

INTRODUCTION

Arran Stibbe, Humanities Department and Centre for Active Learning, University of Gloucestershire

Heather Luna, Higher Education Academy Education for Sustainable Development Project

It has long been recognised that the social and physical worlds we inhabit are in a state of rapid change, and within the turmoil, the only place that we can find continuity is in the certainty of change itself. The twentieth century saw astounding changes in population, in technology, in urbanisation, in industrialisation, in globalisation – facilitated mainly by the availability of cheap and abundant fossil fuels, and the commercial drive to produce and consume more food and more material goods. Over the course of the twentieth century, world population increased 3.5 times to reach six billion; the number of cars in the UK rose from 8000 to 21 million; and in 1999 more people were living in cities than the entire world population of 1950.

The premise of this book is that the twenty-first century will be a time of change no less dramatic than that of the twentieth century, but that the changes will be of an entirely different nature. The reason for this is a convergence of trends - individually subject to uncertainty, but collectively giving an overall indication of the trajectory of society. The world population is continuing to expand, consumption in large developing countries is increasing rapidly, and the consequential demands for fuel, energy, water and biological resources are rising. At the same time, we will no longer be able to depend on the input of energy from cheap fossil fuels, partly because of restrictions imposed by climate change legislation, but also because oil production is set to peak and start its inevitable decline, threatening everything that depends on it, from transportation and plastics to agriculture and food distribution. These trends, combined with the now inevitable impact of climate change, ecosystem degradation, and exhaustion of a wide range of resources, mean that the trajectory of the twenty-first century is toward a planet which is a less hospitable place for human life, and the lives of countless other species.

There is, therefore, an increasingly urgent facet to the already multifaceted concept of sustainability. In 1987, the Brundtland report wrote of the need for meeting the needs of the present without compromising the ability of future generations to meet their own needs. Since then, efforts to build more sustainable societies have failed dramatically. Those born in 1987 are now in their twenties, are members of the future generations Brundtland was referring to, and their ability to meet their needs in the future has been compromised. Increasingly, sustainability becomes a struggle not only to ensure that future generations have the means to survive, but also to meet the needs of the present in the deteriorating conditions of the world.

As the Transition Movement (Hopkins 2007) has shown so well, combining the more abstract ideal of enabling future generations to meet their needs with the far more immediate and practical dimension of preparing for difficult times ahead in the near future can galvanise people and communities into practical action which has immediate and multiple benefits. If carefully planned, the transition toward a society which relies far less on fossil fuel and physical materials has the potential to meet higher human needs more effectively than one based on consumerism and unlimited growth. Steps taken towards creating a smooth transition to a low energy future may, of themselves, help people escape from the addiction and isolation of consumerism, gain a sense of belonging to a community, improve mental and physical health through time spent working in and with nature, reduce obesity and the many illnesses associated with a sedentary lifestyle, enjoy a

cleaner, greener environment, and find meaningful employment – while still benefiting from advances in medicine, public transport and communications. The benefits may, of course, be short lived and overtaken by external changes that are simply too large to adapt to. But even if short lived, the benefits are nonetheless real for those enjoying them, and the self/ community/ business/ society in transition provides a model of sustainability for those ‘in power’ who are well-placed for influencing the trajectory of society.

The ability to take steps towards building a more sustainable self, community, society and world requires far more than knowledge *about* sustainability – it requires *sustainability literacy*. This book uses the term *sustainability literacy* to indicate the skills, attitudes, competencies, dispositions and values that are necessary for surviving and thriving in the declining conditions of the world in ways which mitigate that decline as far as possible. Gaining practical skills requires a form of learning which goes beyond memorising and repeating facts. It requires *active learning*, a broad term used to refer to self-reflection, self-directed enquiry, learning by doing, engagement with real life problems and issues, and learning within communities.

The metaphoric use of the term ‘literacy’ in *sustainability literacy* stretches it from its literal use within the area of reading and writing. However, in literacy theory, *literacy* refers to far more than a binary category ‘can/cannot read and write’. Instead, it refers to a wide range of *practices* people are empowered to participate in, through having skills in using language in particular ways. For example, being influential and successful in the commercial world requires the ability to read and write business cases, reports and formal letters. Literacy, then, is a collection of skills that allow for effective participation and influence in diverse areas of social life. As people gain *sustainability literacy* skills, they become empowered to read self and society critically, to discover insights into the trajectory of society and to envisage where it is heading. They gain skills in re-writing self and society both in an effort to meet needs under increasingly difficult conditions and also to work towards new paths that lead to a more sustainable world.

Ray Anderson provides a case in point, an example of a business leader who knew had very little in the way of sustainability literacy, but experienced a sudden epiphany when reading Paul Hawken’s (1994) *The Ecology of Commerce*. He came across the term ‘the death of birth’ and, in his own words:

It was E.O. Wilson’s expression for species extinction, the death of birth, and it was the point of a spear into my chest, and I read on and the spear became deeper, and it was an epiphanous experience, a total change of mindset for myself, and a change of paradigm. (Anderson 2005).

He realised the company he was leading, Interface Carpets, was acting in an entirely unsustainable way:

...it dawned on me that the way I was running Interface was the way of the plunderer. Plundering something that’s not mine. Something that belongs to every creature on earth. [I realised that] someday people like me will end up in jail... (Anderson 2005)

At this point we could say that Anderson had gained, at a deep reflective level, *knowledge about sustainability*. Sustainability literacy, however, is more than that – it is the ability to act on that knowledge. Anderson managed to transform his company from one selling carpets to be ultimately disposed of, to one which provided a carpet covering *service*. His company started renting out carpet tiles, reusing them when no longer required, replacing only those that had worn out, and even then recycling the discards using energy generated from wind and the sun. Transforming

corporations in this way requires skills in *ecological intelligence*, to understand the impact of actions on the ecosystems which support life, *systems thinking*, to gain a holistic picture of inputs, outputs and waste to maximise reuse and recycling, *appropriate technology* and *appropriate design* to minimise the adverse impacts of the technologies employed, *cultural literacy* to adapt solutions to the prevailing culture, and a wide range of other sustainability literacy skills described in this book.

Anderson had to gain knowledge about sustainability, and develop sustainability literacy for himself. The conventional education system he went through prepared him for the role of industrial leader in an unsustainable society, but it did not give him the skills to lead his company in ways that were sensitive to the systems that human life depends on. The starting point for the exploration of sustainability literacy in this book is the realisation that educational policy tends, even now, to revolve around twentieth-century skills – skills for commercial innovation, further industrialisation of society, economic growth, international competitiveness, and financial prosperity. The further we enter the twenty-first century, the more short term these goals seem – a temporary bubble of financial prosperity existing on paper only, already partially burst by the ‘credit crunch’, and about to be burst on a much larger scale by the ‘ecological crunch’, the ‘peak oil crunch’, and the ‘climate change crunch’.

To explore the skills demanded of people in the twenty-first century, this book brings leading sustainability educators together with specialists from a wide range of areas, including engineering, art, permaculture, outdoor education, anthropology, literature, mathematics, business studies, climatology, ecology, and linguistics. Interaction amongst authors was encouraged through a series of workshops, including the national event *Soundings in Sustainability Literacy*, and through a peer review process. In the first part of the book each author explores a particular skill, attribute or disposition such as *Social Conscience*, *Permaculture Design*, or *Futures Thinking*, showing why it is an important skill for life in a changing world, and giving example active learning exercises for development of the skill. The chapters close with a list of resources for gaining a deeper insight into the skills described. In the second part of the book, four chapters explore the question of how education systems and institutions will need to adapt if they are to help learners gain the sustainability literacy skills described in the first part.

The book is intended as a *handbook* in the sense of containing practical ideas that may be adapted and applied by a wide range of educators, from parents to professors, but not as a rigid guide to the ‘one right way’. There is no simple, empirical way of determining whether a particular skill will help learners survive and thrive in ways which contribute to sustainability. Instead, the book aims to bring together multiple, carefully thought out perspectives which can shift the debate away from the narrow focus of the dominant discourse on ‘skill sets’ for employability. These skill sets often fail to take into consideration environmental limits, social justice, or adaptation to the deteriorating ability of the Earth to support human life and, therefore, are unlikely to serve the long term interests of learners, businesses, societies or the human species. Alternative possibilities more grounded in the realities of the changing world need to be articulated, but without reproducing the same ‘tick-box’ approach to skills associated with both dominant discourses and with some efforts to define sustainability literacy in the past.

The book is therefore intended to engage the reader in the multi-perspectival reflection, discussion and debate from which it springs, and open up a range of previously un-thought of paths, many of which will no doubt be rejected, but some considered worthy of further exploration. There may well be parts that are contentious or refutable, but given the conditions of the world this was considered preferable to something that was so blandly abstract that it was beyond debate. To borrow words

from Rachel Carson (1962:16), ‘I would ask those who find parts of this book not to their taste or consider that they can refute some of the arguments to see the picture as a whole. We are dealing with dangerous things and it may be too late to wait for positive evidence of danger’.

The help convey the picture as a whole, the layout of the book is designed to facilitate reading from cover to cover, with chapters exploring similar themes in proximity, and chapters which build on each other placed in sequence. There are no rigid demarcations, however, since the aim is to convey a holistic picture rather than separating and categorising it into disciplines. The remainder of this introduction provides a brief overview of the book, mentioning all the chapters in the order they appear (the titles of the chapters are in italics).

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The starting point of the book is not the environmental problems which are undermining the ability of the Earth to support human life, but instead the social, cultural and economic systems that gave rise to those problems. Without considering this deeper level we will be ‘fighting against circumstances’, an expression that Allen (1951:19) uses to mean ‘that a man is continuously revolting against an *effect* without, while all the time he is nourishing and preserving its *cause* in his heart’. Of particular concern in the opening chapters are the economic and social forces which encourage unnecessary consumption, debt and environmental destruction, and the ability of learners to critique and resist these forces (chapters: *Ecocriticism*, *Optimisation*, *Grounded Economic Awareness*, and *Advertising Awareness*). Critique by itself is not enough, however, and sustainability literacy also requires practical skills for engaging in the transition away from consumerist societies to strong, resilient communities capable of fulfilling human needs with minimal use of energy and resources (chapters: *Transition Skills*, and *Commons Thinking*). One way (perhaps the only sustainable way) to move beyond fossil fuels is to develop skills for working with nature to make the best possible use of ‘ecosystem services’ - the services which fulfilled human needs long before the discovery of fossil fuel (chapters: *Effortless Action*, *Permaculture Design*, and *Community Gardening*).

Clearly, sustainability literacy requires skills in thinking in fundamentally different ways from those which set society on a trajectory towards collapse in the first place. New ways of thinking (which are often revivals of older ways that have become marginalised) include the ability to think of the world relationally, as consisting of interconnected systems, and as having animate qualities itself (chapters: *Ecological Intelligence*, *Systems Thinking*, and *Gaia Awareness*). Unless underpinned by ethics and values, however, new ways of thinking can be appropriated by political and commercial forces to serve narrow goals. The ability to think in new ways, therefore, needs to be complemented by the ability to reflect on goals, on what kind of society may be desirable, on what is important and worth protecting, and what, deep down, there is an ethical obligation to do (chapters: *Futures Thinking*, *Values Reflection and the Earth Charter*, and *Social Conscience*).

The vision that emerges requires expression, not because reflection necessarily results in a ‘better’ vision, but because there are too many visions expressed by dominant forces in society that have not yet been updated to respond to the changed and changing context of the twenty-first century. Effectively and persuasively expressing a vision for the future requires skills in oral presentation, writing, and skilful use of new media, as well as the ability to communicate in ways which are culturally appropriate and sensitive to different perspectives (chapters: *New Media Literacy* and *Cultural Literacy*).

Sustainability goes far beyond environmental concerns, including aspects such as social justice;

intergenerational justice; mental and physical wellbeing; social, economic and cultural transformation; and the flourishing of the diversity of life. However, none of these is possible within a degraded and unliveable environment, so skills in reducing environmental footprints are an essential part of sustainability literacy (chapters: *Carbon Capability*, *Greening Business*, and *Materials Awareness*).

Technological issues are also highly relevant, primarily because it is technology which enables fossil fuel energy and environmental resources to be converted, on an immense and unsustainable scale, into material goods and then waste. As energy use becomes increasingly constrained and environmental resources depleted, it will be necessary to develop skills in rethinking and redesigning the role that technology plays in society (chapters: *Appropriate Technology and Appropriate Design* and *Technology Appraisal*). Technology, however, is only one aspect of the highly complex task of building a society along sustainable lines, and technological solutions have to be considered within the web of other factors that influence sustainability (Chapters: *Complexity, Systems Thinking and Practice* and *Coping with Complexity*).

The deepest level of sustainability literacy is the psychological level, since problems which manifest themselves outwardly in injustice or destruction of the environment, arise from social and cultural systems which are, in turn, located in individual psychology and social cognition. One important psychological aspect is awareness of what, deep down, gives people a sense of wellbeing. Only with this awareness can we find ways to gain life satisfaction without the over-consumption of resources (chapters: *Emotional Wellbeing* and *Experiencing Meaning without Consuming*). One psychological issue that is frequently blamed for both a lack of emotional wellbeing, and for the kind of self-centred behaviour which leads to ecological destruction, is alienation – the feeling that human beings exist independently and separately from the environment, or from other organisms in the web of interconnection that is life. The ability to reconnect and feel a part of the world rather than apart from it may well be a central foundation of sustainability literacy (chapters: *Being-in-the-World*, *Beauty as a Way of Knowing*).

The final four chapters form a separate part entitled *Educational Transformation for Sustainability Literacy* and move on from questions of the skills themselves to the next logical question: how can the education system be transformed to enable learners to gain those skills? The suggestions are radical and thought-provoking, including rethinking, not only the physical campus and curriculum, but also who the learners are and whose interests educational institutions serve (chapters: *Citizen Engagement*, *Re-educating the Person*, *Institutional Transformation*, and *A Learning Society*).

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From the many perspectives expressed in the chapters, a complex picture emerges of the skills, attributes and dispositions that the authors feel are necessary for life in the twenty-first century. It is, however, a picture which is far from complete and one which needs continuous updating and expanding on as the conditions of the world change. The project, therefore, continues with a multimedia version of the *Handbook of Sustainability Literacy* accessible at www.sustainability-literacy.org, which includes additional chapters, video interviews with authors, discussion groups and further resources.

One final point is that, given the trajectory of society and the seeming lack of political will to make changes significant enough to change that trajectory, it is easy to lose hope or cling to unlikely ‘solutions’, such as electric cars for solving the energy crisis, genetic engineering to solve the food crisis, or planetary engineering to solve climate change. Finding well-grounded hope lies instead in

taking a stark and honest look at the changing conditions of the world, developing the skills necessary for responding to those conditions, and building a better future in whatever ways remain realistic and possible.

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