (Jensen & Schnack,

DOI: 10.1057/9781137548412.0007

2006) and the 'pluralistic' approach perhaps particularly promoted in Sweden (Kronlid & Österbergh, 2011). It could be argued that both represent particular interpretations of the Krathwohl and Bloom affective domain where values, attitudes and behaviours are identified as learning outcomes in a hierarchy (Krathwohl et al., 1964), enabling teachers to limit how high in the hierarchy their teaching extends. Shephard (2008) argues that most university teachers are willing to encourage their students to listen, to respond and perhaps to start the process of valuing (the lowest levels of the affective hierarchy) but only some are prepared to, consciously, teach higher up the hierarchy (leading to internalisation of the value in question). In a more general sense, Schwieler and Ekecrantz (2011) researched how the normative values of university teachers ('about how things 'ought to be', p.60) might influence their approach to teaching. These researchers identified a dichotomy of normative perspectives: moralistic versus non-moralistic views on teaching. Critically thinking students will question these things and university teachers may need the help of academic developers to fully understand the theoretical underpinnings of what these things mean to their teaching. These matters are addressed in more depth in Chapter 4.

## Part 4 holds other parts in place

Another part of the puzzle discovered early on, but again in isolation until other parts emerged, was the frustration felt by university administrators and policymakers (and the university teachers who support them in numerous committees) around university contributions to SE. For many these matters are just something else to add to an ever-increasing list of expectations that appear impossible to realise, and that take academic staff away from their substantive roles of teaching and research. For many others the institutional sustainability mission seemed divorced from its learning and teaching functions. Their passion was to find, generally in the form of visions, policies and strategies, processes that would make higher education function better, and generally defined 'better' in the form of adherence to some combination of internal (to each higher education institution) and external policy and funding structures. Some in this group also have an appetite for evaluating the success of the strategies they create (albeit often for funding purposes) and express frustration that, all too often, the strategy is seen as the end point of a change process and that its success is never evaluated. Their experience

DOI: 10.1057/9781137548412.0007

has been sometimes that of attempting to make university teachers do things that they do not particularly, and collectively, want to do: teaching academic skills, transferable skills and graduate attributes; collecting data for accountability purposes, often based on student feedback; attending to the employability of students; teaching more efficiently, with larger groups, often using technologies (which appear to some university teachers as counter to their teaching ideals); addressing the academic integrity of their students, often via the use of anti-plagiarism software. And now they are to add 'teaching students to become more sustainable' to this list, even though much on the existing list is proving difficult to satisfactorily achieve. How? This part of the puzzle works only if we strictly adhere to the principle of not forcing others to do things that they don't want to; and rather emphasising greater support to help everyone achieve their passions. Functional policies, therefore, might not focus directly on SE but may instead support other contributory changes, described in the following section. Part 4 of the jigsaw puzzle must have a complex shape, for it must interlink with many others. University administrators and policymakers hold critically important positions.

*Part 4 and Part 1*: University teachers who wish to advocate for sustainability, within or outside of their discipline, should be encouraged and supported to do so. Policies may need to be developed to ensure that these teachers and researchers are not inhibited from being open about their academic passions. These policies need not be adverse to other university teachers. Prior research (Shephard & Furnari, 2013) found that university teachers who did not advocate for sustainability themselves did not object to others doing it, nor did they think that these advocates should 'do it in their own time' as suggested by Fish (2008). Policy measures may include reward and recognition for related teaching activities (e.g., via promotion and visible inclusion of SE criteria in teaching awards).

*Part 4 and Part 2*: University teachers who wish to promote the critical thinking abilities of their students should be encouraged to do so, perhaps through centrally administered teaching and learning strategies. These strategies will also ask academic developers ***(Part 3)*** to support this initiative, for without them, it seems unlikely (considering the diversity of understanding of critical thinking extant in higher education; Lai, 2011) that this target could be achieved. Evaluation of the impact of change strategies is, for all groups involved, an essential part of the change process (and note that '*We cannot improve at scale what we*

DOI: 10.1057/9781137548412.0007

*cannot measure*' is one of six core principles for educational improvement adopted by the Carnegie Foundation, http://www.carnegiefoundation.org/improvement-research/approach). Evaluation processes for SE have been explored by Harraway et al. (2012), Shephard et al. (2013) and by Hollweg et al. (2011). These actions are important as, if they fail, students may not be able to fully understand the nature of what is taught in higher education.

*Part 4 and Part 5*: Another combination of parts is relevant here. Some university teachers expressed a passion for multidisciplinary teaching. This took several forms and could optimistically be described as interdisciplinary or transdisciplinary. But more realistically it comprised courses or programmes where university teachers came together to teach, each from a single disciplinary perspective but intending to support student appreciation of topics from more than one disciplinary perspective. Likewise, these student groups are highly varied in disciplinary experience. Environmental Studies provides the obvious example, but there were others (Philosophy and History of Science was another combination). And most often it was not just the juxtaposition of disciplines that was important. Enthusiasts perceived great advantage to student learning where students from different disciplines were combined and they identified an ideal where such a course could be provided to all students in higher education (as occurs in principle when minors in sustainability are made available to all students). Their perception was that many students would appreciate this, that it would support multidisciplinary learning, but that frequently restrictions imposed by university administrators (or academic departments) limited these choices. The part of the puzzle that fits this multidisciplinary part again belongs to university administrators and policymakers. It may be unreasonable to suggest that such an action was an expressed passion of these people, but it could fit within their passion of finding solutions that work or achieving what is demonstrably possible to achieve. Certainly this forces no one to do what they do not want to do, but it may be necessary to persuade some academics and departments that they need to be more flexible in allowing others to do what they want to do, such as to teach in multidisciplinary contexts. Perhaps most important in this area would be to listen to what students want. If they want to study just History, or just French, or Law, perhaps they should. But maybe, given the choice, they would prefer multidisciplinary engagement. Where disciplines place absolute restrictions on

DOI: 10.1057/9781137548412.0007

what students can study, there seems little prospect of change in higher education towards SE.

## Parts 7 and 8 are more challenging to fit at present

Two other parts initially proved difficult to fit within the developing picture. As individual elements they made sense, with respect to SE, but both could be in danger of remaining isolated and prone to relegation to another puzzle. The answer came with the realisation that this particular picture changes with time. Some pieces of the puzzle fit together now but may fit better when existing parts have bedded in and change is on the way.

*Part 7*: Some university teachers show a strong belief that higher education, particularly for the professions, works better for students and for society when university teachers and students have practical experience outside of academia, as sustainability and other values-based societal needs are more visible outside of academia than within it. There is a substantial literature on community engagement in higher education (see, e.g., Mason O'Connor et al., 2011) and a range of terms, understandings and characteristics encompassed by the processes involved. For now it may be enough that some university teachers are passionate about facilitating community engagement and encouraging students to integrate some form of community engagement in their studies. It may be that university administrators and policymakers ***(Part 4)*** will enable these enthusiasts to develop strong community engagements for their students and that evaluation of impact on learning will help higher education understand the advantages of community engagement to student learning. In the longer term institutions and departments may come to appreciate better those academic staff willing and able to support community engagement and that slowly this trait will be reflected in staffing policies.

*Part 8*: The researcher met some university teachers within whom disciplinary values, personal values and the societal expectations of higher education converge. Sustainability was an accepted element of their discipline, to be taught as an accepted professional value. Most were in 'environmental sciences' but some were not. Pharmacy was a particular example, with its significant emphasis on the socioeconomic and conservation issues associated with the creation of new medicines from natural products. Generally, sustainability was a personal choice for these university teachers also. These colleagues accepted that their

DOI: 10.1057/9781137548412.0007

personal and professional lives were not currently sustainable (however measured) but they emphasised their progressive journey towards sustainability. To the researcher there is both advantage and disadvantage in including this part within the developing picture. The temptation is to hold these university colleagues up as role models for what all university teachers could be; and they make fine role models. But their circumstances are not universal in higher education. Some university teachers work in disciplines where sustainability is neither cherished nor recognised as a disciplinary trait (Dawe et al., 2005). Some are not particularly sustainably focused in their own lives and would make poor role models for sustainability, even if they found themselves 'teaching sustainability' or 'greening the curriculum'. This part to the puzzle could be seen as a product of all other interconnected parts in this particular picture. In this picture, all university teachers teaching passionately in ways that help students find their own place in society should become role models for quality teaching. In this picture, a university teacher who is personally focused within a single discipline, who may live a profoundly unsustainable personal lifestyle and understand sustainability issues as, for example, a climate-change sceptic, could still be identified as a role model within SE, if their teaching helped students to achieve the intellectual skills and affective freedom needed to decide for themselves how to live their lives and to challenge the assumptions that underpin the current ways that societies, and higher education, operate.

## Summary and conclusions: about a grounded theory of higher education for sustainable development

Some university teachers appear to be committed to SE, but many do not. Rather, they may appreciate societal needs in these respects but doubt their abilities or roles within the currently described SE missions and their conceptions of HE. This research suggests that by changing the SE missions *from* prescribing the SE outcomes of teaching and learning *to* promoting, and evaluating, quality teaching and learning in higher education, universities and university teachers would find it more straightforward to work towards outcomes compatible with SE missions. Put simply, university teachers should teach passionately according to their own conscience, but in the process focus on helping their students become independent and critical thinkers. Academic developers should

DOI: 10.1057/9781137548412.0007

help university teachers better understand both how to encourage independent and critical thinking, and higher education pedagogy. University administrators and policymakers should support all university teachers and academic developers to do what they want to do, but ensure that change is monitored and evaluated. In the process university administrators and policymakers will need to work hard to remove restrictions within higher education that limit how university teachers teach and what students are enabled to learn. This research suggests that, in particular, means to encourage multidisciplinary study and community engagement will need to be found, where these are lacking.

We should end this chapter by anticipating and discussing some of the criticisms that this grounded theory will reasonably and unreasonably attract. The major issues relate to the inevitability of research in this domain having to meet the expectations of the broad range of disciplines and research paradigms that have an interest in sustainability. Educational researchers will be familiar with qualitative research and perhaps even with grounded theory work, but many researchers with an interest in sustainability education do not have this background and will be cautious of any research that fits outside a quantitative paradigm. Not all in higher education accept the inevitability of affect in higher education teaching. Scientists in particular emphasise objective and verifiable knowledge and tend to be sceptical about subjectivity, opinion and belief as elements of their teaching. Some sustainability scientists even deny the affect-laden nature of education for sustainability. There is a current and pervasive theory extant in parts of higher education (perhaps particularly amongst advocates for sustainability) that 'teaching sustainability' in higher education is essentially good teaching. Readers who have this view may find it difficult to fully engage with this grounded theory that at its heart suggests something different.

## Acknowledgements

I would like to acknowledge the support of numerous colleagues in the six universities involved in this research. Everyone who spoke with me has contributed to my developing understanding, whether they advocate for sustainability in their roles or not. When I started I was not in a position to predict what the results of this research would be and I hope that they do not greatly disappoint those who have helped me.

DOI: 10.1057/9781137548412.0007

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DOI: 10.1057/9781137548412.0007

# Part II

## Educational Rationales to Unify the Efforts of Higher Education towards Sustainability Objectives

Part I suggested that by changing some SE missions, from prescribing sustainability-related outcomes of teaching and learning, to promoting, and evaluating the impact of, alternative forms of teaching (which do not necessarily even mention sustainability), universities and university teachers would find it more straightforward to work collectively towards outcomes compatible with sustainability and higher education missions. Put simply, university teachers, those who advocate for sustainability and those who do not, should teach passionately according to their own conscience, but in the process focus on helping their students become independent and critical thinkers. Including multidisciplinarity and community engagement would be helpful. A key element of the grounded theory described in this book emphasises both the inevitability of university teachers influencing their students (by knowingly or inadvertently teaching affective outcomes within hidden curricula) and the vital importance of students understanding the nature of what they're being taught, hidden or otherwise. Part II of this book addresses this


DOI: 10.1057/9781137548412.0008

link between affect and criticality and is designed for both groups of university academics (those who advocate for sustainability and those who do not).

Readers of this part of the book will undoubtedly recognise some educational theory sneaking in. Yes, of course, there is, and there is a history behind this; and as this history will influence the way that I talk about educational theory I had better explain exactly where I'm coming from here.

In the year 2000 I changed jobs. I moved from being a biologist (actually an environmental biologist) to being an educational developer (someone who helps university teachers learn how to teach) and educational researcher (someone who feels strongly that developments in education, as in other disciplines, need to be research-led). I had taught and researched biology for nearly 25 years and I thought I knew enough about both to be able to write a book about education and sustainability. My provisional title was 'higher education to save the planet' and I was inspired by notions of 'greening the curriculum' and the developing campus-sustainability movement. I had, for example, previously written the environmental strategy for another higher education institution. I thought I knew my stuff and my new role supported my confidence that I knew how to teach and knew how to help others teach. But I reached Chapter 3 and met what I can only describe as a brick wall. Dramatically I came to the conclusion that I could write a book *about* sustainability; I could write a book about education *about* sustainability; but I couldn't write a book about education *for* sustainability. I didn't know how to educate *for* sustainability. In my many years of teaching I hadn't really planned to be *for* anything in particular. I had, of course, been enthusiastic *about* biology, and *about* teaching. In my environmental biology teaching I was clearly *not for* pollution or *for* species loss, but for me and for my students it was probably much more difficult to identify what I was actually *for.* Looking back I suspect that I generally provided an impartial balanced view of the various possibilities and helped students to understand the relative advantages and disadvantages of accepting each. Looking back, everything seemed, as a biologist, so straightforward, then. But Chapter 3 had to be *for* sustainability, and the book *for* saving the planet. There was no room here for balanced and impartial viewpoints on whether sustainability was a good thing, or not. Nor could Chapter 3 suggest that the planet might not be worth saving.

DOI: 10.1057/9781137548412.0008

How does higher education teach a particular viewpoint; with a particular objective in mind, without suggesting that other possibilities exist? Is that even possible in higher education?

After some months of struggling, I sought advice from my mentor, Dr Hayden Mathias. Haydn listened to my story, explained that my problem was simply that I had studied biology at university rather than education and that the solution to my problem and to my predicament was to immerse myself within the discipline of education. I needed to read the same books that education academics read while reading for their first degree (as indeed he had done). Hayden reached up to his bookshelf and pulled down a large dusty brown book and urged me to start with that. It was Krathwohl et al. (1964).

The experience was, for me, illuminating, liberating and troubling. These educational researchers worked in the 1950s–1970s on the simple question of 'what is learning' and with the strategy that if they could categorise different kinds of learning it might help us to understand what learning was and how to achieve it. Bloom, Krathwohl and colleagues had previously had the same conceptual struggles as I had much more recently and came to the conclusion that different forms of learning were involved in learning *about* something as opposed to learning *for* something. When we learn *about* something we are developing the cognitive skills necessary to do something with this knowledge. When we learn *for* this same something, we engage with it in a different way. No longer are we learning the skills that we may or may not use in order to use this information; when we learn *for* it we are learning to make the *choice to be for* it. We are learning to become emotionally attached to the concept or to its application or outcomes. We no longer have a mere cognitive link with the 'something'; we are emotionally, or affectively, attached to it. When we teach in the affective domain, overtly or otherwise, we are teaching to influence learners and the choices that they make. This interpretation of the affective domain was new to me and it explained so many of the problems that I had encountered as I attempted to write a book that may help others to educate *for* sustainability.

The academic study of affect did not begin or end with Bloom, Krathwohl and colleagues. Later on in this section I shall make links to some of Aristotle's ideas and to developments in the discipline of psychology. In the world of school education, values education has had a patchy ride that I shall touch upon in Chapter 4.

DOI: 10.1057/9781137548412.0008

It is interesting for me to reflect on my experience, as an academic developer, of what the university teachers I encounter think about learning and teaching in the affective domain. It is my experience that those academic colleagues who have a background in school teaching, or teacher education, already know about the affective domain of learning: including values and attitudes, dispositions and behaviours. These colleagues tend to deliberately or intuitively incorporate this knowledge into their teaching approach. Unfortunately, most higher education teachers (again in my experience, in New Zealand and in the United Kingdom, and likely elsewhere) do not have this background. As they prepare for higher education teaching they learn about the cognitive domain and may have some idea about lower-order and higher-order cognitive outcomes, but they have no formal or even informal, structured, exposure to affect. I didn't, and I taught biology in higher education for 25 years before I engaged with this aspect of teaching, and learning. I suspect that many 'advocates for sustainability' and many university academics who identify themselves as 'sustainability scientists' have very little experience in the affective domain and often fail to identify affect within their own teaching and within the objectives of education for sustainability, and of education for sustainable development.

There is another viewpoint on this matter. Matthias Barth recently reflected on the 'complex relationship' between education and sustainability science, quoting 'educational science in turn has also much to offer to the transdisciplinary area of sustainability science. Education has an undoubted potential in this respect but to date it has to be admitted it is still far from unleashing this potential within sustainability science' (Barth & Michelsen, 2013, cited by Barth, 2015). I'm not convinced that the problem here is educational scientists having failed to unleash their potential; rather I am of the opinion that those who advocate for sustainability, within the mission of education for sustainable development, may have insufficient experience and understanding of the building blocks of educational science to notice or to understand what educational scientists have been unleashing for the past half century. For me, learning about affect in education was akin to what is nowadays identified as troublesome knowledge (Mayer & Land, 2005). Sometimes I wish I hadn't had that conversation with Hayden Mathias. Life, education and sustainability all seemed so much simpler before that day. Since then my research outputs have focused on understanding the implications of the inevitability of affect being involved in higher education teaching, and learning.

DOI: 10.1057/9781137548412.0008

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DOI: 10.1057/9781137548412.0008

# 4

# Affect, Cognition and Criticality: Some Educational Theory for University Teachers and for Educational Developers

**Abstract**: *Describing some educational theory on learning outcomes. This chapter explains cognitive learning and affective learning and explains how these outcomes can interact with one another. The chapter describes the nature of critical thinking, critical reflection and ethical reasoning and emphasises the cognitive and affective nature of these as learning outcomes. Chapter 4 in essence is designed to help those who advocate for sustainability to understand what they are teaching; it may also help those who do not advocate for sustainability to understand that what they are teaching may not be exactly what their students are learning; and it will help both groups to understand the importance of university students being able to understand, and critically reflect on, what it is they are being taught.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015. DOI: 10.1057/9781137548412.0009.

## What is affect and how does it relate to cognition?

Affect is not necessarily an easy concept to grasp. It is both a noun and a verb and these two forms are often confused in everyday usage. And the word 'affect' is in everyday use only in some areas of everyday life. Affect has a particular use in psychology and education and this particular use does make it difficult for specialist from other disciplines to get to grips with it. The *Oxford English Dictionary* defines the noun form to mean 'emotion or desire, especially as influencing behaviour'. When educators talk about affective learning outcomes they do mean that our students are learning particular emotions or desires that may influence their behaviour. Educational researchers from the United States in the 1950s through to 1970s worked on an extensive categorisation of learning, to support teachers who were developing interests in linking what and how they teach, in more precise terms than had been needed before, to what students were learning. Bloom, Krathwohl and colleagues in particular identified the cognitive domain of learning and the affective domain of learning (Bloom et al., 1956; Krathwohl et al., 1964).

It is fair to say that much of the professional development for university teaching that I have been involved with over many years focuses on learning in the cognitive domain. Generally at some point, in a workshop or assignment, new university teachers will be introduced to Bloom et al.'s cognitive domain hierarchy. Bloom, Krathwohl and others considered cognitive learning to include, in a hierarchy, knowledge, understanding, application, analysis, creation, evaluation (Bloom et al., 1956). These authors identify the greater challenge involved in, say evaluation, than in understanding, hence the need for a hierarchy. They also emphasised the need for learners to pass sequentially up the hierarchy. (It should be noted, in passing, that more recent consideration has changed the order of the elements at the top end of the hierarchy, but this should not overly worry us here; Anderson et al., 2001). Most interesting for me, and perhaps for readers of this book, is that most often, professional development for new university teachers goes no further than the cognitive domain. Bloom and colleagues did. Bloom, Krathwohl and others considered the need to categorise some other learning outcomes in another domain – the affective domain of values, attitudes, dispositions and behaviours (Krathwohl et al., 1964).

DOI: 10.1057/9781137548412.0009

These ideas have been reworked on many occasions since the 1950s. Indeed, I think of these concepts as evolving rather than fixed. They originated from the work of Bloom and colleagues but everyone who uses them will surely adapt them to their own experiences and ways of thinking. My own current version is provided in Table 4.1, where I describe cognitive outcomes as what we know and what skills we develop to help us put this knowledge to use; and affective outcomes as contributions to what we choose to do with the knowledge and skills that we have learned. Each time I find myself recording this table, I find the need to adapt it to my most recent learning experiences. Its core structure has remained constant for several years now, but it is still developing.

Much of the rest of this chapter is about Table 4.1 and how it can help university teachers to address their potential roles in teaching within the broad area of education for sustainability, or education for sustainable development. We need to sequentially explore: how this particular interpretation of affective learning relates to other educational models that address affect; how it may particularly relate to sustainability education; how useful this particular interpretation might be to university teachers; the critically important link between cognition and affect with respect to criticality; and how to put these ideas into practice as we go about supporting student learning.

**TABLE 4.1** *The cognitive and affective domains compared*

| **Cognitive domain** | | **Affective domain** | |
|---|---|---|---|
| Evaluate | | Internalise (be characterised by a defined set of behaviours) | |
| Synthesise/ create | What cognitive skills, competencies or abilities we have to put our knowledge to use | Organise (experiment with a personal value system) | What we choose to do with the knowledge and skills available to us |
| Apply (use) | | Value (practise value judgements) | |
| Analyse | | React (respond) | |
| Understand (explain) | | Receive (listen) | |
| Know (recall, describe) | What we know | | |

*Source*: Adapted by the author from many sources.

DOI: 10.1057/9781137548412.0009

## Other ways to interpret affective outcomes

It is interesting that higher education teachers have other ways to interpret affective outcomes if they wish to use them. Interest in emotion, values education, motivation and the choices that learners make predates Bloom and colleagues by a long way and even present-day interpretations of these issues do not necessarily draw from Bloom and colleagues. Aristotle, for example, interpreted at least some affective development as the 'intellectual virtue' of phronesis (see Hargreaves, 2012, for some interesting insights on Aristotelian phronesis), and the discipline of psychology has developed the term 'conation' to address an individual's motivation to take any particular action (Snow & Jackson, 1997). Biggs and Tang, in their widely referenced book on university teaching, suggest that Bloom's approach to categorising learning is essentially expert-led rather than research-led. These authors prefer to categorise learning, and learning outcomes, in another way. Some aspects of learning categorised as affect here are categorised by Biggs and Tang as 'extended abstract' (Biggs & Tang, 1997) but much else is not included.

And we should not forget that universities are not the only place of learning in our societies! School-based education has addressed affect, and values education generally, in very serious ways over many years. Although I'm not a schoolteacher, it is clear to me that school teaching openly and extensively involves values education, probably far more openly and far more extensively than occurs in higher education. In researching this topic, I found a New Zealand report to be particularly helpful (Notman et al., 2012). Research and discussion in and about values education in schools in New Zealand and elsewhere emphasises: the extent to which school teachers are prepared to teach values to their students (see in particular Notman et al., 2012); the extent to which societies are involved in deciding which values should be taught and which should not (see, e.g., Glatter, 2014); how to teach values; and in deliberating on whose, and which, values are taught.

## Roles for academic developers

It seems to me that academic developers have a range of critical roles in my version of 'higher education for sustainable development'. This

DOI: 10.1057/9781137548412.0009

section is designed to support academic developers to adopt these critical roles. I don't think that there is anything particularly contentious or provocative in what follows and I doubt that the agenda described here will take my academic developer colleagues too far away from their established trajectories. Much of what follows is likely to appear in a slightly different form (in that it wouldn't necessarily mention affect or sustainability!) in most guides for the role of an academic developer. In Chapter 3 we emphasised two particular roles, essentially supporting academic teachers throughout higher education to understand and address both affect and criticality.

The first and probably most easily addressed is that of supporting academic teachers throughout higher education to understand affect and affective outcomes. In my experience most university academics have not benefited from a formal educational background to support them as they learn how to teach in higher education. Indeed this was my own experience. Higher education employers appeared to assume that because I was good at research and had done quite a lot of teaching before, I must understand enough educational theory to get by. I did get by as indeed many other academics do. But 'getting by' may not be enough to address the challenges of ES/ESD, even in the model proposed in this book. In particular, it seems essential that university teachers understand enough about affect to know if they are themselves teaching affective outcomes or attempting to do so, and most importantly, to know if they are attempting to teach higher-order affective outcomes. This judgement will probably require the assistance of someone who can recognise affect when they see, or hear, it. Most academic developers in my experience do have some form of educational background that will enable them to distinguish cognitive outcomes from affective outcomes, particularly in the context of the hidden curriculum, and they are in a position to support their academic colleagues in this respect.

Similarly, most academic developers will have engaged more than have their discipline-focused colleagues with criticality and how to teach critical abilities. I hope that these academic developers will not try to be too prescriptive about what academics can and cannot, or should or should not, attempt to do. Rather, their purpose here is in supporting understanding of what they do and what they want to do.

Some years ago I worked with an academic colleague who had moved from a teaching background in business and commerce into an academic development and research role. I suspect that my colleague had not

DOI: 10.1057/9781137548412.0009

thought greatly about the hidden curriculum while he was teaching, but once freed from the obligations and routine of teaching and obliged to observe and research teaching, he became very interested in some of the assumptions that his business studies colleagues had about their students and their learning. In these circumstances what was hidden, or at least tacit, related to the ethics of competitive business practice. For example, some university teachers were obliged to teach about business and management practices, but leave an enquiry about their ethical or unethical nature to other teachers who specialised in business ethics. What was apparent to my colleague, however, was the almost inevitability of these university teachers choosing resources, bringing out details for discussion and displaying personal behaviours, which could be decoded by students, as indicative of the ethical stance of the teacher involved. Nothing was specifically spelt out but everything was communicated to those able to understand. Many of the issues being addressed would have been affective in nature, relating not the detail of what to do in business practice and how to do it, but much more directly to whether it should be done in the first place. It seemed likely to my colleague that some of these university teachers did understand the nature of what they were teaching. For a range of reasons these university teachers felt unable to overtly teach business ethics but equally unable to not teach it. But some of these university teachers probably did not understand what it is they were doing automatically and without thinking. I'm not sure of the extent to which my colleague was able to help these individual teachers come to an understanding of what they were teaching, but he did try.

## How does Table 4.1 relate to ES/ESD?

It would be challenging for an educator who has read about learning in the affective domain, and reflected on the presence or absence of affective objectives in their own teaching, not to identify affect in the objectives of ES/ESD. Agenda 21, for example, emphasises that

> Both formal and non-formal education are indispensable to changing people's attitudes so that they have the capacity to assess and address their sustainable development concerns. It is also critical for achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making. (United Nations Conference on the Environment and Development, 1992)

DOI: 10.1057/9781137548412.0009

I suspect that those who are reading this book but who have not immersed themselves into the literature on education for sustainability, or on affect, are more likely to be challenged by this 1992 statement. They may well be asking themselves: 'Is it my role to change people's attitudes? And do I need to change them so that they are, in particular, consistent with sustainable development?' Or even 'and even if that was my role, would I really know how to do it?' We shall return to these questions later in this chapter.

Notwithstanding these concerns, the European Commission endorses the ideas and objectives of ESD and suggests that higher education institutions are 'the focal point for shaping critical thinkers, problem solvers and doers' (European Commission, 2013). Those institutions that have signed the Talloires Declaration promise to create an 'institutional culture of sustainability' and to 'educate for environmentally-responsible citizenship' (University Leaders for a Sustainable Future, 2014). The Council of the European Union (2010) went further to suggest that

> In a continuously changing world, all European citizens should be equipped with the knowledge, skills and attitudes needed to understand and deal with the challenges and complexities of modern day life, whilst taking due account of the environmental, social, cultural and economic implications, as well as to assume their global responsibilities.

These sentiments convey unmistakable ideas about affect and relate them directly to the roles of higher education. Ideas about responsibility and culture add to more specific mention of values, attitudes and behaviours, resulting in the creation of **doers**. These are people who are not just knowledgeable about sustainability, not just imbued with understanding about sustainability, these people will make decisions in line with this knowledge and understanding, informed and supported by values and attitudes that have been created as a result of their presence within and involvement with our higher education institutions. I suspect that most higher education teachers would conclude that ESD was not simply seeking affective outcomes; it was seeking higher-order affective outcomes, those at the very top of the affective hierarchy. The 'doer' is the very ideal of a citizen who has developed and organised a set of sustainability values and attributes to the extent that they are characterised by these values and live their life according to them.

Often in the higher education literature and with reference to the emancipatory ideas about ES/ESD described earlier in this book,

DOI: 10.1057/9781137548412.0009

many advocates for ES/ESD tend not to speak or write about ES/ESD outcomes in such bold, purposeful terms, leaving that to the politicians and to their advisers (essentially those who have written the text quoted). ES/ESD outcomes are frequently described as competencies, or as key competencies. Naive readers may be forgiven for assuming 'competency' used in this context essentially means skill or ability (and indeed that is my preferred meaning). But within the ES/ESD literature, competency and related terms are generally assumed to carry with them much broader connotations and specifically to include the idea that those who possess them would be willing to use them. Essentially and in that context, competency includes within it the essence of knowledge, understanding, skill and affect. Indeed the underlying affective nature of competency is generally acknowledged. For example, Barth et al. (2007) maintain that key sustainability-related competencies are 'characterised as dispositions' and 'are reflected in successful actions' (p.417). Fischer and Barth (2014) suggest that 'competencies deal with complex demands that necessitate the interplay of cognitive, emotional and motivational dispositions' (p.194) and 'each [key competency] consists of cognitive and non-cognitive dispositions' (p.196) with respect to sustainable consumption. Although the relevance of the affective domain to learning sustainability-related competencies is often not explicitly pronounced, it is generally and implicitly assumed to be present. I do not know who first emphasised the affective nature of learning in ES/ESD, but certainly by 2008 I described 'education for sustainable development' as a quest for affective outcomes (Shephard, 2008).

I do not suggest that there is anything inherently wrong with addressing ES/ESD learning outcomes at a higher, more amalgamated level than is apparent in Table 4.1. In some respects, combining affect with cognition into some all-encompassing description of learning with new titles (such as action competence or key competence) makes sense. As a new field of enquiry, ES/ESD perhaps required new ways of thinking and new constructs to help the thinking process. Perhaps, focusing on the competencies that result from the required affective baseline of values and attitudes, in combination with a set of cognitive skills that enable particular behaviours to occur, has assisted a new cohort of educational researchers to be recruited into this fascinating field of enquiry. But simply combining affect with cognition into a broader abstraction has not lessened the problems associated with understanding learning in the affective domain. The problems haven't gone away, rather perhaps

DOI: 10.1057/9781137548412.0009

they have just been obscured. In particular, ignoring or side-lining the affective baseline of sustainability behaviours may be problematic for us, as the particular educational issues and challenges of learning and teaching in the affective domain were substantially addressed by Bloom and colleagues in the last century (Bloom et al., 1971), and we ignore this learning at our peril.

## How useful is the affective domain hierarchy in the context of ES/ESD?

These ideas about categories of learning are not learning theories, in a conventional sense. They say little about 'how' learning occurs or is encouraged; they focus on 'what' learning occurs, not on 'how' it is induced. If, for example, we address an affective outcome like 'respond' (a category of learning, and firmly within the 'what' aspect of learning) we could ask 'how' this learning outcome occurred or was encouraged. Behavioural learning theories might emphasise positive or negative reinforcement as the 'how' aspect of learning. Teachers using these types of learning theories might design appropriate teaching activities that provided these negative or positive reinforcements. Alternatively, constructivist learning theories might emphasise the necessity of the learner being able to construct her own mental model of what is involved in responding. Teachers using these learning theories might design teaching activities that provide learners with a range of experiences, against each of which learners could compare their own, existing, mental model of what it is to respond, with what they are currently experiencing. Teachers who embrace different theories of learning are highly likely to develop different teaching activities for their students, even when aiming for the same category of learning. For educators, learning theories and learning categorisations are not the same. But they are mutually interactive.

### Achieving intended learning outcomes

I am sure that as Bloom, Krathwohl and colleagues considered their categorisations, they intuitively or deliberately considered the question of how teachers would know if their students had advanced to any particular level of the hierarchy. We shall consider assessment, and evaluation,

DOI: 10.1057/9781137548412.0009

in detail later in this book, but for now, we can address the question, 'Do they know?' by asking students to describe what they know. Similarly, we can address the question 'In what ways are they valuing their experiences?' by asking them to practise placing value on their experiences and to record these practices. There is a strong, intuitive link between each step in these hierarchies and the intentions that teachers have for the learning of their students. There is now an extensive literature on the process of designing intended learning outcomes based on verbs that relate to each step of the hierarchy, particularly in the cognitive domain. For knowing, we have 'describe'; for understanding, we have 'explain'.

Being able to formulate intended learning outcomes for students as courses are designed has proved to be a significant asset, perhaps particularly for teachers, and perhaps particularly as they design the teaching activities that will support particular learning, and assessments that will help teachers, and students, to know if they are achieving the intended learning. Developments in this area are least apparent in the affective domain (see, e.g., Shephard, 2009a, 2009b) but perhaps only because of the struggles that university teachers have with the affective domain in general. Designing teaching programmes that will support students as they learn to listen and to respond do appear to be particularly straightforward in this regard, but supporting student's development higher in the affective domain may be more problematic for all concerned.

## Roles for higher education teachers

In the previous paragraphs I suggested that some readers would, or should, be asking themselves, 'Is it my role to change people's attitudes? And do I need to change them so that they are, in particular, consistent with sustainable development?'

It does appear to me to be the case that Table 4.1 provides a hypothetical university teacher with a process to help her to determine what her role might be with respect to ES/ESD. One way to look at this is for our university teacher to decide how far up the affective domain hierarchy she is comfortable teaching. As I wrote in 2008,

> This hierarchy is also a great asset to enable teachers to consider the acceptability of their approach to their profession, their institution and to the liberal traditions of higher education. Most teachers probably find it acceptable to encourage their students to be willing to listen, to read, to acquire information, and to discuss environmental issues with others. In these ways, they

DOI: 10.1057/9781137548412.0009

> are happy to create opportunities for students to formulate their own views on the issues based on their experience and learning. But, some teachers are apparently prepared to go further. They require students to develop particular attitudes and to behave in particular ways, often in relation to the stated values of their future profession, and assess them on their ability, and willingness, to do so. (Shephard, 2008, p.95)

Returning to Agenda 21, and interpreting its substantive objectives as higher-order affective outcomes, our hypothetical university teacher (who is interested in, though not particularly committed to ES/ESD, but who teaches in a discipline that integrates sustainability content) may reasonably conclude that she is happy to encourage her students to listen and to respond, even argue, with sustainability discourse. She may admit to being delighted if her students experiment with a value system to determine what sustainability objectives they will develop for themselves. And she may ask to read their critical, reflective and ethical judgements on the issues. She may even design these into her teaching and assessment, if they are relevant to her course objectives. She may, like me, be cautiously interested when her students internalise value judgements about sustainability (irrespective of the direction in which their decisions turn); but, also like me, she would be horrified to think that her teaching required her students to internalise, or to characterise, any particular sustainability outcome. This university teacher has used the affective hierarchy to identify which affective outcomes she wishes to seek, and which not to. It is surely a powerful tool for teachers.

## Anonymity or overcoming the down side of values education

Our reflective university teacher was not obliged to refrain from teaching higher-order affective outcomes. She could have decided that her role was to teach her students to internalise and characterise sustainability outcomes in a normative sense. But as she is knowledgeable about Bloom and Krathwohl's work on affective learning, she also understands the pitfalls and problems associated with teaching values. Affect as a concept, as a category of learning, and as a rationale for education, is far from popular in all branches of education and has, indeed, in some situations, been unpopular for some time. Bloom et al. (1971) discuss this point in detail. They described why the teaching of affective outcomes had at that time been neglected in education and why affective outcomes were rarely assessed. They emphasised perceived links between seeking

DOI: 10.1057/9781137548412.0009

affective outcomes and 'brainwashing'. They developed an argument for the need for education to address this neglect and to counter these arguments. These authors asked 'Can we teach values without engaging in indoctrination or brainwashing techniques so foreign to our concepts of education?' and went on to suggest ways to teach and assess in the affective domain whilst avoiding the charge of brainwashing.

Bloom et al. (1971) described how questionnaires can be developed to enable judgments to be made by teachers, evaluators or researchers, on how well students are learning throughout the affective hierarchy, all the way to 'characterise', including students' 'total philosophy or worldview' (p.229). Paramount in their approach is the need to distinguish the learning outcomes of groups and those of individuals, with particular reference to the nature of the assessment (or as I prefer to name it, evaluation) by emphasising student anonymity. Where students are anonymous in the process, they are likely less mindful of the possible repercussions to them if they perceive that they are not developing the affective outcomes that others expect, or hope, of them. As described by Bloom et al. (1971, p.235), 'if a student feels his affective behaviour is subject to either criticism or grading, there is a possibility that he will "fake" the desired behaviour.' Bloom et al. (1971), in addressing the applicability of an evaluation questionnaire, emphasised that one criterion for item selection in the questionnaire, 'was that the behaviour or situation described deal only with things which the student might be expected to report honestly' (231).

Ignoring the affective nature of the baseline values and attitudes necessary for sustainability-related behaviour may create problems for university teachers interested in the consequences of their teaching on the subsequent behaviour of their students, particularly as anticipated by measured competencies.

Readers should not conclude that all teaching in the affective domain requires students to change their values. Some simply expects them to learn to listen or learn to respond. Other teaching, perhaps most teaching, encourages students to critically consider or to reflect on their values, as they may interact with their own learning. Some education is more values-oriented; but even then, it should be possible to teach and to evaluate openly and honestly, with due regard to the anonymity of students in the process. In this model, university teachers need to ask themselves what exactly they are teaching and to behave accordingly, openly and honestly.

DOI: 10.1057/9781137548412.0009

Above all else, affect is surely a useful concept for all educators. It is perhaps a particularly useful concept when we consider the learning categories of 'what students know, what skills they have to put this knowledge to use, and what they choose to do with the knowledge and skills that they learn'. Whatever value sets our students are exposed to when they are with us, they will surely choose to be 'something' when they leave us and choose to use their knowledge and skills to support this being. As such we should consider affect's usefulness within ES/ESD and SE in particular, as what our students choose to do when they have graduated from higher education underpins every relationship they will ever have with sustainability.

## Criticality and interactions between affect and cognition

It appears unlikely that any higher order (beyond simple knowing, comprehension, listening and responding) higher education learning outcome can be purely cognitive or purely affective. Scriven (1966) described these interactions by focusing on the values that support learners attaining particular cognitive outcomes. Scriven described these as cognitive-related values. Scientists probably do need to value objectivity if they are to make progress within the sciences. Being objective is an important scientific behaviour clearly dependent on the ability to be objective, interacting in some way with values that emotionally create in the individual the need to be objective. We should note particularly that a range of values, described by Scriven as moral values, may be a prerequisite for some forms of learning generally described as cognitive, but probably better interpreted as something more complex. Facione (1990), for example, suggests that critical thinkers need to be open-minded, fair-minded, honest, prudent and willing to reconsider. Given the critical nature of much of the intended learning associated with ES/ESD it does seem inevitable, to me, that both cognitive and affective domains of learning are involved.

Bloom, Krathwohl and Scriven are less helpful to us if we want to explore where, in particular, affect and cognition interact in learning. Many teachers, me included and perhaps readers of this book, claim it to be self-evident, nowadays, that listening and responding are important for all aspects of cognitive learning. Much of the advice to university teachers inherent to educational development, nowadays, emphasises active

DOI: 10.1057/9781137548412.0009

learning and 'teaching and learning activities' that promote active learning. Whether we address lower-order affective outcomes such as listening, responding and valuing consciously and explicitly, or intuitively, or wrapped up within some other categorisation of learning, such as active learning, lower-order affect seems to me to be central to learning.

I suggest, however, that affect and cognition intersect particularly at the affective level of valuing, or practicing value judgements, and the cognitive level of analysing. Students who have progressed up the affective hierarchy to the extent that they are prepared to listen to others and to respond, by putting forward and developing their own arguments, should be (or should be encouraged to be) in a position to develop value judgements about their own point of view. These people may be open-minded, perhaps fair-minded and, hopefully still at this stage, willing to reconsider. Interacting with the cognitive domain, these students may be in the position of knowing and understanding (to the extent that they can explain it to others) a certain amount of information and able to apply these cognitive skills to discourse and deliberation about the topic. Analysis can then occur at various levels.

## How does affect interact with cognition to help people make choices?

I think that educators have tended to shun affect at all levels not just because of its complexity but also because of its inevitable linkages to other phenomena. One such linkage relates to ethics and morality. We find ourselves quickly immersed in ethical issues that from a higher education perspective have little to do with truth, and much to do with choice. I've made it clear in the previous text that I think ES/ESD make this inevitable. The Agenda 21 statement about 'achieving environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development and for effective public participation in decision-making' is perhaps the clearest verification of this.

And the issues to be considered as part of this ethical choice process are not easy. If, for example, we take one of the statements from the New Ecological Paradigms scale (to be considered in depth later in this book) designed to evaluate participants' environmental concern and worldview, 'We are approaching the limit of the number of people the earth can support'. Participants are asked to agree or disagree with this simple

DOI: 10.1057/9781137548412.0009

statement. But the process of disagreeing or agreeing will inevitably create tension in the minds of those involved. For one thing leads to another in the mind of a thinking person and 'right or wrong for me' emerges as a thought process in the mind of an ethically reasoning person. If I agree that the world has too many people and if it is my choice whether to have children or not, then inevitably in making this choice I will be thinking about one of the most difficult and personal decisions or choices that I shall have ever to make in my life. I, the author of this book, made this choice (jointly with one other), and we have three children; more than our fair share I suspect by most rational, sustainability-focused measures. These are difficult, personally important issues that involve deep, critical and ethical thinking processes.

It is probably fanciful to think that we could identify all of the thought processes that need to be undertaken in reaching rational decisions in this complex area, but as educators we are interested in our students' critical thinking, critical reflection and ethical reasoning skills, in particular. I know that I should attempt to define these skills at this stage but I admit that it is not an easy thing to do. The literature in this area is fragmented and in places contradictory. (I know the difference between ethical and moral, but what I know is not necessarily shared by others!). In the following sections, I offer an interpretation of this broad literature but accept that others would summarise the same material in different ways. Educational theory suggests that critical thinking, critical reflection and ethical reasoning are predominantly skill-based processes and so fit within the cognitive domain of learning. In particular they involve analysis and evaluation. They must surely help people to come to decisions but they are not themselves the only facets of learned elements that do. But psychological theory, rather than educational theory, suggests that they are important precursors to the emotional or affective overlay that we probably apply in reaching a decision. Inherent within the ideas in this book, and indeed within the grounded theory suggested in this book, is the notion that higher education should focus on helping learners to develop these critical thinking, critical reflection and ethical reasoning skills. Fanciful or not, we should try.

## On critical thinking

We could use any one of several critical thinking theories to analyse the processes involved in thinking critically, and in teaching it. But as

DOI: 10.1057/9781137548412.0009

these theories stem from educational, philosophical and psychological disciplines, we will always be challenged to find common ground and a reasonable basis for us to develop critical thinking in the context of ES/ESD. I think it reasonable to say that one attribute that underpins many of these ideas relates to someone's ability to analyse the assumptions that underpin a particular aspect of thinking. If we return to the overpopulation problem that we considered earlier, we may analyse the assumption that there is overpopulation, that it is reasonable to consider overpopulation on a world scale rather than on a local scale, the criteria that are used to determine when a 'location' is overpopulated, and probably many other assumptions inherent to the idea that there is overpopulation. And we need to stress here that from an educational perspective, these processes of critical thinking are probably fairly generic processes. We do not need, in an educational sense, to focus on specific problems that relate to sustainability. Many of the mental attributes related to critical thinking are probably blind to the problem at hand and the immense body of knowledge, and interest in problem-based learning will surely help us to understand how to build critical thinking skills. Much of what follows in the paragraphs further in the chapter was inspired by a relatively recent literature review on critical thinking (Lai, 2011).

Lai (2011) analyses the literature from psychology, philosophy and education to suggest that critical thinking includes:

> the component skills of analysing arguments, making inferences using inductive and deductive reasoning, judging or evaluating, and making decisions or solving problems. Background knowledge is a necessary but not a sufficient condition for enabling critical thought within a given subject. Critical thinking involves both cognitive skills and dispositions. These dispositions which can be seen as attitudes or habits of mind, include open and fair-mindedness, inquisitiveness, flexibility, a propensity to seek reason, a desire to be well-informed, and a respect for and willingness to entertain diverse viewpoints. (p.2)

I agree but suggest that essentially this description of critical thinking is also a broad description of higher-order cognitive and affective learning. Critical thinking involves (on the cognitive side) analysis (of arguments), application (in the use of inductive and deductive reasoning), creativity (or synthesis, in solving problems) and evaluation (in making judgements). And on the affective side, our accomplished critically thinking learner is characterised by a wide range of attitudes or habits of mind and, whilst learning to be accomplished, is no doubt valuing and

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organising ideas about being open- and fair-minded. We should note critical thinking's dependence on lower-order cognitive knowledge and understanding, and its dependence on higher-order analysis and evaluation. We should reflect on its links to Scriven's ideas about cognitive-related values (Scriven, 1966), and we should understand the emphasis on affective dispositions and the choices that people make in order to, and as they, think critically.

Lai's review addresses many of the key educational issues in ES/ESD that concern us. On the issue of how to teach critical thinking, we find broad consensus that this is possible and practicable but that there are different views on how to go about it. Some emphasise the need for standards or criteria within which learning can be situated and against which learning can be judged (and much within this discourse relates to the setting of intended outcomes within the categories of Bloom's taxonomies). Some emphasise the advantages of collaborative learning and stress the important contribution that social interactions have for cognitive development (drawing heavily on the ideas of Piaget and Vygotsky, but linking also with Krathwohl et al.'s assertions about the need for learners to listen and to respond and to practise their value judgements, generally in social settings, and to progress up this affective hierarchy). On the issue of whether critical thinking learned in one domain is transferable to another, we find conflicting evidence but a general consensus that such transfer can be encouraged by ensuring that learners have opportunities for such transfer (such as those afforded by multidisciplinary learning opportunities in higher education). On the issue of motivation to learn how to think critically, and to think critically, the jury seems to be out. Some suggest that motivation is a prerequisite for critical thinking, others that critical thinking can be stimulated by tasks which motivate active or engaged learning. I think that much depends on what learners (that's you and me as well as our students, by the way) choose to do with the knowledge and skills that they have and that they are learning. I don't think that critical thinking necessarily comes easily to us. It takes effort.

Personally, I have often wondered if I do, indeed, teach higher-order affective outcomes. I generally conclude that while I specifically and deliberately do not wish to teach some, I cannot avoid teaching others. I am confronted by Facione's assertion that critical thinkers need to be willing to reconsider; and by my realisation that this willingness is essentially an outcome at the highest level of the affective domain. Do I teach

DOI: 10.1057/9781137548412.0009

this? Certainly, and I suspect that most other university teachers do as well. Being willing to reconsider is perhaps the opposite of bigotry and surely opposing bigotry is an essential role for higher education.

Lest readers end this section thinking that higher education has so many contradictory views about critical thinking that we may as well do nothing, we should consider one of Lai's summary points: 'If teachers are to be successful in encouraging the development of critical thinking skills, explicit instruction in critical thinking needs to be included in the curriculum, whether that instruction occurs as a stand-alone course, is infused into the subject matter content, or both' (p.43).

## On critical reflection

The jury is also out on the question of whether critical reflection is exactly the same as critical thinking. I suspect that some who read this section will identify the next paragraph or two as a subset of the previous paragraphs, categorising critical reflection simply as a form of critical thinking. In thinking about these I tend to focus on critical reflection as an overlapping but slightly different concept. Some of my colleagues identify reflection as a very particular style of thinking that needs to be fostered in learners in particular ways. Personally I'm particularly impressed by the almost formulaic processes proposed by Ash and Clayton, which situate critical reflection within the broad educational domain of experiential learning (Ash & Clayton, 2009). In Ash and Clayton's model, the critical reflection processes emerge as desired learning outcomes that can be planned for by university teachers. They generally involve cognitive skills such as evaluation. Critical reflection then becomes an intended outcome in its own right and a pathway to more complex learning outcomes. Competent critical reflectors incorporate higher cognitive skills in their learning and in their approaches to life. The link to experiential learning, community engagement incorporating service learning, volunteering and some forms of overseas experience may be critical to us here. These experiences generally provide anti-foundational aspects of learning on which reflection can occur. Dewey (1910) emphasised that thoughtful deliberation required situations where learners had to 'endure suspense and to undergo the trouble of searching ... to sustain and protract [a] state of doubt' (p.16) to become a thoughtful and educated citizen and these anti-foundational ideas

DOI: 10.1057/9781137548412.0009

have come to be seen as underpinning critical reflection. In addition, it appears likely that the nature of learning often sought in, for example, service learning is values-based. Those who propose and support service learning hope that their students will not only learn about, for example, the struggles of disadvantaged citizens, but also develop attitudes and dispositions that may in the future help them, as citizens or leaders, to do something about them. There is an inherent interplay between educational approaches that focus on experience, higher-order cognitive learning, the development of critical reflection skills and affect.

Ash and Clayton (2009) describe the basics of their processes as DEAL (Describe, Examine and Articulate Learning). An important part of this process is to incorporate some learning goals (of a general nature) or learning objectives (something that can be measured) into planning for the learning experience. It is this anticipation of learning that encourages critical reflection following a learning experience. Ash and Clayton provide reflection prompts at each stage. At the 'describe' stage they suggest that learners are asked to describe with respect to the experience: their prior assumptions or expectations; how they felt and interpreted them; the successes and difficulties; and how their personal values were challenged. At the 'examine' and 'articulate learning' stages, learners are asked to comment specifically in relation to the teacher's desired learning outcome and in a way best able to help them act on it. Key prompts here ask learners: what they learned; how they learned it; why it matters; and what they will do in the light of this learning.

## On ethical reasoning

I suspect that it is possible to identify a problem that has no moral or ethical issues associated with it, but as I write this I can't think of any. Perhaps because much of my research is within the broad areas of sustainability and education, both of which are fraught with values-based concerns, I find it difficult to think in more abstract terms. Perhaps if I were a physicist, I could imagine a problem that required higher-order thinking skills to address and that would not necessarily involve emotional, affective, moral or ethical matters to be considered in reaching decisions. But I am not a physicist, and even if I were, perhaps I should be mindful that some do emphasise that even the most scientific of science problems generally do have social, or ethical, consequences (see, e.g., Cech, 2014,

DOI: 10.1057/9781137548412.0009

to be considered in more detail later in the chapter) and that these do need to be factored into science education. And critical thinkers need to be fair-minded, and being fair is essentially an ethical trait.

But where the problems relate to environmental concern, human suffering or economic solutions to our sustainability problems, the moral standpoints, or principles, of those involved and the ethical frameworks within which these moral principles are managed appear to me to be important. I think the correct educational framework within which these matters are addressed is that of ethical reasoning. Educators are interested in the ethical reasoning skills of their students. I emphasise here that the product of ethical reasoning, as a decision, is not necessarily the business of an educator. It may be, if that is the purpose of the educational programme, but it may not be if it is not. I don't think that I have ever been involved in any form of education where any particular product of ethical reasoning has been required. What has been required in an educational sense has been the application of some form of ethical reasoning. The fundamental educational purpose for this is so that each of us may better understand the ethical decisions that others have made, and to accept that while they may not be ethical from our standpoint and our moral presumptions, they may be from theirs. We shall see in the following section how I think this relates to ES/ESD, but first we should consider the nature of ethical reasoning itself (or perhaps more realistically, my particular interpretation of this complex and contested field of enquiry).

Those who concern themselves with ethics, in an educational sense, tend to emphasise ethical traditions that built up over long periods of human existence that enable people to reach ethical decisions. Given any particular set of circumstances, the decision that someone in particular will reach will depend on the ethical tradition within which their ethical reasoning processes fit. As with notions of critical thinking and critical reflection described earlier, it would not be reasonable here to attempt to summarise vast bodies of knowledge in just a few paragraphs, but it would also be unreasonable not to try. This decision is itself an ethical decision, based on my moral presumption that I personally have something worth communicating. In reaching the decision that indeed I will write just a few paragraphs summarising the nature of ethical reasoning I'm making use of a particular ethical tradition with a particular approach to reasoning. Basically I have considered that the best possible outcome from my actions will be if readers of this book gain insights into ethical reasoning that they didn't have before.

DOI: 10.1057/9781137548412.0009

In essence my ethical reasoning is based on predicting the best possible future; and ethicists identify this ethical process or tradition as consequential. Consequential ethical reasoning, for me, caused me to decide that rather than simply providing references to ethical reasoning books for readers of this book to refer to, a better outcome for my readers would be achieved if I did my best to summarise what these books say.

I could have addressed this decision through alternative ethical traditions. Teleological ethical reasoning processes are focused on my character in as much as I might have been driven by what I thought was the right thing to do (perhaps irrespective of consequences). I might have considered, for example, that as I am not personally, at an academic research level, involved in ethical reasoning, I should not be summarising for readers' benefit, this complex field of enquiry. What if I got it wrong? I may be misleading readers! If I had gone down that route I would simply be providing a reference at this point. Although I do provide references, I have not made this decision and I've overcome any conscience-based problems that I have about my academic character, and I've just gone ahead and done it. My ethical reasoning is consequential rather than teleological.

I could have addressed this decision through an alternative ethical position that focused on my duty in respecting the rights of others. I could have, for example, identified each reader's right to receive only the very best, absolutely correct or even truthful, interpretation of ethical reasoning that could be provided only by the very best academic ethical reasoning expert. If I had, I would be using the deontological ethical tradition to do so. Perhaps unfortunately for readers of this book I don't appear to, in these circumstances, be an advocate for the deontological ethical reasoning tradition. I chose to write these paragraphs myself, based on considerable reading, and some discussion with colleagues, I may add.

I hope that readers will see that each ethical tradition may require those with ethical problems to make different decisions. Those who teach ethics in higher education stress that different ethical traditions dominate in different areas of higher education, but that in most, perhaps all, areas of higher education, all ethical traditions and therefore all constituent ethical reasoning processes may be valid in some circumstances. I am most familiar with ethical reasoning in medical education. This domain is fraught with issues around how doctors interact with patients and whether their decisions should be based on taking the right

DOI: 10.1057/9781137548412.0009

action, being a good person or predicting the best possible future. Each ethical tradition may result in the same doctor coming to a different decision for the benefit of the patient. My experience in medical education suggests to me that different ethical traditions are used throughout medical education, in what appear to me to be sometimes perverse, and sometimes random, reasons. I generally conclude that medical education needs to be involved in teaching students ethical reasoning skills, but not necessarily involved in teaching students which ethical tradition they should be using and which ethical decision they should reach. My experience in medical education then causes me to address my interest in sustainability education and I come to the same conclusion. We can help students to develop skills in ethical reasoning and this will help them to understand the nature and purposes of the decisions that they come to, but it is not necessarily our role to teach them which ethical decisions they should reach. Potential differences between medical education, and sustainability education, in the context of a discussion on professional values will be addressed in Chapter 5.

Perhaps unnecessarily for many readers of this book, inevitably I use the same framework within which to address particular ethical issues associated with higher education for sustainability. Ethical reasoning within the deontological ethical tradition suggests to me that it may be unethical to impose Agenda 21–style sustainability objectives on students who have elected to study a subject at university that is not overtly related to sustainability. In some ways, to do so would impinge upon their rights as citizens of our societies. Deontologically speaking, we do not have the right to do so, and if we do it, it would be an unethical practice. Normative sustainability-focused educational practices in higher education may simply be unethical from this standpoint. But, of course, there are other perspectives, rationales and ethical standpoints. Personally I am likely to use the same ethical reasoning approaches within the same ethical tradition to come to an entirely different conclusion with respect to compulsory education rather than university education. I use the moral presumption that universities and schools have different functions within our societies. A primary function for schools it to prepare young people to become adults and fully functional citizens. University students are already adults and to some degree already fully functional citizens. Generally they can vote, fight for their nation and, in some nations, serve on juries. I make use of a different moral presumption about their roles and responsibilities. To make things even

DOI: 10.1057/9781137548412.0009

more complex, the deontological ethical tradition is entirely anthropocentric. Within this tradition, other inhabitants of our planet have no rights to consider. Depending on where their rights fit and who has the right to consider them, my claim that traditional ES/ESD in the context of higher education may be unethical is potentially on shaky ground. In recent years I have enjoyed the ethical debate inherent to environmental politics. Where one stands on the issues of the rights of non-human inhabitants of our planet has a substantial bearing on much in this domain (see, e.g., Bluhdorn, 2013).

Ethical reasoning within the teleological ethical tradition may require some university teachers to educate for sustainability because for them it is right, and good, to do so. The consequential ethical tradition may allow, or even require, those who make these ethical decisions to abandon both their own view of right and wrong, and of what a good person would do in the circumstances, if the consequences of not educating for sustainability were likely to be in their view, dire. The ends justify the means in this ethical tradition. What is unethical in one tradition may not be so in another.

I encounter all possible decisions, either rationally or intuitively made within all three ethical traditions, as I talk with colleagues in higher education about whether they advocate for sustainability or not; and I respect them all as having sound bases in ethical reasoning. But, then, in general, these people are highly qualified and competent university teachers. It is likely that many have never been taught to use orthodox ethical reasoning to come to their decisions, but they figured out which ethical tradition in practice they wish to adopt for themselves. Ethics and ethical reasoning is not the academic domain that distinguishes right from wrong.

## How do those with advanced skills in critical thinking, critical reflection and ethical reasoning view the world?

So what did Cech (2014) say about teaching physics? The article, published in *Nature*, essentially supported the idea that science students may become progressively less interested in the social implications of their science as they progress through their studies. Educationally, if we accept that the idea at least needs to be pursued, we wonder if this is something that science teachers in higher education are themselves

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promoting, or something that develops as a result of lack of promotion of an alternative. We should ask ourselves where an interest in the social implications of science relates to ideas about critical thinking, critical reflection and ethical reasoning? Perhaps we would identify that a critically thinking student probably would not simply assume that their science had no social implications worthy of interest, although these same critically thinking students would not necessarily need to be interested in these possible social implications. A critically reflective student may, however, need to go further, particularly if their learning was in some respects experientially based or community engaged. Critically reflective students would be encouraged, by those university teachers who help them to develop critical reflection, to reflect on 'why it matters' and 'what they might do about it'. If students were, in addition, encouraged to consider the ethical implications of their learning, using any reasonable ethical tradition, they might be expected to reach some sort of decision about the ethical nature of their work. It seems unlikely, to me at least, that this ethical reasoning would be totally devoid of a consideration of the social implications of their science.

There are two key elements of my grounded theory that are important to stress at this stage. The first relates to the role of university teachers and the extent to which this may need to adapt to future circumstances. The second relates to how necessary it may or may not be for students to develop critical skills in the context of sustainability.

On the first, this grounded theory does not necessarily require university teachers to change what they teach, or even in most cases how they teach. Nearly every teacher whom I spoke with on my research visits in 2013 impressed upon me their commitment to teaching their students critical thinking skills. Few talked about critical reflection, and no one that I remember specifically identified ethical reasoning, but I suspect that all three were in various ways wrapped up in most conversations around critical thinking and criticality to be imparted to those students involved in higher education. I'm not at all convinced that this is the reality of higher education but this is one situation where perhaps I shouldn't be too critical. There is no doubt in my mind that most university academics want to teach their students to be critical thinkers and that many try hard to do so. The adaptation that may be necessary is likely to involve more support for university teachers to understand criticality and to understand their role in generating it in their students. This argument confirms a need for more professional development support

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for higher education teachers but not radical changes in what and how university teachers teach.

On the second, my perspective is perhaps more complex than it need be. Personally, I can't find anything anywhere in higher education that doesn't in some way relate to sustainability. Perhaps in true 'greening the curriculum' fashion I find ways to integrate sustainability principles into every aspect of higher education. I may not mention sustainability, rather focusing on prediction, modelling, anticipatory thinking and systems thinking. I find these considerations everywhere in higher education. But perhaps that is just me? I do stress here, however, that even mentioning the S word is likely to cause more problems for some learners than solutions. For me, critical thinking does not necessarily have to be developed in relation to an overtly sustainability-focused concept. Nor does critical reflection or ethical reasoning. Indeed if the people involved in teaching the skills are not themselves overtly sustainability focused, it may contribute sufficient dissonance in the minds of learners to be counter-productive. My grounded theory does not require university teachers to habitually link their teaching to sustainability.

I have in mind a lecture given by an eminent academic physicist whom I'm thinking about as I write this. My colleague, let's call him Larry, is not one to think about the social implications of the science knowledge that marks him out as an excellent academic. His perspective, often voiced and particularly so in this lecture, is that his research is in pursuit of truth and it is up to others to apply it, in a social context, if they wish. But today, sitting in the front row, is an A-grade student (in conventional academic physics terms) but with pronounced critical thinking, critical reflection and ethical reasoning skills. Let's call her Sally. As Sally is listening to Larry and making notes about theoretical physics, her mind cannot help but to consider Larry's knowledge and Larry's insight into this knowledge, critically. Sally is wondering if Larry has really considered whether or not everyone in the world is as able as he is to separate out theory from application. Sally suspects that Larry hasn't considered this and that his viewpoint is based on a particular assumption that she, and likely most of the rest of the world (she thinks), doesn't wish to share. Last semester, Sally spent time teaching physics to schoolchildren as part of a university outreach programme that Larry has little to do with. Sally encountered schoolchildren, teachers and members of the wider community who were quite sceptical about the kinds of university knowledge that Larry is talking about now. Sally reflects on these other

DOI: 10.1057/9781137548412.0009

perspectives and wonders if in some way Larry's knowledge, wonderful as it may be, is based on a particular truth that makes sense in the world as it is now, rather than on a truth that may make less sense in the future, or on some absolute notion of truth. And Sally intuitively uses an ethical reasoning process within an ethical tradition that makes sense to her and comes to the conclusion that Larry could do better, in some respects.

But Sally is clever enough to know that there is no point in telling Larry this, not because he is unlikely to change, which he probably isn't, but because actually so much of Sally's cleverness is down to Larry's teaching, imperfect as it may have been. In teaching Sally physics, Larry has also taught Sally much of her criticality (and we incorporate within this higher-order cognitive skills and affect, including cognition-related values). He probably had relatively little to do with her critical reflection abilities (much of that was enhanced by her work with Dave in the outreach section of the university). Sally isn't certain about where her ethical reasoning skills came from. She suspects that Larry had a part to play in that as well, even though his ethical insights and decisions were often at least in part hidden, and may even have been different from hers (and indeed that difference probably helped her to fully discover her own perspectives).

So Sally keeps her counsel and thinks how important it is that higher education employs diverse people who are passionate in their own way about what they do, and on the way support students like her to develop their critical thinking, critical reflection and ethical reasoning skills. Her mind wanders onto how to save the whales and tackle global warming, and she thinks that she will address those problems over lunch, with other students who she knows have different insights from her.

On the basis of this educational analysis I could still imagine that even within a higher education system that did promote critical thinking, critical reflection and ethical reasoning skills, some students might start their studies relatively uninterested about the social implications of their studies, and remain so; but I would be surprised if this indifference increased during their stay with us in higher education, and applied to most students. From this perspective, encouraging students to develop these critical skills will change them to be more likely to consider the social implications of their knowledge.

Readers of this book would be justified, particularly at this juncture, to emphasise in their minds that this is just a theory, albeit grounded in qualitative research. I agree strongly that this is just a theory. I introduce

DOI: 10.1057/9781137548412.0009

no evidence that the theory, if put into practice, will work to create graduates of higher education who will adopt the sustainability principles inherent to Agenda 21. Indeed I doubt that it will. My grounded theory, put into practice, suggests that higher education is quite capable of teaching critical thinking, critical reflection and ethical reasoning skills and that graduates will emerge from higher education with the skills to decide for themselves what aspects of Agenda 21 they wish to adopt. I introduce no evidence that these graduates will then go on to make decisions different from those that our generation has made related to how we use and divide the world's resources. But the theory suggests that these graduates will be more critical and more capable decision makers than we were. The theory generates some hope that higher education will contribute more positively to sustainability in the future than it has in the past. Chapter 6 in this book is about evaluating how this hope develops in practice.

But I do expect readers of this book to not just cast their critical eyes on the likely outcomes of this grounded theory, if it were put into practice in higher education. I expect them to use what information and insights they have about other theories of higher education for sustainability to ask what evidence exists that these other theories, put into practice, will make things better. I have on various occasions identified my grounded theory as ESD Plan B, in contrast to what I identify as ESD Plan A. Plan A assumes Agenda 21 as providing its foundational objectives; devotes its attention to advocating for sustainability; emphasises normative educational objectives relating to what graduates will choose to do and choose to be, often described in terms of action competence and key competencies. I expect readers at this juncture to ask what evidence has been put forward to suggest that ESD Plan A will work. Promoting Plan A is not the purpose of this book, but many others have written books on Plan A. You should ask them for some evidence and how they might go about collecting it. (Chapter 6 in this book details how I think we should be collecting evidence about change.)

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DOI: 10.1057/9781137548412.0009

# 5

# Values Education for Sustainability, Academic Integrity and Professional Values

**Abstract**: *Developing the ideas addressed in previous chapters with reference to two values-rich fields of enquiry that nearly all university academics nowadays will have some experience of. On academic integrity: to what extent does higher education teach integrity; what is it; how is it learned; who teaches it and how do they do it; can it be assessed, evaluated, researched or otherwise measured? On professional values: professions generally espouse values that lead to professional behaviours and these are taught within our universities; but how are they taught; who teaches them and who assesses them? This chapter ends by discussing similarities and differences between education for sustainability, professional education and values education for academic integrity.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015. DOI: 10.1057/9781137548412.0010.



DOI: 10.1057/9781137548412.0010

## Introduction

There is an extensive and long-standing international discourse on the roles of higher education and of university teachers. The idea of a higher education *for* sustainability or *for* sustainable development is but one part of this discourse that has in the past had to address being *for* or *not for* a large number of values-based social and political constructs. But as a part rather than the core of this discourse, ES/ESD does need to situate itself within this broader concourse. Considering ES/ESD as self-contained point of contention is naïve.

Arguably, the broader discourse in higher education has come to a head around the issue of education as either a disciplinary pursuit, or as something broader, more enlightening and liberal. In some institutions, the debate has centred on multidisciplinary approaches to education, rather than about students immersed solely in one discipline. In others, citizenship education, or civics, has provided an important adjunct to disciplinary education. In many institutions, the focus within which this discussion has occurred has involved experiential learning in one form or another and has often been centred on community engagement (see Carnegie, 2014, for some definitions). The learning objectives generally identified for community engagement include preparing 'educated, engaged citizens' and to 'strengthen democratic values and civic responsibility' (Carnegie, 2014, n.p.). Proponents of ES/ESD have much to learn from the more extensive and long-standing debate about higher education's involvement in the 'scholarship of engagement' and the pursuit of values such as responsibility and integrity. The terms 'values' and 'responsibility' are particularly relevant to ES/ESD, to any notion of integrity and to the professions.

Accordingly, this chapter is designed to help readers make sense of what might be for them relatively novel ideas about affect, cognition and criticality with reference to two values-rich fields of enquiry that nearly all university academics nowadays will have some experience of.

These two areas are:

- Professional values. Professions generally espouse values that lead to professional behaviours. These are taught within our universities. How are they taught? Who teaches them and who assesses them?
- Academic integrity. To what extent does higher education teach integrity? What is it? How is it learned? Who teaches it and how do

DOI: 10.1057/9781137548412.0010

they do it? Can it be assessed, evaluated, researched or otherwise measured?

This chapter will end by discussing similarities and differences between education for sustainability, professional education and values education for academic integrity.

## Professional education for values and behaviours

### Identifying and describing professional values

Some university academics consider it their role, absolutely and without equivocation, to prepare graduates who embody the professional values of particular professions. I remember conversations with the dean of a dental school who explained to me how important it was for the university to protect the public from rogue dentists. The rogue dentists he had in mind were quite possibly knowledgeable and skilled but somehow lacked aspects of professionalism considered fundamental by the dental school and by the dental profession to dentistry. Over the years I have had similar conversations with colleagues in teaching, medicine, nursing, pharmacy and in law.

Professions and professional bodies describe the nature of professionalism in a range of ways. Some provide lists of values, or core values, that are important to the profession. The General Teaching Council of Northern Ireland, for example, lists trust, honesty, commitment, respect, fairness, equality, integrity, tolerance and service as its core values (http://www.gtcni.org.uk/uploads/docs/GTC_code.pdf). The American College of Dentists lists autonomy, beneficence, compassion, competence, integrity, justice, professionalism, tolerance and veracity (https://www.acd.org/PDF/Aspirational_Code_of_Ethics.pdf). The New Zealand Medical Association includes integrity, honesty, respect, fairness, inclusivity, quality, excellence, caring, nurturing, responsibility and responsiveness (https://www.nzma.org.nz/about-nzma/nzma-values).

I suspect, but I've never formally determined, that increasingly professional groups are conscious of the relatively nebulous nature of some of these values (in that they are difficult to define, and to a degree, assess) and address their concerns by listing the behaviours that they expect their professionals to perform, or to be characterised by, rather than the values that are assumed to underpin them. The Medical Council of

DOI: 10.1057/9781137548412.0010

New Zealand, for example, expects its doctors to respect their patients but emphasises that the behaviours through which this respect manifests itself include (as examples): being aware of cultural diversity, and functioning effectively and respectfully when working with and treating people of different cultural backgrounds; treating patients as individuals and respecting their dignity by respecting their right to confidentiality and privacy (www.mcnz.org.nz/assets/News-and-Publications/good-medical-practice.pdf).

Higher education departments generally maintain congruence with the professional bodies with whom they interact. The University of Otago Medical School, here in New Zealand, for example, maintains a graduate profile that includes values-based outcomes such as 'Respect for, and an ability to respond to the cultural context and aspirations of patients, colleagues, other health care workers and communities' (https://micn.otago.ac.nz/courses-and-subjects/graduate-profile) and, while students are with us, a Code of Professional Conduct for Medical Students (http://micn.otago.ac.nz/wp-content/uploads/micn/2008/03/Code-of-Professional-Conduct-for-Medical-Students-Feb-2013.pdf) with much of the same.

Bearing in mind my particular interest in affect, readers will not be surprised that I pay particular attention to suggestions that higher education will influence what our students and graduates respect, appreciate, show commitment for and are willing to be. To me all these represent the choices the students make about how to make use of the knowledge and skills that they learn whilst with us. These values and attitudes and behaviours are, in general, higher-order affective learning outcomes. There is no doubt in my mind that professional education embraces affect to a substantial degree. As we explore the affective domain in sustainability education we should take note of what happens in medicine, teaching and in law.

## Teaching professional values

While there may be a lot in common between the aspirations of those who advocate for sustainability in higher education and higher education's professional schools, it would not be reasonable to claim that matters affective are straightforward within these professional schools. In my experience, particularly my experience of working with university teachers in medical schools, the affective domain causes considerable

DOI: 10.1057/9781137548412.0010

consternation wherever we encounter it. There is a considerable body of research to support this opinion. One example of a research study, in the United Kingdom, that explored how values are taught in medical schools, is provided by Borgstrom et al. (2010). These researchers investigated how final year medical students experienced and interpreted professional values, particularly in the context of working with dying patients. The authors identified two value sets as experienced by these students; an older model of professionalism (non-medical readers might identify this as the 'doctor knows best' values set) and a new value set that emphasises holistic care and patients' rights to have a say in their care). The new values did not simply replace the old values. Naturally, given these two coexisting models of professionalism, students were conflicted by the tensions that arose in their studies and needed to develop personal learning strategies to help them overcome these tensions.

Of particular interest to us is the fact that whereas the newer values were open and clearly communicated in institutional documentation, the older values tended to emerge through hidden dimensions of the curriculum. Again we see parallels here between teaching values in medicine and some aspects of ES/ESD. The hidden curriculum becomes an important means for university teachers to get their unofficial message across, consciously or otherwise. This observation also reinforces the notion that role models are particularly important in teaching affective outcomes. If institutions do not want unofficial values to find their way into the actual curriculum, they had better find ways to hide the wrong sort of role models from the students, as suggested by Paice et al. (2002).

Also apparent from the literature in this area is the realisation that in order to develop appropriate values during the course of professional education, learners need to reflect on their experiences and both be given opportunities to and required to undertake this reflection, with support. Medical schools are investing quite considerably into simulations, online and otherwise, in order to provide learners with appropriate value-laden experiences as a basis for this reflection. Continuing the theme of using my own institution as an example of some place where these things are occurring, readers may be interested in the Otago Virtual Hospital (Loke et al., 2012).

## Assessing the attainment of professional values

I find it fascinating that despite identifying many parallels between teaching values in professional education and teaching values in ES/ESD,

DOI: 10.1057/9781137548412.0010

my arguments in particular for anonymity have so far had little impact in professional education. I can see the situation from the perspective of a medical school or other professional school in my own institution. They are duty-bound to support the learning of their students towards particular professions. The professions lay down the professional values, attitudes and behaviours that the students will acquire during learning and that they will display post-graduation. University teachers in professional schools need to teach these affective outcomes and through processes of assessment of individual-named students certify that the student has acquired the required affective outcome. Dr Smith on graduation not only knows how to show respect, not only has the required skills to enable him to show respect, but during his assessments within the professional school did show respect; and the school, and presumably future employer, has every reason to hope that Dr Smith will continue to show respect as she practises the profession. In my exploration of ES/ESD in previous chapters I think I provided a reasonable argument for why higher education should not make the same claims for sustainability values, attitudes and behaviours. There, drawing from the work of Bloom, Krathwohl and colleagues, I proposed that individuals should be anonymous in an evaluation approach whereby the key question was whether or not the cohort as a whole had acquired the required affective outcomes. Personally, I worry greatly that in high-stakes assessment situations where individual students are asked to behave in particular ways indicative of particular values or dispositions, if the student has the knowledge and skill to do so, they will. Why wouldn't they, when their future profession depends on it? I note, perhaps reluctantly, that I'm not the only person to worry about this. The approach most widely used by medical schools to assess individual behaviours is the OSCE (Objective Structured Clinical Examination) where, typically, students are exposed to actors pretending to be patients and university teachers, as assessors, watch and listen as the student performs the required diagnosis or treatment. As suggested by Bleakley et al. (2011), for example, 'In focusing all of our resources upon finer and finer detail in the psychometrics of the OSCE, we have forgotten that the OSCE can be seen as a piece of theater in which roles are scripted. We can then analyse the OSCE sociologically for its performative, rather than psychometric, dimensions and this reveals some uncomfortable possibilities, such as medical students "faking it"' (p.231). As with so much in education, when we are exploring the detail of learning, we need to ask in detail what learning is involved.

DOI: 10.1057/9781137548412.0010

If as educators we are happy that having the knowledge to do something and the skills to do it is enough, then observing the fact that the student is actually able to do it is also enough. Whether or not it is important that medical students may or may not be faking it does depend on the fine detail of learning.

### What can we take from professional values education back to ES/ESD?

In many respects professional education, and perhaps particularly medical education, is an ideal model within which ideas around values education within ES/ESD can be explored. Values and values education are upfront in medical education. So are the challenges inherent to values education. Medical educators appear to me to be grappling with these issues every day. They are concerned to learn about how to teach them. They are concerned about the perils and inevitability of the hidden curriculum. They realise the importance of reflection on experience. And they are interested in change. Medicine as a profession is changing dramatically and I suspect that medical education is struggling to keep up. As Borgstrom et al. (2010) comment,

> If individual reflection is now heralded as an essential component of the 'new' professionalism, as indicated by the compulsory student exercise we have drawn on here, it should be acknowledged that it demands a dynamic engagement with the wide range of often contradictory and shifting ideas and beliefs from both formal and more hidden aspects of their education. This study illustrates that overt commitment to more empathic and patient-centred approaches to medical care do not necessarily replace other more prescribed values and behaviours that remain part of the hidden curriculum embedded in institutional practices. (p.1335)

## Teaching and learning academic integrity

Many of my academic colleagues think that I am talking about 'plagiarism' when I use the term academic integrity. Maybe that is because academic integrity policies in higher education institutions tend to focus on this one facet of integrity, or maybe the policies have this focus because the people who write them do. Perhaps we assume that our students are basically integrious (a word not currently in most dictionaries, but perhaps should be as it once was, meaning 'having integrity')

DOI: 10.1057/9781137548412.0010

and then get a shock when we discover that some employ others to write their assignments, or copy them from Google or do almost anything to get through the next stage of the obstacle course that we call their programme of study.

Okay, plagiarism is important, but actually when I think about academic integrity I have broader issues on my mind. I am concerned, for example, about data fabrication and about the pressures that academic researchers must be under to contemplate being dishonest in this way. I wonder about the educational processes that perhaps contributed to them becoming researchers for whom dishonest practice is a reasonable option. I wonder about the nature of the learning environment that they were exposed to as students, to explore how educational change that I may promote could improve matters. I do worry that the higher education that I'm part of now is not the same as a higher education that I grew up in and in particular that massification has created more opportunities for student anonymity and this in turn might be creating more temptations for something other than integrious behaviour. And, let's face it, I need to consider my own actions in, for example, writing this book. Wouldn't it be awful if I discovered, or even worse, someone else discovered, that I had inadvertently included here a sentence or paragraph that somehow I had borrowed from someone else, and forgot to cite. Actually my biggest problem is with what is uncomfortably described as self-plagiarism. I am often called upon to write about the same thing in slightly different contexts on different occasions. Generally I look back on what I have written previously, and this does influence how I explain the same things again. Oops, did I do it again? Is that wrong? (Not in my view if I reference where I have written it before).

For the most part I've come to the conclusion that integrity, and perhaps particularly academic integrity, is a matter of choice. Educationally it fits my refrain of 'not what I know, nor what skills I have to put this knowledge to use, but what I choose to do with the knowledge and skills that I have'. Generally speaking, and in my experience, much of the data fabrication, un-cited copying, copyright theft and downright plagiarism that I've encountered is the product of somebody's choice. Choices may have been limited by lack of time, lack of money, lack of support, unreasonable pressure to perform, poor prior choices in life, but choices have been made. Perhaps choices have also been limited by lack of knowledge of what is honest and what is not but I'm not personally convinced that this is frequently the case.

DOI: 10.1057/9781137548412.0010

Overall people make choices and overall if we were to seriously educate for academic integrity then essentially we would be educating people to make the 'right' choices. We could go back to the beginning of this book and delete all reference to sustainability and replace it with integrity, or honesty. Let's look at what we can learn from the academic world of academic integrity and perhaps what learning we can transfer into the academic world of ES/ESD.

## The aims and focus of academic integrity policies

In an important review of academic integrity issues, Bertram-Gallant described academic integrity as a learning and teaching imperative (Bertram-Gallant, 2008) and suggested that not only did academic integrity need to be taught, and learned, but that integrity involved at least in part an institutional responsibility rather than something that only individuals need to address. To an extent this viewpoint was a response to an idea dominant in some situations that honesty is essentially something the individuals have to have, that it can't necessarily be taught, and that the institutional role needs to be one of quality assurance in catching and punishing cheats. My own institution, University of Otago in New Zealand, at the time of writing, does not have an academic integrity policy but does have a range of policies and procedures related to academic dishonesty. These are clearly designed to help learners to understand what dishonesty is in an academic context, but they are not, in the learning and teaching sense, designed to teach, or to support the development of, integrity. Some higher education institutions do have academic integrity policies and some of these emphasise the values and behaviours that the institution expects and the approaches that the institution and its members will use to promote these. Indeed, Bretag et al. (2014) suggest that the 'purpose of integrity policies is to develop shared values with all stakeholders based on genuine and coherent commitment' (p.1153) and in evaluating academic integrity policies these researchers emphasised the benefits of a clear statement of purpose and values. At this point in time it will be reasonable to say that at least some higher education institutions do regard academic integrity as something that is essentially values-based, taught, and learned, and some embrace the idea that whole-institution approaches are likely necessary to achieve this learning. In these respects, similarities with sustainability education are striking.

DOI: 10.1057/9781137548412.0010

## Varied academic perceptions about AI

My own research with colleagues at the University of Otago in New Zealand and with Erica Löfström from the University of Helsinki in Finland does help explain why higher education institutions are struggling so much with academic integrity issues. We used Q methodology research to better understand the perspectives of university teachers in these two institutions about academic integrity and their role in teaching it. We were not surprised to discover variation in perspectives. In a statistical sense we identified five qualitatively different configurations of perspective. Overall academics at our institutions respected the importance of academic integrity but had different views on what it was, how it could or should be taught and whose responsibility it was to teach it (Löfström et al., 2014).

- Some academics appear to deny the values component of academic integrity teaching. They interpret academic integrity as a set of behaviours each underpinned by a set of skills. Higher education can teach integrity skills like any other skills.
- Others accept the values base of academic integrity but fall into categories
  - Some doubt their ability to explicitly teach integrity assuming that students either have it or don't by the time they get to higher education, or that role modelling of integrious behaviour is the best that they can do.
  - Others recognise their role in teaching integrity but address this role either through guided practice (encouraging students to question what is right or wrong) or through explicit teaching of rules and values.

## What can we take from academic integrity education back to ES/ESD?

Those who hope to find within the educational world of academic integrity the answers that ES/ESD is looking for will be disappointed. We find here similar conflicts and variation in perspective about similar issues. For some teaching integrity/sustainability is simply not their role. For some, teaching integrity/sustainability is a central component of what they are there for and indeed what the institution is there for. It would not surprise me if some university academics actually identified integrity

DOI: 10.1057/9781137548412.0010

and sustainability as essentially the same thing. For some integrity/sustainability is simply a knowledge base while for others it is a set of values by which life decisions are decided.

We could explore the possibility that while education for sustainability is a relatively new construct in higher education and for higher education, academic integrity is not. Academic institutions have been interested in data fabrication, plagiarism and copyright infringement for many decades. Perhaps the situation that pertains to academic integrity teaching and learning now is the best that we can hope for, for sustainability teaching and learning in the future. Let's hope not because to be honest it appears to be in a bit of a mess. It should be a warning to us if we don't get ES/ESD right for higher education.

## Comparing ES/ESD and other forms of values education?

I promised to end this chapter by discussing similarities and differences between education for sustainability, professional education and values education for academic integrity. What I have in mind here is to explore possible rationales whereby we should identify the challenges of ES/ESD as something different from the challenges of education for professional values and for academic integrity.

I think fundamentally, and perhaps naïvely, the crux of the matter in this discussion is the current distribution of sustainability values, academic integrity values and professional values amongst university people. There are bound to be flaws in my argument in particular because of my lack of definition in the use of these terms, but if we can live with generalities for a short period let me explain my concern. I have considerable trust in my academic colleagues in all of the institutions that I've worked in in the United Kingdom and in New Zealand, and indeed in those higher education institutions that I visited in recent years, but I have more trust in some domains than in others.

I trust most of my academic colleagues to have academic integrity themselves. Most in my experience do not plagiarise (certainly not deliberately). Most have at least a passing acquaintance with copyright law, and although they may not personally adopt the legal definition of copyright infringement most have their own values-based interpretation of right or wrong in copying academic material. Mostly, my colleagues do not fabricate data. Whether these same colleagues think it is their role to teach academic integrity or not is another matter. If they did

DOI: 10.1057/9781137548412.0010

teach academic integrity I think they could do it honestly because they have academic integrity themselves. Most of my academic colleagues would make excellent role models for academic integrity.

I have similar trust in those academic colleagues who teach professional values or who work in situations where they are expected to teach professional values. By and large the values that they teach are the same values that they use on a day-to-day basis as they practise their professions. I don't think many lie or cheat within their professions. I may not agree with all of the professional values that their profession professes, and I think that some of my colleagues do not either but where they do not they are generally quite open about it.

Perhaps just as important, by and large these professions have professional bodies that look after professional values long after our students graduate. The professions value the values that they profess. We all value the integrity inherent to academic integrity. When our students graduate from our institutions they enter a world in which the values that we have promoted during their higher education experience are supported in their day-to-day interactions in our societies. Professional values of honesty, respect, integrity are respected and expected widely in our societies.

I have less confidence about how my colleagues cope with the values inherent to sustainability and in how society supports these values outside of academia. I have not elsewhere in this book been specific about what values underpin the values-based enterprise of ES/ESD, other than to quote others' expressions of these values (such as Agenda 21 with its focus on the 'environmental and ethical awareness, values and attitudes, skills and behaviour consistent with sustainable development'). Indeed we would be hard-pressed to be able to agree and list a set of values consistent with sustainable development. But I suspect they would include ideas about resources, personal consumption, pollution, conservation, social justice and all of these on a global rather than national or local scale. I doubt whether many of my colleagues could put their hand on their heart and claim to live the values inherent to sustainability in the same way as they do to academic integrity and professionalism. I certainly can't. Nor do I think that our graduates will experience widespread societal and employer support for the expression of these values. I worry that those who do graduate with sustainability values will be entering a world where these values are not shared or necessarily respected. This will be a tough world to inhabit.

DOI: 10.1057/9781137548412.0010

I think these matters have a bearing on the values that we can teach in higher education. Learning academic integrity and professional values seems to me to be so much more straightforward than learning sustainability values.

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DOI: 10.1057/9781137548412.0010

# 6

# The Challenges of Education for Critical Action

**Abstract**: *Expanding on the challenges that apply to those who advocate for sustainability, and to those who do not but who nevertheless attempt to educate for critical reflection, critical thinking and perhaps even critical action. The focus of this chapter is on researching, monitoring, evaluating, assessing or otherwise measuring learning outcomes relevant to both groups of university academics. Both groups may question the extent to which their students have achieved required levels of ability in critical reflection and both groups will be interested in their students' sustainability attributes. This chapter focuses on finding common ground that links the aspirations of those who advocate for sustainability with those who do not.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137548412.0011.

## What learning outcomes should we be monitoring?

It should be apparent to readers of this book that much of the rhetoric associated with ES/ESD is about higher-order affective outcomes. Traditional expositions of ESD are to 'change people's attitudes', 'achieve values, attitudes and behaviours consistent with sustainable development', 'shape doers' and 'graduate stewards of the environment'. As so eloquently expressed by UNESCO,

> The effectiveness of awareness raising and education for sustainable development must ultimately be measured by the degree to which they change the attitudes and behaviours of people, both in their individual roles, including those of producers and consumers, and in carrying out their collective responsibilities and duties as citizens. (UNESCO, 1997, pp.29–30)

It is difficult for me, and I suspect for many others, to imagine that university teachers who advocate for sustainability in their teaching, in the context of ES/ESD, would somehow have lesser aims for their students. Everything listed here is essentially about changes in learners that will either produce sustainability-focused behaviours themselves or affective changes, such as attitude change, likely to lead to these changes. If the outcomes of overt advocacy for sustainability fall short of these, one would have to wonder what the point of advocacy was. University teachers wearing their assessment or evaluation hats are likely to be very interested in how the students behave, how they will behave in future (after graduation) and on what predictors of these behaviours are accessible to them in an educational context. We shall return to these interests shortly.

At this point it is necessary to reiterate some ifs and buts, even at the risk of heading off on tangents. Firstly, if you are an advocate for sustainability but interpret your intended outcomes in terms of, for example, competencies, you may be under the impression that the preceding text doesn't necessarily apply to you. I need to stress that if within your definition of competency you include notions of what competent people will be 'willing to be' or willing to do, then your teaching is, in my view, firmly situated within what I categorise as values teaching. From my perspective, like it or not, you are teaching in the affective domain and likely trying to influence your students in some way or other.

Secondly, I need to reiterate that ES/ESD can be interpreted in different ways by different people. Earlier in this book I commented that some

DOI: 10.1057/9781137548412.0011

authors may essentially support some ideas within the broad framework of ES/ESD but are nonetheless critical of competence-based approaches towards sustainability education that involve socialisation to produce 'active, critical and independent citizens who are able and willing to play an active role in finding solutions to the problems and issues connected to sustainable development' (Van Poeck & Vandenbeele, 2013, p.3). These authors emphasise how 'pinning down sustainable citizenship to a particular standard that is, a set of knowledge, attitudes and skills denies the essentially contested process of becoming a citizen' (p.1). For these authors 'education is not aimed at the acquisition of particular knowledge, skills, competencies or dispositions but stems from an exposure to and an engagement with practices in which democratic citizenship can develop and where public solutions for private troubles are sought and negotiated' (p.6). Expressed as a logical outcome, "Education then emerges as a space in which people are invited and encouraged to explore an issue and to respond to each other's divergent and mutually exclusive concerns, a space in which things are made public: this "is not just about making things known (as 'matters of fact'), but about making them present (as 'matters of concern')" (Masschelein & Simons, 2009, p.237; Van Poeck and Vandenbelee, 2013, p.9). We could, broadly speaking, reach the conclusion that at least from the student-learning perspective, this conception of ES/ESD may be defined by students' learned concerns, another way of emphasising middle-order affective outcomes such as responding, valuing and organising (and retrospectively supporting the 1970s social science focus on developing research instruments that address peoples concerns [more on this later]). Indeed Van Poeck and Vandenbeele's expression about encouragement to explore, and to respond, could be seen as a simple paraphrase of listen, respond and value steps in the affective learning domain. Indeed, we may also here incorporate aspects of pluralistic ESD (Kopnina, 2015) and a recent commentary on the challenge of reaching universally acceptable definitions of ESD (Bengtsson & Ostman, 2013) and reach similar conclusions, albeit with less obvious overlaps. Indeed, it could be argued that these approaches, although interesting, are essentially not addressed at achieving sustainability. In outcome terms they are 'education about sustainability', not 'education for sustainability'. Indeed the book that you are currently reading also fundamentally promotes the teaching of lower-order affective outcomes, and cognitive outcomes, whilst maintaining a strong interest in higher-order affect. Does my grounded theory really address ES/ESD or is it simply 'about' sustainability?

DOI: 10.1057/9781137548412.0011

And, as described in previous chapters, some university teachers, perhaps particularly those who focus exclusively in a disciplinary context or deny the affective aspirations or leanings of higher education, will situate their interests within the cognitive domain and focus on the skills that contribute to criticality, either as critical thinking or as critical reflection. Their monitoring focus will be on their students' ability to analyse, apply, evaluate and create and the incorporation of these skills into critical thought as a precursor to critical action. With monitoring of outcomes in mind, are these cognitive outcomes essentially incompatible with those described in the previous paragraphs? I suggest not.

Taking the needs of all university teachers to heart we should consider some essential sustainability-focused ideas. Imagine a future university in which my grounded theory has taken hold. Some university teachers advocate for sustainability in their teaching, firmly and confidently operating within a traditional ES/ESD mode, and aim to transform their students, and mankind, to a sustainable way of life. I suspect (rather perhaps hope) that most of these will walk to work, or use public transport, and fly to conferences only when they absolutely must. Others, to varying degrees, focus within their disciplines but nonetheless support the development of their students towards critical thinking, critical reflection and ethical reasoning. They do this, not because of a newfound passion for things sustainable, but because they agree that this is the best way to teach their students. Most of this latter group never mention the word 'sustainability' in front of their students and they continue to fly to conferences, and drive to work. All teachers in this enlightened institution are supported by an administration that has promoted and enabled all students to be community-engaged in their studies and to study in multiple subject areas. The institution will have, in all likelihood, signed the Talloires Declaration, agreeing to educate for environmentally responsible citizenship, as many members of this institution will have decided that this was the right thing to do, and most hope that somehow, graduates from this institution will use their critical abilities to choose to embrace a more sustainable and socially equitable way of life than they, their teachers, on balance, have achieved. Even those university teachers who never mentioned sustainability in their teaching are coming round to the idea that by promoting critical reasoning, critical thinking and ethical reasoning skills, they are indeed educating for sustainability or for sustainable development. The question that we must ask (or the proof of the pudding as my Granny would have

DOI: 10.1057/9781137548412.0011

said) is surely in the distinction between 'education about sustainability' and 'education for sustainability'. Folk in this enlightened institution have read my book and decided that, irrespective of what individual teachers do or do not teach, the institution will do its best to determine *what has been learned;* and this institution is interested in the semantic difference between 'about' and 'for'. It will focus its attention on affective learning, with an eye on what students do or will choose to do, while maintaining interest in cognitive learning, with its baseline emphasis on the knowledge and skills that students have. This institution will want to ask the question 'Overall, and on balance across all of our programmes, do our students leave us more inclined towards sustainability than they were when they came to us?' This institution has promised to 'educate for sustainability' and is determined to discover the extent to which it is achieving its aims.

I worry that some readers will regard the next few lines as in some respects a slight of hand; a card trick; or an illusion. In essence I have to suggest that some things in the list mentioned are or should be relatively straightforward for university teachers to research, assess, evaluate, monitor or otherwise measure. Some learning outcomes that focus on knowledge or skills are measurable using tests, assignments, examinations, laboratory class records, field trip reports (the list goes on). Higher education is, or should be, good at this. Most of these learning outcomes can be assessed for individual students without necessarily worrying that the identity of the students has been incorporated within the process. But as described in previous chapters, some learning outcomes are much more difficult to assess in higher education settings (how a student might choose to behave after he/she graduates is a prime example) and some intended outcomes are likely to be unrealistically assessed if the identity of the student is incorporated within the process. So my slight of hand is to suggest that lower-order affective outcomes (such as listen and respond) should be relatively straightforward for a teacher to assess. Likewise, the full gamut of cognitive outcomes is stock in trade for higher education to assess. In these cases university teachers don't need to read a book on ES/ESD to find out how to do these things. They should be happening as a matter of course in all higher education. I conclude that we, and higher education in general, in our quest to support our sustainability objectives, need to focus on higher-order affect.

But higher education will always find it difficult to measure higher-order affective outcomes on an individual basis and, in my view, does

DOI: 10.1057/9781137548412.0011

need to focus on processes that assess, evaluate, research or otherwise measure higher-order affective changes in cohorts, not in individuals. My hypothetical future university needs to know what students will choose to do with the knowledge and skills that they have acquired whilst engaged in higher education and it knows that it cannot simply ask them. (OK Guys, here is the all important question at the end of your degree programme. Think carefully before you answer it as we have promised ourselves, and others, that we will educate you *for* sustainability. Future government funding to this fine institution, and the future value of your degree certificate, depends on your answer. And rest assured, we know who you are and we know you won't let us down! Here it is; in future, do you promise to always act in a sustainable manner?).

## Assessment, evaluation, monitoring, measurement or research?

Before I go too far I need to comment on some of the terms that I've used so far: assessment, evaluation, monitoring, measuring and research, because these terms mean different things in different parts of the world. To be honest, I think that higher education uses these terms too flexibly and this does create huge misunderstanding. Let's start with 'measurement' and let's assume that we all know that higher-order affective outcomes cannot be measured with a ruler. Measurement in this context surely means something else and to all intents and purposes essentially implies making some judgement about the quality of whatever is under scrutiny. We can add ideas about longer-term measurement by using the term 'monitoring', to at least imply repeat measures over a time period. What then of the tough issues of assessment and evaluation?

I use the term assessment to indicate the process whereby measurements are made of the attainment of a learning outcome for an individual identifiable student and something that may contribute to the overall grading, or grade point average, of this student. A student cannot be anonymous in an assessment. Evaluation, for me, is applied to a group or cohort of students, all of who will be anonymous in the process, and relates to the extent to which the programme has achieved its objectives. Similar concepts apply throughout New Zealand, Australia, the United Kingdom, and I think, much of Europe. In the United States, however, the terms assessment and evaluation are used occasionally in

DOI: 10.1057/9781137548412.0011

interchangeable ways. Read, for example, the advice given to academic colleagues in one university in the United States (Duke University, 2015) where assessment 'is an interactive process between students and faculty that informs faculty how well their students are learning what they are teaching' and yields information that is 'learner-centered, course based, frequently anonymous, and not graded' (n.p). For comparison, do read a similar description, this time of 'evaluation' given in another university in the United Kingdom (University of Bath, 2015), which provides similar underpinning and also emphasises the anonymity of students in the process: 'Unit Evaluation has three main aims: to enable students to provide anonymous feedback on their experience of all taught units' (n.p.). For each institution, country or discipline, where students are anonymous in an evaluation, they are not anonymous in the equivalent assessment, and vice versa, as educational institutions generally do need to link aspects of 'performance', with individual, named students.

Because of these anomalies, and because of the importance of this matter and the likely severe consequences of continued misunderstandings, colleagues and I have suggested elsewhere (Shephard et al., 2015) that, in the context of ES/ESD, we should use the term 'research' as an alternative to 'assess' or 'evaluate'. Maintaining the anonymity of research subjects is second nature to researchers around the world. I am perfectly comfortable with the notion that higher education institutions will regard the question 'Overall, and on balance across all of our programmes, do our students leave us more inclined towards sustainability than they were when they came to us?' as a research question, and apply appropriate research methodologies to answer it. Appropriate, in this context, for me, demands that students involved in the process have some confidence that they are anonymous within the process and researchers who undertake the process make every reasonable attempt to ensure that students are truly anonymous.

## Research instruments and research processes

A substantial proportion of my research in recent years at the University of Otago has focused on developing research processes that might enable my institution and others to address this key question. I have worked with colleagues from several academic departments at my institution in this quest and we have published a number of academic articles in key journals

DOI: 10.1057/9781137548412.0011

(including *Environmental Education Research*, the *Journal of Environmental Education* and the *Journal of Sustainability in Higher Education*). Much of what follows draws substantially from these publications.

We start by emphasising the affective nature of many of the intended outcomes from ES/ESD and identify the wide range of teaching and research approaches available to university teachers who work in this domain (Shephard, 2008; Buissink-Smith et al., 2011).

Next, we should dispel, or at least lessen, the doubt that readers may have about the possibility of researching the affective attributes of our students. Is it simply too difficult to research what students might choose to do in the future? I and many other researchers do suggest that what we choose to do, or how we choose to behave, is to an extent dependent on our values and attitudes. The suggestion is supported by our understanding of the affective domain and the idea that learners may progress up a hierarchy of learning, starting with a willingness to listen and to respond, moving through a period of reflective and critical valuing, then engaging in processes that help individuals to organise their thoughts and to experiment with behaviours, and emerging with worldview and a mindset that establishes the character of an individual. I and my colleagues suggest that it is possible to make use of research instruments that address some aspects of these higher-order affective attributes. Attitude surveys, particularly those that are validated to address worldviews and concerns, may be particularly relevant to us. They do not enable us to research behaviour in any direct sense but they do in all likelihood have relevance to the behavioural intentions that we are interested in.

Much of the research that I've been involved in in recent years has used the NEP (New Ecological Paradigm) scale. I claim that this research is not about the NEP, but is about the opportunities that the NEP affords us to explore how complex and affective attributes of our students can be researched in our universities. The NEP and some of its history is described in Table 6.1.

Working with colleagues at the University of Otago and at Otago Polytechnic we researched the sustainability attributes of undergraduate students, using the NEP (Shephard et al., 2009), compared different approaches (essentially qualitative vs quantitative) to explore the sustainability attributes of students, which resulted in more confidence in the use of the NEP (Shephard et al., 2011), and used statistical cluster analysis to record how sustainability attributes distribute within cohorts of students (Mann et al., 2013).

DOI: 10.1057/9781137548412.0011

**TABLE 6.1** *The NEP*

The New Environmental Paradigm scale was developed by Dunlap and Van Liere (1978) as a 12-item attitude scale and revised by Dunlap et al. (2000) to include 15 items and renamed as the Revised New Ecological Paradigm scale (abbreviated here as NEP). The NEP has been extensively used for classifying the views that people have about the natural environment (styled as 'ecological worldview' by Dunlap et al., 2000), and more recently for monitoring how these change (Anderson et al., 2007; Teisl et al., 2011; Jowett et al., 2014; Shephard et al., 2014). The NEP includes 15 statements that relate to limits to growth, the position of humans in the environment, the fragility of nature and the imminence of ecocrisis. The 15 Dunlap et al. NEP items are:

1 We are approaching the limit of the number of people the earth can support.
2 Humans have the right to modify the natural environment to suit their needs.
3 When humans interfere with nature it often produces disastrous consequences.
4 Human ingenuity will ensure that we do not make the earth unlivable.
5 Humans are severely abusing the environment.
6 The earth has plenty of natural resources if we just learn how to develop them.
7 Plants and animals have as much right as humans to exist.
8 The balance of nature is strong enough to cope with the impacts of modern industrial nations.
9 Despite their special abilities humans are still subject to the laws of nature.
10 The so-called ecological crisis facing humankind has been greatly exaggerated.
11 The earth is like a spaceship with very limited room and resources.
12 Humans are meant to rule over the rest of nature.
13 The balance of nature is very delicate and easily upset.
14 Humans will eventually learn enough about how nature works to be able to control it.
15 If things continue on their present course we will soon experience a major ecological catastrophe.

Respondents are asked to record their agreement with these items on five-point Likert-like scales. The validity of the construction of the NEP and its ability to accurately represent environmental attitudes have been repeatedly tested (Dunlap, 2008) and following an extensive review of its use over a 30-year period, Hawcroft and Milfont (2010, p. 151) concluded that 'until a gold-standard EA [environmental attitude] measure has been widely accepted, it is probably advisable for researchers to continue using the NEP scale as a standardised measure of EA'. The number of factors that arise from the use of the NEP has been reviewed by Dunlap et al. (2000) and remains, along with validity concerns about the meaning and use of the NEP, an actively contested academic area (see, e.g., Brennan et al., 2014).

With an eye on monitoring change, we undertook detailed statistically based research on the use of the NEP to explore changes in the sustainability attributes of students as they experience higher education (Harraway et al., 2012) and developed statistically appropriate ways to research changes in the sustainability characteristics of anonymous students over time, using instruments like the NEP (Jowett et al., 2014), subsequently fitting nearly five years of NEP data to a longitudinal

DOI: 10.1057/9781137548412.0011

mixed-effects model of change and encouraging institutions to ask themselves if their educational efforts, in the long term, and for all students, have an effect on students' values, attitudes or dispositions (Shephard et al., 2015). On the way, we developed and piloted an instrument to evaluate the environmental literacy of students. This integrated the NEP with other research instruments to research students' knowledge and competencies (Shephard et al., 2013).

In Shephard et al. (2014) we rehearsed the varied and numerous possible criticisms to the application of the NEP within ES/ESD research. We addressed the validity and potential inadequacy of the NEP as an ES/ESD research instrument. We asked what this instrument really measures and concluded that as no research instrument used in this complex area is immune from criticism, we should use the NEP until something better comes along (as suggested also by Hawcroft & Milfont, 2010). We even recommended other instruments that could, or perhaps should, also be used alongside the NEP, as also suggested by Dunlap (2008). We asked if it is worthwhile monitoring the environmental attitude of students when we know that there is a substantial attitude/behaviour gap? Although this gap exists and can be explained (Hargreaves, 2012), we noted that measurements of behavioural change are far more complex to achieve (Monroe et al., 2013) and that these may be beyond the expertise of researchers in HE. We wondered if it was really possible to research higher-order affective outcomes in a quantitative manner and especially considered the possible consequences of students not believing that they were really anonymous. As we had no particularly strong answer to this question we suggested that it would be fruitful question on which to base future research. We conjectured if it really was the business of higher education to research their students' environmental worldview, or sustainability attitudes, in this way. We noted that in our own institution our research was subject to an ethical approval that emphasised the voluntary nature of the survey but we did wonder how other institutions would address the situation as it applies to them and particularly for students who have chosen to study physics, art or politics and who have expressed no particular personal interest in sustainability. We noted that some higher education institutions have perhaps assumed this right, as they commit themselves to educate for environmentally responsible citizenship, and students know of this commitment before they come to university. It seems unlikely that this commitment would

DOI: 10.1057/9781137548412.0011

not carry with it an expectation of research and we noted that at least one country (Sweden) has enshrined the principles of education for sustainable development into its higher education governance. (The Swedish Higher Education Act was amended to specify that its higher education activities will promote socially, economically and environmentally sustainable development [State Public Inquiries, 2004, p.104]). Nevertheless, we did suggest that not all in higher education will agree that institutions have the right to ask questions potentially unrelated to the educational programmes that students register for and that some higher education institutions may have made claims about their intentions for their students' values and attitudes without fully exploring the educational, moral and individual freedom issues that may be involved. We also expressed some frustration about the complexity associated with introducing statistics and statisticians to answer some very fundamental research questions. We noted that although statisticians add complexity, they also contribute the promise of repeatability, reliability and transparency.

We also considered the nature of the institutional processes that may be necessary for an institution to answer its key question. 'Overall, and on balance across all of our programmes, do our students leave us more inclined towards sustainability than they were when they came to us?' Such a question requires more than an occasional use of a research instrument like the NEP. The instrument would need to be used systematically across all programmes and cohorts. At first sight this may appear to be a massive institutional imposition but I don't think it is. Every institution of higher education that I know about has already developed an industrial-scale undertaking to manage anonymous feedback from students to satisfy itself and its stakeholders of the quality of its educational services. Anonymous institutional surveys are handed out to students in nearly every module in nearly every programme of study year after year. The data is collected and analysed and used for a variety of quality assurance processes. As suggested by Shephard at al. (2014, p.13), 'A small fraction of this industry, diverted to evaluate HE's effect on the sustainability attributes of its students, may be a small price to pay for confidence that HE's assertions about its effectiveness are well grounded.'

Overall we concluded that higher education institutions may, if they want to, monitor their impact on the sustainability attributes of their students, particularly if they claim or intend to have such an effect.

DOI: 10.1057/9781137548412.0011

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DOI: 10.1057/9781137548412.0011

# 7
# A Way Forward

**Abstract**: *Summarising all other chapters, but in the process promoting the framing of all of higher education's intended learning outcomes within the refrain of 'what students know, what skills they have to put this knowledge to use and what they may choose to do with the knowledge and skills that they learn'. This chapter also provides an alternative mode of communication, for readers who do not wish to grapple with learning taxonomies, educational research and grounded theories. The chapter involves a simple conversation between fictional senior management academics as they adjust to the idea of effecting change by encouraging their colleagues to do what they want to do and say they do, but slightly better than they do at present.*

Shephard, Kerry. *Higher Education for Sustainable Development*. Basingstoke: Palgrave Macmillan, 2015.
DOI: 10.1057/9781137548412.0012.

## Introduction

The substantive thesis in this book is that higher education's contribution to ES/ESD can be maximised if all academics carry on doing what they want to do, and claim to do, but perhaps strive to do it better than they do at present. The challenge comes in suggesting that many, perhaps most, academics do not currently achieve what they set out to do. This may not be an easy task; it may be a hard sell. It tries to tell those who advocate for sustainability in higher education that they should do this but in the process they should also articulate, in educational terms, exactly what it is they're doing. Oh, and they shouldn't be telling others who don't want to do it, that they should. These other colleagues have something just as important to teach. It tries to tell those who do not advocate for sustainability that this is OK, but they should be clear about what exactly they are advocating for, perhaps within the confines of their own discipline, and how they go about it. And both groups should be interested in the impact that they have on their students; in particular on the ability of their students to detect the nature of what they are being taught. For essential to both are the critical skills of the students of higher education. Critically thinking, or reasoning, students don't need to be told by some of their university teachers, either upfront in black and white, or disguised in a hidden curriculum, that higher education is directly and possibly inextricably implicated in the unsustainability of modern-day life. Nor do they need to learn from others that their particular discipline has nothing to do with the wider world. Critically thinking students will work things out for themselves. Our role as university teachers is to do everything we possibly can to support our students both to develop the skills of critical thinking and reasoning and to use these critical skills to work out for themselves what it is we are teaching them and what they want to take from this teaching.

So this book is for 'education for sustainability' but the grounded theory that this book proposes suggests that higher education can achieve this most effectively by focusing its attention on a different set of anticipated outcomes that do not necessarily directly refer to sustainability. This chapter summarises all other chapters, but in the process promotes the framing of all of higher education's intended learning outcomes within the concepts of 'what students know, what skills they have to put this knowledge to use and what they may choose to do with the knowledge and skills that they learn'.

DOI: 10.1057/9781137548412.0012

## A conversation

The scene ... The boardroom at the University of Somewhere Interesting The occasion ... A meeting of senior academics chaired by the Vice Chancellor

### Vice Chancellor

OK chaps, we are in a bit of a pickle here. You know we've got issues with finances, student recruitment, updating our buildings, bad student behaviour and goodness knows what else but on top of that we really have to do something about sustainability. For once it's not government telling us what to do; our government seems to be strangely quiet on this issue. But we do have an increasing proportion of students making noises that what they're learning in higher education isn't necessarily helping them prepare for sustainability concerns when they leave. They seem to be under the impression that many employers are interested in the sustainability attributes of their employees. And our University Council is making noises in this direction too. I have to do something.

### Dean Humanities

Oh really, as if we haven't enough to do without pandering to pressure from this relatively small minority of students. After all, we've invested huge amounts of money into the sustainability of our campus. Only last year we replaced all the bins with special recycling bins. New buildings are being put up with energy-saving elements and one of our buildings even has lots of stars. And I think we agreed that we would be fading out our coal-burning boilers as soon as we can. I am not sure that we can, or should do more.

### Dean Science

And it is not as if our research is blind to sustainability issues. In my departments a high proportion of our research funding comes from bodies concerned with sustainability. We are making a great contribution to solving the planet's sustainability problems and doing quite well out of it ourselves. Our physics department has never had better funding and even mathematics is getting a good share of this.

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### Dean Commerce

I think this is going to be a passing fad. We worried that the financial crash in 2007 and 2008 would have a big impact on our business school. People were even blaming us for educating our students in ways that didn't address ethical issues. Students don't come here for that. Our students want proper qualifications that get them good jobs in successful businesses. And to be honest I'm not sure how well equipped we are to be teaching ethical business. Our approach back in 2008 was to hope that the problem would go away and I think we should have the same approach again. We have more pressing matters to address.

### Dean Health Sciences

Oh dear. This is a predicament. I have to admit that most of the chaps in my departments simply aren't interested in sustainability. If institutionally we have to address it now, it has to be done by others; but I give you fair warning that our professional programs are chock-a-block and there is simply no more room in our curriculum for this sort of thing. Even if we do establish some good teaching programmes in science, for example, you can't expect our students to attend them. We won't let them because they're too busy with us.

### Vice Chancellor

OK, I know. We've been through this before. We seem to be addressing the issues through our research and through our campus. We are, to a degree, walking the talk in these areas. But we've only limited engagement with sustainability through our teaching. I know that some students can take that special first year programme in sustainability, and some of our programmes do recognise this as part of their degree. But everybody has to accept that our internal market, and our own discipline and professional requirements, are making it quite difficult for students to actually study sustainability while they are with us. And to be honest, I think these sustainability-focused people are asking for something more than simply opportunities to study. The programmes that seem to be developing in other countries aren't essentially 'about' sustainability; they are 'for' sustainability. The mindset here is that we should be teaching our students not only about possible ways to live, but that they should live sustainable lives.

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### Chief Financial Officer

Talk about the blind leading the blind! My experience with you lot doesn't give me much hope that you'll be up to teaching our students to lead sustainable lives! Most of you appear to me to be travelling round the world at least once a year (some of you even fly business class!); you've all got big petrol-guzzling motors; and the fuel bills to keep your offices warm appear to me to be getting bigger, not smaller.

### Vice Chancellor

Thank you for that. It does rather emphasise our predicament. But I am coming round to agree with our Dean Commerce on this issue. I don't think we actually can change the things that we do, and to be honest I am not sure that we are capable of changing in the ways that are expected. What seems to be needed here is that we do something. I remember some years ago, we adapted our graduate profile. What was it again? Ah yes, sustainability literacy. We promise to develop the sustainability literacy of our students but we didn't say how we would do it, and we don't actually check up to see that our departments and programmes have done it and we never check to see if our students have got it. Just promising maybe all that we can do. What was that term that you use Dean Humanities? An aspirational outcome? Yes, I like that.

And after all, apparently the University of Just Up the Road signed the Talloires Declaration promising to do all sorts of good things years ago, and I'm not sure that anyone can find much evidence of change there. Yes, making promises to do something seems to be the right approach here.

Just to be sure I've asked our Sustainability Person to come and chat with us. Sustainability Person's main role as I'm sure you are all aware is to attend to our campus initiatives, but I'm told that she is quite knowledgeable about broader aspects of sustainability in higher education and we send her off every year to a conference in America to find out what they're doing. I'll just check to see if she is outside waiting for us.

### Vice Chancellor uses the phone

Yes, here she comes now. Welcome Sustainability Person. I think that you know everyone here. What we're hoping you can do is to tell us a bit more about this 'education for sustainability' or do you call it 'education for sustainable development'?

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## Sustainability Person

The most widely used term nowadays is 'education for sustainable development' although some academics in this area still refer to the idea of sustainable development as an oxymoron. It's probably fair to say that this is quite a contested area. There are, in many universities around the world, university teachers who openly advocate for sustainability in their teaching. They do this within their own disciplines and essentially think it's not only their right and role to do so but that universities as a whole should be doing these things. They are supported by lots of international bodies and governments in some parts of the world. You are all probably aware of the Rio conference in 1992 that produced Agenda 21 that emphasised the role of education to change people's values and attitudes so as to make societies more sustainable in their operations and more in tune with conservation? You may realise that we've just come out of a United Nations–declared 'decade for education for sustainable development'. All these things support some university teachers' beliefs about advocating for sustainability.

The problem appears to be that most university teachers don't advocate for sustainability. Those who do feel marginalised and quite often have to hide what they do from their peers. When discovered, their peers tend to put all sorts of barriers in their way and there is an expanding literature in higher education about barriers to ESD. You must, surely, realise that you have some advocates for sustainability at this institution? These people generally feel unsupported by their peers; their research isn't respected so it's difficult to publish in mainstream journals; and they don't get promoted. Some just leave. I hope you don't mind me telling you that this institution is not a particularly welcoming place for those who think that higher education should be addressing sustainability issues through its teaching.

## Dean Humanities

But that's absurd. We have one of the most transparent promotion processes for our academics anywhere in the world. If their work is good enough they get promoted.

## Dean Commerce

I agree. After all, if we didn't use the peer review process for promotion, or for accepting articles for the journals, where would we be? It's just as I

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thought, we have a few disgruntled students and even fewer disgruntled, failing academics. Why are we even talking about this?

### Dean Science

I think there is an even bigger problem here. Our university teachers are meant to be teaching physics and chemistry, not sustainability. I don't think they should be sneaking sustainability issues into their papers. These things should be upfront and go through the necessary committees.

### Sustainability Person

I think you've all identified the issues very well. Essentially, higher education is a collegiate and peer-driven system. Because most university teachers are not themselves particularly focused on sustainability, and perhaps because the institutional drivers for their behaviours promote certain activities and discourage others, it seems unlikely that this collegiate and peer-driven process will drive change, certainly not very rapidly at least. For all of the reasons that you mentioned, higher education for sustainability or for sustainable development has been a bit of a flop. Indeed even advocates for sustainability in our institution agree that the decade for education for sustainable development is best forgotten. Essentially, for the most part, I have to agree that higher education won't change because it cannot change.

### Vice Chancellor

Thank you Sustainability Person. I think we've all come to an understanding here. You've been most helpful in helping us reach our conclusions. Now I'm sure you got better things to do than respond to our questions so thank you very much for coming.

### Sustainability Person

There is perhaps one other approach that you should know about.

### Vice Chancellor

Does it involve us in making big, expensive and probably impossible changes? Will it require us to change the minds of our academic colleagues? If it does, we can probably skip it.

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**Sustainability Person**

Well, no, it probably doesn't. But it still might lead to some positive action towards higher education for sustainability. If I understand correctly, it approaches the situation by encouraging all university academics to do what they want to do, and what they say they already do, only slightly better than they do at present. The approach specifically sells itself as not trying to get university teachers to do things that they don't want to do, and couldn't do well anyhow. Perhaps you would like me to explain it?

**Vice Chancellor**

OK, five minutes more can't hurt. And then we'll know that we've covered the range of possible ways forwards.

**Sustainability Person**

Right; this approach comes from a recently released book written by a professor in a New Zealand university (the University of Otago, I think it's called). I'm not sure if it's a he or she (she has one of those names that can be either, Kerry). Anyhow Kerry Shephard has published quite extensively in this field and appears to understand the problems quite well. She spent 2013 on a sabbatical year travelling to universities in different parts of the world so as to better understand the diverse perspectives of university teachers on the issues that we've been talking about. She came back with what she calls a grounded theory. In this theory she essentially conceptualises all of the issues as part of a jigsaw puzzle and Kerry's challenge was to find a way for all the parts to fit together in such a way as to create a picture that everyone would agree with. At first sight it seems impossible and it certainly wasn't an easy challenge. Anyhow Kerry's book describes the grounded theory and the picture that emerges and she has chapters on each of the difficult issues. I think that what Kerry does is quite clever.

Let's start with you guys. Most of you, I don't think you will mind me saying, do not advocate for sustainability in your professional university lives. I am also going to hazard a guess that in your teaching you encourage your students to become critical thinkers. Kerry suggests that nearly every university teacher she spoke with on her sabbatical claims to teach critical thinking. Kerry suggests that you should carry on teaching as you do now but just be really interested in the critical faculties of your

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students. You probably know that people in our academic development unit have forever been encouraging us to teach higher-order cognitive outcomes, not just lower-order outcomes like knowledge and understanding. In essence, Kerry has this same message for you and for 90% + of other university teachers in our institution who do not advocate for sustainability. Teach higher-order cognitive outcomes and you will move a long way towards teaching criticality.

The next part of Kerry's jigsaw puzzle encourages institutions to accept that some university teachers want to advocate for sustainability and we should go out of our way to support these people to do just that. By and large these are the people who will help us address this sustainability pickle that we appear to be in. All we really must do is to accept that these colleagues will find opportunities within their disciplinary teaching to address sustainability issues. We may want to go a bit further than this in that, as most of their teaching will be research-led, there will be links to their research, and in our capacity as peer reviewers and as contributors to research excellence measures, we need to be open to the idea that most, or maybe all, of our disciplines do have a sustainability context, and we should welcome that. Kerry also claims that as most people who advocate for sustainability appear to promote multidisciplinary perspectives and a good proportion also emphasise community engagement, in forms such as service learning and outreach, then our departments need to be open to these as possible developments. We should aim to help these colleagues, not hinder them.

Kerry claims that there is an underlying logic to much of this. She suggests that much of the learning that is involved here isn't cognitive learning in the form of knowledge and skills, but affective learning in the form of values, attitudes and dispositions. Kerry thinks that universities do need to encourage their academic development departments to address a broader range of learning than they currently do, as new teachers are inducted and developed into academic colleagues.

## Dean Humanities

I might be missing something here, but so far nothing that you said seems particularly problematic, which is good, but also nothing seems to me to be particularly likely to lead to our students becoming more sustainability focused. What am I missing?

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**Sustainability Person**

I don't think you're missing anything yet, because I've still got to introduce some key concepts here. I'm struggling a little bit because I don't want to offend you. Have you heard about the hidden curriculum?

**Dean Humanities**

Don't worry I'm not easily offended, and yes I have heard about the hidden curriculum although I'm not sure that I believe much of what I've heard. So please do tell us more.

**Sustainability Person**

Well, Kerry suggests that what we actually say to our students, or draw to their attention in reading lists, is only part of what we actually communicate as teachers.

**Dean Commerce**

I can vouch for that. This topic is quite big in business studies where we are convinced that non-verbal communication, for example, makes up a substantial proportion of what people get when we talk with them.

**Sustainability Person**

Quite so. Kerry's focus on the hidden curriculum relates not just to what we are conscious that we are communicating but also what perhaps we are not conscious about. Kerry suggests that critically thinking students (he actually incorporates within this concept quite a few of the higher-order cognitive skills that I talked about before, and some elements of ethical reasoning, and reflection or critical reflection) ... will be really good at understanding higher education messages, whether we are actively and consciously promoting them or not. Kerry suggests that although many academics don't have a good grasp of what critical thinking is, most would agree that a critically thinking student would be able to challenge some of the messages that come from us, higher education (higher education institutions and teachers), if they were minded to. He says that critically thinking, or reasoning, students don't need to be told by their university teachers, either upfront in black and white, or disguised in a hidden curriculum, that higher education is directly and possibly inextricably implicated in the

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unsustainability of modern-day life. They will be able to work this out for themselves. I thought it was an interesting aside that Kerry didn't go into his sabbatical year with this idea but that it slowly gestated over many months and finally clicked in discussion session with colleagues in Helsinki. It seems so obvious now but like lots of other good ideas took a lot of effort to get there. It's a key part of the grounded theory that Kerry's book proposes and a key element or part of the jigsaw. Why I was suggesting earlier I didn't want to offend you was that not everybody will agree that higher education, from a sustainability perspective, is part of the problem. But if we look at it sideways, we are in the business of educating the scientists, the politicians and business people who have had such a substantial part to play in the current unsustainability of our societies. Some of this is our fault and critically thinking students will be able to see this and judge us for what we are and for what we have done.

Anyhow, the key part of this bit of a jigsaw puzzle is that if we do our job properly as university teachers, indeed do what we say we do, but maybe better than we do at present, our students will be better equipped to make some of the value judgements that they will need to do if they are to choose a more sustainable lifestyle than the ones that we, their teachers, have. Kerry has a particular phrase that sort of resonates here … She seems to be interested not just in what knowledge students learn nor just in the skills that they develop to put this knowledge to use, but also in what students will choose to do with the knowledge and skills that they learn whilst with us in higher education … Or something like that.

## Vice Chancellor

So what you're suggesting or what rather Kerry Shephard is suggesting is that we don't tell our academic colleagues to do anything in particular, we simply ask them to do what they say they do now but to do it a bit better than they do at present. (Vice Chancellor looks around at her senior academic colleagues who are nodding.) That shouldn't be too onerous? And we need to lend a helping hand. Dean Health Sciences, it appears that for this to work, you simply have to let your students out of your departments and into the departments of your academic colleagues. Of course, only if they want to go. And we had better make sure that they get academic credits for this. And here's a thought … perhaps you

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will find colleagues in your departments who will want to advocate for sustainability making it unnecessary for your students to leave you?

I am minded to suggest that somehow we shall need to find a way to make this work. And what's this about community engagement? I think we've great community engagement in this institution and it would be a great pleasure for me to encourage more departments to enable this. Sustainability Person, you probably realise you have in me already a strong advocate for community engagement. I'd like to see all of our students volunteering, and giving back, at some point in their study with us. Does that count?

### Sustainability Person

I think Kerry would suggest that volunteering is a good start but what higher education has to do is not just get its students out there but also to see these as opportunities for learning and to encourage students to reflect on their learning. And some advocates for sustainability suggest that the next generation has precious little to 'give back' for, as they are inheriting a world with more substantial sustainability problems than we did. But yes, volunteering is a good start.

### Chief Financial Officer

I generally anticipate problems when my senior colleagues start agreeing. This all seems too good to be true. May I ask if this new approach needs to actually produce results that can be measured?

### Sustainability Person

A good point. In fact as Kerry would put it, an important bit of the jigsaw puzzle. Kerry suggests that in academia, it is almost impossible to change something that can't be measured. I think she accepts that measurement in this area can be difficult. Essentially what we are interested in is what students might choose to do when they leave us with the knowledge and skills that they've learnt while had been with us. The $64,000 question is, will they in fact make more sustainable choices than you and I do?

### Dean sciences

I doubt that we can measure that in higher education.

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**Sustainability Person**

No, probably not. Higher education has never been that good at actually measuring behaviours and we do know that students can sometimes pretend to behave in particular ways in order to progress through our programmes. These things are particularly relevant to professional schools like Medicine that are really interested in how their future professionals will behave. Actually Kerry suggests that we need to use surrogates for behaviour in the form of research instruments that will give us some ideas about whether the mindsets or worldviews of our students are changing with respect to sustainability while they are with us.

Kerry suggests that we use a research instrument that essentially asks students to agree or disagree with a set of statements. These research instruments have been developed in the past and they've all got flaws but it seems likely that we can develop some better ones in our own institution. It is imperative that the students are anonymous in the process and also quite good if we can track changes in their response to this research instrument as they go through higher education with us. It is possible to use a code system that the student can recalculate each time but that we can't, so as to maintain the anonymity of students in the process. Kerry and colleagues at the University of Otago developed a longitudinal statistical model that allows institutions to ask and to answer a question like 'Overall, and on balance across all of our programmes, do our students leave us more inclined towards sustainability than they were when they came to us?'

**Vice Chancellor**

Thank you Chief Financial Officer for that insightful question. Sustainability Person, I think that you may have introduced the straw that breaks the camel's back there. Surely some sort of institutional evaluation process is going to be a massive undertaking for us? Most of us are fairly despondent about these institutional and government performance indicators and surveys and things like that. We don't really want to be adding to them. Until just now I was getting quite enthusiastic about this new approach. But evaluating changes in student mindsets, or what did you say, worldviews, may be beyond us I am afraid. Isn't it likely to be a massive undertaking?

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## Sustainability Person

No, actually it could be a relatively trivial change for us, financially and organisationally speaking. In common with just about every other university in the world, we already have a system in place that systematically surveys students' opinions about our teaching. This is a massive undertaking that we do already (Kerry calls it an industry). We already have the processes in place to distribute paper-based or online surveys, to get students to answer the survey anonymously, to collect the surveys in ways that don't give rise to academic interference (so that we don't get the answers that we want and do get the answers that the students want to give us). We have a whole office full of people to handle this data, although a lot of it is done automatically nowadays and we do use optical scanning. And the data is widely distributed throughout the university. As you know we use it to support academic promotion in particular, but we hope that it is also used in academic departments to improve teaching and learning. So, no ... no great cost or administrative change. All we have to do is to subvert a small proportion of this industry away from asking our students what they think about our teaching towards evaluating the impact of our teaching on their sustainability attributes. If we are minded to do that we can surely do it.

## Vice Chancellor

But what if after these changes we discover that our students don't change? What then?

## Sustainability Person

I think there are two issues here.

The first is that it would probably surprise everybody if we adopted this approach and saw a substantial change. It will take some time for our colleagues who are keen to advocate for sustainability to feel comfortable doing so. It will take some time for colleagues who don't advocate for sustainability to get to grips with the challenges of teaching criticality to our students. Our academic developers need time to develop training processes that will support new teachers as they come through to replace our retiring colleagues. And to be honest our campus sustainability changes are still underway and it may take us a long time to achieve our carbon-neutral status. I don't think that we will see a dramatic effect

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initially, but if we do adopt Kerry's approach and if we do earnestly and honestly evaluate the impact on our students, at least we will be able to monitor the impacts of our changes. And if over the years, the changes are not enough, we can do more. And let's be clear, these changes are not impossible. They are not massive. No one in this institution will be asked to do something that they don't already either want to do or say they do.

The second issue that we need to be aware of, from my perspective, is what are the options?

- We could choose to do what I know some other institutions have done and that is to promise lots and do nothing. I hope that you won't contemplate this.
- You could listen to the more orthodox 'education for sustainable development' movement and somehow tell all our university teachers what to teach and how to teach it. I don't personally think that this will work and I doubt that you do either. Indeed I can only see it working if you sack nearly everyone and replace them with sustainability-minded teachers, if you can find them.
- Or we can try Kerry's approach and implement a comprehensive evaluation process to keep track of our progress.

## Vice Chancellor

Kerry Shephard seems to have some interesting ideas. Perhaps we should get her here to talk to us or maybe she would prefer to videoconference with us so as to not add to our carbon costs! And we must find out if she is a he or a she at some point!

From what you say, Sustainability Person, this alternative approach does seem to be quite possible and not particularly expensive. I think that we can do this! What do you think chaps?

(Scene fades to general murmurs of approval)

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