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Chapter 1

Minding the gap: the role of social learning in linking our stated desire for a more sustainable world to our everyday actions and policies

Harold Glasser

> There can be few more pressing and critical goals for the future of humankind than to ensure steady improvement in the quality of life for this and future generations, in a way that respects our common heritage – the planet we live on. As people we seek positive change for ourselves, our children, and [our] grandchildren; we must do it in ways that respect the right of all to do so. To do this we must learn constantly – about ourselves, our potential, our limitations, our relationships, our society, our environment, our world. Education for sustainable development is a life-wide and lifelong endeavour which challenges individuals, institutions and societies to view tomorrow as a day that belongs to all of us, or it will not belong to anyone (UNESCO, *Decade of Education for Sustainable Development*).

Introduction

Humans have been both fascinated and tortured by questions regarding our fate and future for at least as long as we have possessed the ability to share our thoughts and document these ruminations. Under the best of circumstances, these musings involve asking a series of questions about the present, past, and future. Where are we? How did we get here? Where do we appear to be heading? Where do we want to go? How do we get there from here?

Many have argued that humankind is currently amidst (and possibly adrift in) an unprecedented transition; one as significant as passage into the Stone Age, the Agricultural Age, or the Industrial Revolution (Speth 2004, Raskin *et al.* 2002, Bossel 1998, Catton 1980). Our fate and future is and always has been intertwined with nature, despite the widespread failure of most humans to act in a manner that reflects a deep understanding of this relationship. And now, for the first time, we have gone full circle, causing the fate and future of nature – and evolution in general – to become entwined with our own (Broswimmer 2002, Wilson 1992, Myers 1979).

The contours of the future we are now forging, however, as always, are yet to be fully determined. Simply restated, the future is emergent and, within limits, plastic. While conscious design is unlikely to afford us the capacity to control the future directly, how we craft our sphere of concern and how effectively we link this to action will likely influence the future in profound ways. A broad spectrum of ostensibly divergent scenarios for the future has been proposed (Hammond 1998, Hawken *et al.* 1982, Catton 1980, Ophuls 1977, Brown 1954). These scenarios range from a perpetuation of the status quo via increasingly authoritarian measures to buoy economic growth under mounting scarcity and inequity; to a barbarized 'Mad Max' future with ecological and social breakdown and consequent population crash; to a radically transformed, more creative, equitable, ecologically and culturally sustainable future.

Notwithstanding the gravity of humankind's overarching predicament, the focus of this chapter is much narrower. My goal is to explore some of the likely requirements and potential stumbling blocks associated with a single strategy for guiding one possible vision of the future – ecocultural sustainability.

I have coined the term 'ecocultural sustainability' to refer to both a state of dynamic equilibrium and a social process that is desirable and ecologically sound[2]. Ecocultural sustainability requires that a society can, at a minimum, continually renew itself and its members by supporting: (1) the flourishing of rich cultural and biological diversity; (2) forms of governance that are just, egalitarian, transparent, and participatory; (3) economies that are sufficient, equitable, accountable, and bioregionally sound; and (4) production and consumption that promotes universalizable lifestyles and keeps its ecocultural wake in-check by both learning from and working with nature and limiting its total life-cycle costs (social, environmental, and financial). Successful implementation of the ecocultural sustainability paradigm rests on both cultivating a form of rationality that integrates reason and emotion and inculcating a balance between the needs of individuals and the imperative of the common good (human and nonhuman). It calls for educational processes and systems that nurture active citizens and open minds by encouraging wonder, creativity, tolerance, cooperation, and collaboration. By propagating the skills to regularly monitor and evaluate the activities of individuals and organizations – to learn from their mistakes and celebrate their successes – it promotes vigorous self-criticism, combats rigidity and apathy, and fosters anticipatory decision-making and adaptive learning. And by cultivating agility to distinguish between needs and wants, meaningful innovation and shear novelty, the sacred and the profane, and maintaining a

[2] The discussion of "ecocultural sustainability" presented here represents a revised and substantially expanded version of a definition I presented earlier (Glasser 2004, p. 134).

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balance between specialization and generalization, such societies prepare their individuals, organizations and institutions to counteract maladaptive forces and respond to unforeseen challenges and changes that are beyond their control with hope, joy, imagination, and unruffledness.

The introductory quote from UNESCO touches on four key ideas that undergird a transition to a more ecoculturally sustainable world. These ideas are also consistent with an evolving stream of contemporary thought. First, there is expanding acknowledgment that past and current assumptions, practices, and policies that guide the pursuit of lasting quality of life improvements, in both rich and poor nations alike, require radical and continual reassessment and rethinking[3]. In particular, we must pay much more attention to the relationship between our values and our actions – between the world of our hopes and dreams and the world we are creating with our everyday decisions. Second, there is growing awareness and appreciation that quality of life is composed from an array of multiple, often incommensurable, yet interrelated elements – and that enduring improvements to quality of life are not achievable by individuals in isolation[4]. Furthermore, there is expanding recognition, at least by some, that achieving such improvements rests on paying careful attention to the requirements of the common good (both human and nonhuman)[5]. Third, there is a new level of sophistication and solicitude

[3] Examples of this perspective abound today. They range from Jared Diamond's (2005) assessment of how environmental challenges and poor decision making have figured in the collapse of civilizations throughout the ages, to Jane Jacob's (2004) effort to both illuminate the telltale signs of social decay and suggest strategies for arresting them, to the recent admonitions of the Millenium Ecosystem Assessment Board (2005). They also include the emerging field of 'sustainability science' (Kates *et al.* 2001), which seeks to understand the essential character of nature-society interactions; Ornstein and Ehrlich's (2000 [1989]) study of the mismatch between the character and scale of change in the world that our brains evolved in and the character and scale of change in the world today and the ensuing paradox that salvation can only be generated by awareness and conscious change; and Arne Naess's (Naess 2005, Glasser 2001) characterization of 'deep ecology' and 'shallow ecology' and his corollary effort to promote consistency among our fundamental values, shared assumptions, lifestyles, and concrete actions – particularly as they relate to nature.

[4] See for instance, the United Nations' "Millennium Development Goals" (2005) and their subsequent implementation plan (United Nations 2006).

[5] A broad range of authors argue that lasting improvements to quality of life are tied to a renewed emphasis on community, the "common good", and community self-renewal. Examples include, Daly and Cobb's (1989) effort to redirect the economy towards "community, the environment, and a sustainable future"; Oelschlaeger's (1994) argument for developing community values, rekindling participatory democracy, and eradicating utilitarian individualism as the dominant paradigm of decision choice; Ostrom's (1990) work on collective management of the commons; and Gardner's (1995) work on individual and societal self-renewal.

regarding the linkages between environmental quality and quality of life[6]. Finally, there is a renaissance in the role of, and commitment to, learning as the foundation and primary vehicle for achieving a higher quality of life for all[7].

This emphasis on learning as the locus for creating a more sustainable and desirable world is especially meaningful. The import of this turn toward learning is drawn, only in part, from the fact that the first three ideas are derivative of, or contingent on, effective learning processes. Since the World Commission on Environment and Development's publication of *Our Common Future* (1987), virtually all mainstream discussions regarding the quest for a more sustainable and desirable world have emphasized that lasting improvements to quality of life can only be achieved by stimulating a new era of economic growth. What makes the above discussion on the importance of continually improving quality of life so significant is the conspicuous absence of any mention about the role that economic growth should play. There is an unstated, implicit decoupling of quality of life from standard of living (beyond certain basic requirements). In the introductory quote from UNESCO, *learning*, in some sense, has supplanted economic growth as the metanarrative and vehicle for bringing about a more sustainable and desirable world for all.

This chapter is an exploratory and necessarily preliminary effort to survey the promise – and potential pitfalls – of turning to learning, and social learning in particular, as the foundation and conduit for harnessing the human propensity to contemplate our fate and future. I am not simply concerned with the concept of social learning from the more traditional standpoints of survival and reproductive success (Heyes and Galef 1996), the transmission of culture (Boyd and Richerson 1985), or even the application of particular interpretations of social learning or social learning traditions to problems in psychology and human behavior (Gardner and Stern 1996, Rosenthal and Zimmerman 1978, Bandura 1977), planning and

[6] A wide variety of researchers are attempting to elucidate the connections between quality of life and the state of the environment. Three prominent examples include, Costanza *et al.*'s (1997) work on ecosystems services, Prescott-Allen's (2001) indices of "Human Wellbeing" and "Ecosystem Wellbeing" for 180 nations, and the work of the Millennium Ecosystem Assessment (2005).

[7] This point is echoed by Chapter 36 of *Agenda 21*, which focuses on three programme areas: Reorienting education towards sustainable development; Increasing public awareness; and Promoting training (United Nations 2004). The United States' National Research Council's Board on Sustainable Development goes even further by describing the transition to sustainability as a "process of social learning and adaptive response amid turbulence and surprise" (1999, p. 48). A recent report from the Nordic Council of Ministers (2003) and an anthology from Sweden (Wickenberg *et al.* 2004) demonstrate that education for sustainable development is on some national agendas. Milbraith's (1989) work on humankind's tragic success as a cause for rethinking civilization and the role of learning in envisioning a sustainable society is an important precursor to these efforts.

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policy research (Robinson 2003, Friedmann 1987, Friedmann and Abonyi 1976, Heclo 1974), management theory and organizational change (Wegner 1999, McKenzie-Mohr and Smith 1999, Argyris and Schön 1996), human services provision (Goldstein 1981), environmental policy (Fiorino 2001, Webler *et al.* 1995), environmental and resource management (Keen *et al.* 2005, Leeuwis and Pyburn 2002a, Lee 1995), or even sustainable development and sustainability science (Siebenhüner 2004, National Research Council Board on Sustainable Development 1999, Parson and Clark 1995).

I am interested in a more general and, I believe, more fundamental set of nested questions. Is there a common and consistent interpretation of social learning? If not, why? If so, can social learning inspire and foster planned, directed action and behavior that is more consistent with our highest values and aspirations regarding improving quality of life? If so, is this force strong enough to counterbalance the historical tendency toward anthropocentric and ethnocentric approaches that tend to advantage narrow self-interest? In short, does social learning give an edge to anticipatory, holistic, egalitarian, and nonanthropocentric planning processes *and* decisions that favor continual quality of life improvements for all – humans and the biosphere as a whole?

To address these questions, I take a meta-perspective and reflect on the roots of our predicament and the meanings of learning. I touch on the interconnections among learning and information, knowledge, understanding, power, neurobiology, human nature, culture, and values and also consider their relationship to decision-making and action. I step back to consider the individual learning requirements that are necessary to buttress the effective implementation of social learning. Finally, I ask if there is a set of concepts or principles that can be drawn from the various social learning traditions and perspectives – or otherwise identified – to form a coherent social learning for ecocultural sustainability paradigm. In the closing section, I offer a list of 'challenges' that I hope will serve as a tentative outline for a research program for social learning for ecocultural sustainability. I do this with the aspiration of helping to stimulate a larger, collaborative conversation on creating a comprehensive, targeted research program for applying social learning to address the predicament – and promise – of our collective fate and future.

The gap

The following passage identifies a gap between a particular society's ideals and practical reality. Consider what culture and historical period are being portrayed.

> ____ had its deplorable failings and distressing shortcomings; its utopian ideals honored more in the breach than in observance; its 'Sunday preaching and Monday practice'; it yearned for peace, but was constantly at war; it professed such ideals as justice, equity, and compassion, but abounded in injustice, inequality, and oppression; materialistic and shortsighted, it unbalanced the ecology essential to its economy; it suffered from the 'generation gap' between parents and children and between teachers and students; it had its 'drop-outs', 'cop-outs', hippies and perverts; it had 'unisex' devotees, and perhaps even something like a 'mini-maxi' controversy.

The quote is from Samuel Noah Kramer (1981, p. 259-260), the renowned Assyriologist, writing on Sumerian civilization of more than 4,000 years ago. I use this quote to vividly illustrate the timeless nature of the gap between the world of our aspirations, hopes, and dreams *and* the world we create with our policies, practices, and every day actions.

Lest one believe that Sumerian society was unique in being plagued by such a rift – or rather that gaps between a society's values and their practical expression are not widespread – I offer a quote from an Egyptian man contemplating suicide, also from 4,000 years ago (as quoted in Gardner 1995, p. 122). More significant than the mere existence of the gap, its breadth, or this man's awareness of it, perhaps, is his obvious sense of isolation and feeling of paralysis in trying to come to terms with it.

> To whom can I speak today?
> The gentle man has perished
> The violent man has access to everybody.
> To whom can I speak today?
> The iniquity that smites the land
> It has no end.
> To whom can I speak today?
> There are no righteous men
> The earth is surrendered to criminals.

The existence of such a gap is by no means limited to the past. Of particular significance to our contemporary dilemma (and the goal of continuously improving quality of life) is the reference in both quotes to the seduction of material affluence and the corresponding failure to recognize, appreciate, or effectively respond to the predicament of our seemingly interminable quest for ever greater consumption and its potential to undermine the ecological and social basis of our existence.

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Robert Prescott-Allen's (2001, p. 13) Human Wellbeing Index (HWI), which integrates countrywide data on health and population, wealth, knowledge, community, and equity in a single, normalized, five-category indicator (good, fair, medium, poor, bad), demonstrates that two-thirds of the world's population live in countries with a bad or poor HWI and less than one-sixth live in countries with a fair or good HWI. Furthermore, the gap between the best and worst is huge (countries in the top 10% have a median that is eight times those in the bottom 10%) and even the top performers (Norway, Denmark, and Finland) have considerable room for improvement. Prescott-Allen's (2001, p. 59) Ecosystem Wellbeing Index EWI, which integrates countrywide data on land, water, air, species and genes, and resource use in a single, normalized, five-category indicator, reveals that no country has a good EWI and that countries with a bad or poor EWI cover almost half of the planet's terrestrial and inland water surface. Moreover, if better monitored, many of the countries with fair or medium ratings would be downgraded (Prescott-Allen 2001). These figures are even more disconcerting when placed in context by the Millennium Ecosystem Assessment (2005, p. 6), which indicates that 60% (15 out of 24) of the ecosystems services that humans depend on for our sustenance are degraded or used unsustainably, that this degradation already causes serious harm to human well-being, and that efforts to increase one ecosystem service frequently result in the degradation of other services.

On the positive side, a broad array of survey data from citizens throughout the world – rich and poor countries alike – demonstrates the existence of sincere, well-intentioned positive environmental attitudes, anxiety about environmental degradation, rudimentary awareness of the environment's role in supporting quality of life, and a stated willingness to trade-off economic development for environmental protection (Coyle 2005, Gruber 2003, Bloom 1995, Kempton *et al.* 1995, Dunlap *et al.* 1993)[8]. In the U.S., where this data has been gathered for over thirty years, these attitudes and concerns have had remarkable staying power (Coyle 2005, Gruber 2003). Furthermore, Prescott-Allen's work demonstrates that increases in human well-being do not necessarily result in greater environmental impact (2001, p. 107). The ways in which human well-being is pursued matter – a high quality of life can be achieved with limited environmental consequences.

What is most surprising or, perhaps, troubling is that while environmental concerns and attitudes are widely supported and long-standing, they have generally not, at least in the U.S., translated into consistent, effective actions and behaviors – voting

[8] For more details regarding public perception of the environment, see Glasser (2004, p. 134-136), which also discusses the widespread non-anthropocentric, non-instrumental expressions of environmental concern and Glasser *et al.* (1994), which discusses the environmental values and concerns of participants in the Intergovernmental Panel on Climate Change (IPCC) process.

habits, purchasing decisions, and lifestyles – for improving environmental quality (Coyle 2005, Gruber 2003, Roper 2002). Similarly, on the international level – except for the widely touted Montreal Protocol – these concerns and attitudes have not generated effective treaties for responding to contemporary, global-scale environmental challenges (Speth 2004). This is 'The Gap' I am speaking of. Simply put, awareness of a problem, accessibility of extensive information on its origins and impacts, and, even, stated concern about it do not guarantee action or imply that, if taken, the action(s) will be appropriate or effective.

The greening of progress

The ideological commitment to sustainable development as continuous improvement in the overall conditions of human life, as discussed in the UNESCO quote, is unavoidably rooted in the notion of progress – at least for those of us in the West. The orthodox view of the idea of progress, which dates back to at least the time of Xenophanes in the late 6th century B.C.E., holds that moral, political, economic, technological, and social betterment are *inevitable* (Nisbet 1980, Edelstein 1967). Such a view of ineluctable, boundless progress became widely adopted in the West during the Enlightenment and continues to be broadly embraced today. This perspective has been justified by – and tied to – humankind's expanding capability to control and manipulate nature (Marx 1996). It is also wrapped up in a conviction that humankind is perfectible (Marx 1996). Yet many of today's interconnected environmental and social problems – over-consumption, poverty, over-harvesting, climate change, stratospheric ozone reduction, over-population, biodiversity loss, pollution, fresh water shortages, invasive species, fisheries collapse, deforestation, over-grazing, erosion, desertification, and salinization – are the unintended, unforeseen (but not necessarily unforeseen or unforeseeable) consequences of a failure to recognize, adequately appreciate, or effectively respond to the reciprocal character of humankind's relationship with nature.

As the *Living Beyond Our Means* statement from the Millennium Ecosystem Assessment's Board (2005, p. 2) points out, "Human activity is putting such strain on the natural foundations of the Earth that the ability of the planet's ecosystems to sustain future generations can no longer be taken for granted". The upshot is that the orthodox view of progress, which has pitted humans against nature, may finally be strained beyond its seams. This idea, however, is not new. A similar argument, based on an early effort to model the relationships among environment, economy, and human population, was made in the original 1972 *Limits to Growth* study (Meadows *et al.*). Paul and Anne Ehrlich (1979) made a related argument, on ostensibly narrower grounds, when they asserted, that human-induced species

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extinction, like randomly popping rivets from an airplane's wing, was akin to playing Russian Roulette with the fabric of life.

Concerns relating to the planet's overall carrying capacity and the potential of technology to keep pace with changing human needs and expectations are also not limited to the late twentieth century. Over two hundred years ago Malthus (1970 [1798]), possibly underestimating or failing to recognize the potential of agricultural technology to increase crop yields, raised concerns about the limits of agriculture to keep pace with increasing demand from population growth. Jevons (1865) issued a warning about England's ability to maintain its progress and wealth in the face of finite coal reserves and Sears (1988 [1935]) called attention to spreading desertification in the United States due to poor soil conservation practices. More recently, the Post World War II era brought such concerns to a crescendo by spurring a huge growth in literature that began connecting concerns about carrying capacity and resource scarcity to questions about the downside of technology, anxiety regarding effective governance, distress over biodiversity loss, and misgivings about the potential of continuous economic growth to bring the good life for all (Vogt 1948, Osborn 1948, Leopold 1949, Brown 1954).

This solicitude regarding our use of the environment and its role in securing and maintaining a high quality of life, albeit on a more local scale, has ancient antecedents too. Plato (429-347 B.C.E.) was troubled by local climate change caused by deforestation and its effects on agriculture (1989 [1929]). Vitrivius (1st century C.E.), by making an analogy to the neurological problems of lead smelters, called for a ban on the use of lead water pipes (1985 [1934]). And Mencius (372-289 B.C.E.) went through great lengths to argue for sustainable resource management in China:

> If you do not interfere with the busy seasons in the fields, then there will be more grain than people can eat; if you do not allow nets with too fine a mesh to be used in large ponds, then there will be more fish and turtles than they can eat; if hatchets and axes are permitted in the forests on the hills only in the proper seasons, then there will be more timber than they can use (Hughes 1989, p. 19).

These represent only a few of the many rich examples of 'unheeded' foresight that have been gifted to us. While it is clear from the historical record that, at times, actions were taken and regulations were made, the pattern of ecocultural deterioration that often ensued also makes it clear that these efforts were, in the main, unrecognized, inadequately supported, or insufficiently enforced.

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I contend that today's sustainability and sustainable development discussions (Kates *et al.* 2005, Robinson 2004, National Research Council Board on Sustainable Development 1999, Bossel 1998, Daly and Cobb 1989, Milbraith 1989) are the contemporary manifestation and integration of these constructive critics of progress' concerns regarding maintaining and improving quality of life. Their key insight is that progress is not inevitable. The variety we get, if in fact we achieve progress, depends on how effectively our institutions, policies, practices, and every day decisions manifest our diverse values and our understanding of how the world works. My conclusion is that while achieving continuous quality of life improvements for all cannot be achieved by abandoning the idea of progress, it also requires a more than superficial departure from the orthodox notion of progress.

The famous American environmentalist, Dave Brower, was fond of saying that he was not "blindly against progress, but against blind progress". This phrase could be a mantra for the less dogmatic, constructive critics of the orthodox notion of progress that I have been describing. Their work suggests that progress is multifaceted and contingent. Progress in one realm need not imply progress in another. In fact, progress in one realm can be inversely related to progress in another. Excessive progress in one realm can even foster a lack of resilience that engenders collapse (Diamond 2005). What's more, past gains can be reversible – and irretrievable, as with lost languages or the skills, traditions, and wisdom that are forfeited when a culture becomes extinct.

I have coined the term 'greening of progress' to refer to the process of modifying the orthodox notion of progress to support a transition to ecocultural sustainability. This revised view of progress incorporates three assumptions. First, progress is an inherently normative idea. The idea of progress cannot be separated from our values and assumptions about human nature (are humans inherently good, bad, both, or neither), technology, economics, what is sacred, and our views about the way the world works. Furthermore, every decision will, almost inevitably, generate tradeoffs. Second, humankind's quality of life is ultimately tied to, and constrained by, our ability to maintain the health and flourishing of nature and the planet's various ecosystem services along with our ability to stay within the planet's biogeophysical carrying capacity. Third, the *rate* and *character* of progress are shaped by our concern for the common good; our ability and proclivities to acquire, process, evaluate, and share information about the current state of affairs (particularly feedback data); the types of decision making processes and criteria we employ; our proficiency at understanding and reflecting our highest concerns in our institutions, policies, and lifestyles; our adeptness at acting in an anticipatory and adaptive fashion (as opposed to a simply reactive one); and our capacity to support individual and institutional self-renewal (Gardner 1995).

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In contrast to others (Speth 2004, Raskin *et al.* 2002), I have specifically chosen not to include a formal requirement for radical value change. I have done this because I believe the surveys of the publics' environmental attitudes and concern demonstrate that the underlying values to support such change, while possibly not deep enough or well enough informed by science and a sophisticated understanding of causal relationships (Coyle 2005, Gruber 2003), nevertheless, already exist, are sincere, and are widely embraced. Rather than eliciting a sweeping change in values, the more fundamental and crucial steps may involve better understanding our existing palette of values (and their relative implications for improving quality of life), reprioritizing or realigning our values in relation to this improved understanding, and eliciting greater consistency in their application.

Niels Röling offered a provocative and challenging admonition that alludes to the essential change embodied by my 'greening of progress' perspective when he stated, "Until now man has fought nature. From now on, he will fight his own nature" (translation of French phrase, as quoted in Röling 2002, p. 25). Rather than fight our nature, however, I believe the fundamental challenge is to better understand our nature – and learn how to work with it – to identify levers of change that can help us bring about the change we seek[9]. But what is 'our nature'? What is socially constructed, what is guided by our neurobiology (Damasio 2005), and what is genetically determined (Wilson 1998)[10]? How much leeway do we have in applying learning to adapt to our evolving understanding of the world

[9] For an insightful discussion of the efficacy of different change strategies and how applying particular strategies to problems can prove to be either fabulous or disastrous, see Watzlawick *et al.* (1974). For an application of Watzlawick and his colleagues' theory to the problem of the disconnect between peoples' stated environmental concern and their environmentally destructive behaviors, see Glasser (2004).

[10] For an interesting insight into this crucial and subtle question, consider the perspective of E.O. Wilson (1998, p. 2049), the originator of sociobiology:
"Human nature is not the genes, which prescribe it, or the universals of culture, which are its products. It is rather the epigenetic rules of cognition, the inherited regularities of cognitive development that predispose individuals to perceive reality in certain ways and to create and learn some cultural variants in preference to competing variants."
For another important perspective on this issue, ponder the view of the noted neurologist, Antonio Damasio (2005: p. xx):
"[T]he body, as represented in the brain, may constitute the indispensable frame of reference for the neural processes that we experience as the mind; that our very organism rather than some absolute external reality is used as the ground reference for the constructions we make of the world around us and for the construction of the ever-present sense of subjectivity that is part and parcel of our experiences; that our most refined thoughts and best actions, our greatest joys and deepest sorrows, use the body as a yardstick."
Consider also that it is the environment – as external reality – that gave rise to *homo sapiens sapiens*; the interplay between genetics, the environment, chance, and possibly our own ingenuity (adeptness at learning), in some sense, *crafted* the human brain as we know it today.

and our place in it – and how much does human nature shape our understanding of the world and our place in it? From my greening of progress perspective, I take Röling to mean that environmental management must become much more about managing people – especially the way we learn, form and test our values, and use nature to satisfy our needs and desires – than managing nature, per se (i.e. attempting to control and manipulate soil, forests, marine environments, and ecosystems). I would also modify Röling's insight to incorporate the idea that a greening of progress tradition, or at least a countercurrent, has existed for at least several millennia. But why hasn't this modified view of progress taken hold? The pivotal issue, in my mind, is to clarify the role that learning can play in supporting the greening of progress and in facilitating a transition to ecocultural sustainability.

Individual learning, social learning, and ecocultural sustainability

Given widespread environmental concern and abundant information regarding human induced ecocultural degradation, why does the overall pattern of unsustainability continue to grow? While the information regarding human induced ecocultural degradation is often speculative, uncertain, and contested, I believe the inescapability of human ignorance is not nearly as disconcerting as our dereliction to effectively draw on what we know. If a transition to ecocultural sustainability is ever to take hold, unprecedented individual and collective change must occur. While such change might be catalyzed by some random, external event, my interest here is in the possibility of planned, directed change. Change of this character and scale, however, has no chartered course. My discussion of 'the gap' and the 'greening of progress' demonstrated, that while no society has yet to successfully make such a transition, it is not for lack of interest or effort. Comprehensive, coordinated change – spanning our behavior, practices, policies, institutions, and, perhaps, values – is extremely difficult.

Any planned, directed change by individuals or collectives is built on learning. Using the *Oxford American Dictionary* definition as a rough guide, I define learning more generally as the process of acquiring knowledge, skills, norms, values, or understanding through experience, imitation, observation, modeling, practice, or study; by being taught; or as a result of collaboration. I also note that understanding is interpreted very broadly here to also include intuition, which may be the product of extensive study, spiritual practice, divine inspiration, or even serendipity, rather than conscious reasoning. Contrary to widely held views in social psychology, political science, planning, and management (O'Riordan 1995, Goldstein 1981, Friedmann and Abonyi 1976), I do not believe that learning must necessarily engender behavioral change. Not all learning warrants behavioral

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change and, sometimes, competing interests, goals, and objectives militate against change. This point has been made vividly clear, for instance, by the pairing of our growing knowledge of, and scientific consensus around, the existence of anthropogenically induced climate change *with* our dismal, individual and collective failure to effectively respond to this knowledge (Speth 2004). It is only through learning, however, that we acquire our values, attitudes, and concerns along with our conception of reality. By acquiring new information (or exploiting existing information), we have the possibility to test these values and concerns against our understanding of reality and, if warranted, we can take measures to rethink our values, realign our behavior and action, or do both. When corrective responses result from anticipatory learning (as opposed to simple adaptation), I refer to them as planned change.

As will become readily apparent, there is currently no common and consistent interpretation of social learning. To give a flavor of the variety of perspectives regarding the meaning of the term social learning, I share below five interpretations:

- Social learning is a higher form of learning occurring in a social context for the purpose of personal and social adaptation (Goldstein 1981, p. 237).
- Social learning is the process by which organisms 'see' their environmental circumstances by intelligence gathering and act with foresight or prepared adjustment. This principle of precautionary but evolutionary adjustment may be a vital one for responding to environmental stress (O'Riordan 1995, p. 4).
- [The] combination of adaptive management and political change is social learning (Kai Lee 1995, p. 228).
- Social learning [is the p]rocesses by which society democratically adapts its core institutions to cope with social and ecological change in ways that will optimize the collective well-being of current and future generations (Woodhill 2002, p. 323).
- 'Social learning' reflects the idea that the shared learning of interdependent stakeholders is a key mechanism for arriving at more desirable futures. With time, the concept of 'social learning' has intertwined with related ideas such as soft systems thinking… and adaptive management… A consistent characteristic of the various approaches is that they advocate an interactive (or participatory) style of problem solving, whereby outside intervention takes the form of facilitation (Leeuwis and Pyburn 2002b, p. 11).

The state of affairs regarding this mélange of views and theoretical approaches has, perhaps, been best captured by Parson and Clark (1995, p. 429):

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> The term *social learning* conceals great diversity. That many researchers describe the phenomena they are examining as 'social learning' does not necessarily indicate a common theoretical perspective, disciplinary heritage, or even language. Rather, the contributions employ the language, concepts, and research methods of a half-dozen major disciplines; they focus on individuals, groups, formal organizations, professional communities, or entire societies; they use different definitions of learning, of what it means for learning to be 'social', and of theory. The deepest difference is that for some, *social learning*, means learning by individuals that takes place in social settings and/or is socially conditioned; for others it means learning by social aggregates.

In an effort to shed some light on the distinction between *individual* and *social* learning and offer some clarity and coherence to the situation, I take a more generic, ethological approach. I introduce a broader notion of social learning than typically appears in much of the contemporary literature on social learning and sustainability (Keen *et al.* 2005, Leeuwis and Pyburn 2002a, National Research Council Board on Sustainable Development 1999, Lee 1995). This characterization attempts to offer a unique resolution to Parson and Clark's (1995) concern about the existence of two widely separated views on who can engage in social learning and the character of the process. I view almost all learning by individuals as some form of social learning. The exception is pure trial-and-error learning through direct personal experience, essentially immune from the influence of others (human and nonhuman). This is a time intensive and potentially costly approach for acquiring knowledge, skill, or understanding. Imagine, for instance, learning how to speak without having the benefit of hearing others talk, learning how to decipher written language without having been taught the alphabet, or learning what things are safe or healthy to eat solely through random or even systematic experimentation. While pure trial-and-error learning is demanding and rare, it has clearly been, and continues to be, pivotal to human development. When individuals engage in the process of learning, they more frequently employ observation, imitation, modeling, self-instruction, conversation, and mentoring, among other strategies. All of these strategies, however, rest on some interaction with living beings or, at least, employing the artifacts (e.g. language, tools, books, drawings, videos, music recordings, software, etc.) of living, or once living, beings.

Albert Bandura has argued that modeling, from the standpoint of behavior elicitation, is the most significant form of learning in which individuals engage (1977, p. 22):

> Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action.

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Bandura's social learning theory (1977) explains human behavior in terms of continuous interaction among cognitive, behavioral, and environmental influences. Bandura separated the conditions for successful behavioral modeling into four components:

- Attention – a 'model' behavior in the environment must grab or capture a potential learner's notice.
- Retention – the learner must remember the observed behavior.
- Reproduction – the learner must be able to accurately replicate the observed behavior.
- Motivation – the environment must offer a consequence (reinforcement or punishment) that increases the probability for a learner to demonstrate what they have learned.

While Bandura's social learning theory was developed to explain individual behavior, it can be applied to collectives with great efficacy too.

As long as learning, by individuals or collectives, involves some form of input drawn from others, I characterize it as social learning. The more salient distinction, I find, is differentiating between what I refer to as *passive* social learning and *active* social learning. Passive social learning, by individuals or collectives, rests on the prior learning of others. It does not require inputs in the form of communication or interaction – direct feedback – from other living beings. Passive social learning includes learning that results from reading a newspaper, watching a blacksmith forge a tool, viewing a movie, listening to a radio program, attending a lecture or poetry reading (without questions from the audience), searching the internet, or following a recipe. It also includes observing the practices of, and interactions among, others. Passive social learning has many advantages for cultural evolution over trial-and-error learning because it can lead to the same results at much lower cost in terms of time, effort, and danger. A drawback is that most results must be accepted uncritically – i.e. on trust. Another potential drawback is that it generally requires embracing, actively or at least tacitly, the values and assumptions that are encoded in the transferred knowledge. While the passive social learning process may yield important new insights for the particular individual or individuals

involved, it generally has limited applicability for directly spawning substantively new social innovations.

Most learning in our contemporary world, both individual and collective, is passive social learning. Because it relies on the received wisdom of others (frequently experts), passive social learning can be used to readily propagate behaviors that favor narrow interests over the common good. Robert Edgerton (1992) characterizes such social or cultural maladaptation as the maintenance of traditional beliefs, practices, or institutions that: (1) harm people's health or well-being, (2) make it ineffective at coping with environmental demands, or (3) threaten the society's viability. Such maladaptation is ubiquitous today. An example is the orthodox notion of progress, which supports a general belief that environmental problems do not need to be addressed today because new technologies can always be created to cost-effectively address any problems that might subsequently arise. Other related examples include our mindless commitment to economic growth (at seemingly all costs) and our widespread failure to appreciate the many tradeoffs associated with rapidly rising global per capita animal protein consumption. Vested interests and those unwilling to share power, if they can insulate themselves from the effects of maladaptation (assuming they are aware or are concerned about them), generally have a significant interest in perpetuating such behaviors.

Employing Bandura's framework, ecoculturally sustainable behaviors are commonly seen as less appealing, so they fail to grab our attention. The behaviors are frequently unfamiliar so they are less likely to be retained. They are also often more involved or more complex, so they are less likely to be reproduced. Finally, the behaviors are routinely perceived as inconvenient, more expensive, more time consuming, not fun or 'cool', unsafe (as with smaller more fuel efficient vehicles or bicycles), or as activities of the counter culture, so there is little motivation to try them out. The motivation for employing more ecoculturally sustainable behaviors is further diminished for two key reasons. First, a behemoth advertising industry bombards people all over the world with models of people enjoying, or rather basking in unsustainable behaviors, without experiencing any negative side effects or tradeoffs. Second, the negative side effects that do exist are often not readily 'visible' or they are distributed in space and time far away from those causing the impacts.

Maladaptive behaviors, such as corruption; excessive consumption, profligate waste, and exorbitant energy use in the rich countries; and high population growth in many economically disadvantaged countries are widely modeled in the media and in society. It is should be no surprise, as Bandura suggests, that such behaviors are likely to be perpetuated despite widespread information documenting the negative overall consequences of maintaining such behaviours. Simply put, our

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societal emphasis on passive social learning and our proclivity (by accident or design) for modeling unsustainable, as opposed to sustainable, behaviors severely hampers the possibility of facilitating a transition to ecocultural sustainability.

Active social learning, on the other hand, is built on conscious interaction and communication between at least two living beings. It is inherently dialogical. Active social learning can be broken into three rough categories that are a function of the skills and values of the individuals in the collective and the power relationships that define them. The three categories, which reflect increasing levels of participation by the group members, include:

- Hierarchical – based on predetermined, inflexible relationships between established teachers and learners;
- Non-hierarchical – based on two-way learning, where each participant, as an 'expert' in their own right, shares their knowledge and experience; and
- Co-learning – based on non-hierarchical relationships, collaboration, trust, full participation, and shared exploration.

Hierarchical and non-hierarchical active social learning are widely applied and used with great benefit to expand the penetration of existing knowledge. Co-learning, because of its requirements for team building, complete engagement, 'learning-by-doing' (Dewey 1997 [1938]), and accountability, in addition to supporting the penetration of existing knowledge, supports the generation of new knowledge and novel strategies for addressing real-world problems. Co-learning supports change, positive change in particular, by building capacity in three fundamental areas: critical evaluation of existing knowledge and problems, knowledge generation and penetration, *and* application of this new knowledge to policy, practice, and everyday life.

Active social learning can take place in the context of a conversation, a course employing the Socratic method, dancing with a partner, symphony practice, a community meeting, an open, participatory public review process, and, although less visceral, video conferencing over the internet. Opportunities for cross-fertilization and emergence make it much more effective than passive social learning at creating innovations and widely diffusing novel behaviors. Active social learning, because of the opportunity to directly engage both a broad range of perspectives and the whole human, also has the potential to promote more open, equitable, and competent learning processes. Furthermore, the potential to receive direct feedback from other living beings and gain a palpable 'taste' for the effects of our own unsustainable behaviors offers a powerful motivation for challenging the desirability of the underlying, taken-for-granted assumptions, values, and principles – such as the orthodox notion of progress – that guide our

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theories-in-use, routinized policies, practices, and individual behaviors. As such, the highest, most diverse and participatory forms of active social learning appear to offer a viable prospect for combating maladaptation. While I run the risk of engaging in a tautology, I believe these highest forms of active social learning can be used with great advantage in our learning environments and decision-making processes to promote a societal shift toward ecocultural sustainability – if they also model the principles of ecocultural sustainability.

An early illustration of this more active form of social learning as co-learning, which relates to building the foundation for ecocultural sustainability, is Lewis Mumford's idea of the 'regional survey' (1970 [1938], p. 381-387). Mumford saw this work as helping to cultivate the cultural base of a progressive civilization. He describes the regional survey as a form of participatory, communal education that utilizes an organic approach to knowledge to help citizens perform and integrate systematic local surveys of soil, geology, history, industry, climate, etc. In Mumford's view this process gives context and meaning to specialized knowledge and thereby forms the vital nucleus of a functional education for political life.

> When the landscape as a whole comes to mean to the community and the individual citizen what the single garden does to the individual lover of flowers, the regional survey will not merely be a mode of assimilating scientific knowledge: it will be a dynamic preparation for further activity (Mumford 1970 [1938], p. 385).

Mumford saw this process, which he credits with helping to create the Boston Metropolitan Park System and the Appalachian Trail, as involving the entire local community, especially schoolchildren. Leaving it to the realm of specialist, expert investigators would make it politically inert. Although Mumford's idea is broader and less instrumental, the idea is akin to today's community sustainability indicators projects.

Active social learning, however, can support widely different levels of engagement and inquiry. It supports multiple loop learning (Argyris and Schön 1996), which can be used to question both existing practices and the values that undergird them, but the depth and character of questioning that the collective chooses to engage in cannot be determined in advance. Similarly, the collective can utilize adaptive learning (Webler *et al.* 1995), but the use of such techniques will be governed by the interest, openness, preparedness, and social dynamic of the collective. Because active social learning can involve diverse players with competing or even conflicting values and interests, I posit that the most successful forms of active social learning will result from non-coercive relationships that rest on building a common language, transparency, tolerance, mutual trust, collaboration, shared

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interests and, concern for the common good. Such forms of active social learning can employ conflict in a positive way by challenging complacency and encouraging 'out-of-the-box' thinking.

The more active forms of social learning can also facilitate anticipatory responses by examining routinized and inconspicuous practices, such as the creeping escalation of standards for comfort, cleanliness, and convenience (Shove 2003). Examples of activities that benefit from these higher forms of active social learning, include playing in an improvisational jazz band and participating in collaborative, integrated-systems design projects – such as a green building, an organic farm, an ecological design project applying biomimicry, or a green planning initiative, such as those under development in The Netherlands and New Zealand (Johnson 1997). A further benefit of the more active forms of social learning is that their requirement for elevated levels of engagement – especially when diverse constituencies are involved – aids in building critical thinking skills, supports a richer form of rationality that integrates reason and emotion, and promotes contextualization and accountability that are crucial for helping to close gaps between peoples' values and actions.

Two significant potential weaknesses of active social learning come to mind. First, benefits do not accrue automatically from employing the process – active social learning, particularly in its hierarchical forms, can be used with equal ease and effectiveness to support maladaptation (consider efforts to stimulate ethnic conflict by Hitler, the Belgians in Rwanda, and most recently George Bush in the Middle East). I believe realizing the potential of active social learning – as a bulwark against maladaptation and a foundation for the transition to ecocultural sustainability – rests on the collective not only choosing what level process it will employ, but also on the collective making this choice with full awareness of the requirements and demands of these most active, risky, and challenging forms of social learning. A second significant weakness of active social learning is that its success depends on effective capacity building. Success rests at least as much on the preparedness, competence, openness, and maturity of the individuals engaging in it as on the rules that guide particular organizational learning, public participation, or decision-making processes. Furthermore, as wise as the decisions that a group arrives at may be, they are only as good as the potential of the new policies and actions to be successfully modeled and embraced by the society at large. Thus, if a society fails to make the educational infra structure investments to prepare all of its citizens to fully participate in the highest forms of active social learning, it will forever fail to reap its benefits and ecocultural unsustainability will likely fail to be halted.

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Toward a social learning for ecocultural sustainability research agenda

I return now to a question posed in the introduction. Does social learning inspire and foster planned, directed action and behavior that favors continual quality of life improvements for all – humans and the biosphere as a whole? This question can now be restated as: Does social learning automatically channel uncoordinated and inharmonious individual actions into collective actions that support and reflect the goals of ecocultural sustainability? In my view, the answer is, 'not automatically'. Perhaps the most important reason is that social learning, as maladaptation, can effectively drive and perpetuate unsustainable behaviors.

In reference to this persistent and troubling issue, I offer a koan from Lao Tzu (1961, p. 145), the sixth century B.C.E. founder of Taoism, which aptly reflects the challenge, promise, and hope of coming to terms with the maladaptive form of social learning:

> To realize that our knowledge is ignorance,
> This is a noble insight.
> To regard our ignorance as knowledge,
> This is mental sickness.
> Only when we are sick of our sickness,
> Shall we cease to be sick.
> The Sage is not sick, being sick of sickness;
> This is the secret of health.

The first crucial step of creating an effective response involves acknowledging, understanding, and appreciating the lure and power of maladaptation. One of the keys to fostering a transition to ecocultural sustainability rests in helping all of society share in this 'secret of health', this wisdom of the Sages.

To paraphrase John Gardner, the great proponent of individual and societal self-renewal, we have before us some breathtaking opportunities disguised as insoluble problems. In an effort to advance the process of turning these ostensibly insoluble problems into breathtaking opportunities, I propose that the social learning for sustainability research community gather together (literally or virtually) to craft a focused collaborative research agenda. In the spirit of trying to help spark this large-scale, collaborative conversation, I offer the following, tentative and unpolished list of eight challenges for review and discussion (the order need not be adhered to rigidly):

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1. **Develop a consistent and coherent *working definition* of 'social learning'.**
2. **Initiate a comprehensive, systematic review of existing applications and case studies of 'social learning'.** This component has four main purposes: (1) to document the full range of interpretations of social learning across all disciplines; (2) to document the range of existing applications of social learning; (3) to clarify what aspects of social learning are guided by our neurobiology, genetically determined, guided by our culture, or open to change; and (4) to understand how researchers and practitioners from different disciplines have attempted to funnel uncoordinated and inharmonious individual actions into collective actions that support explicit goals.
3. **Explore the possibility of creating a consistent and coherent *working definition* of 'social learning for sustainability'.**
4. **Identify well-documented, testable social learning 'levers' that have significant potential to help individuals and collectives respond more effectively to situations where they have a vague or general familiarity with a problem – ecocultural unsustainability – but, nevertheless, choose not to respond or respond ineffectively.** Such 'situations' require addressing at least seven issues: (1) having no idea that a potentially serious problem exists; (2) honestly believing that a 'problem' is a not a problem; (3) denying the existence of a problem by simply wishing it away or by ignoring the information (this includes *educated incapacity*, an acquired or learned inability to perceive a problem); (4) accepting the existence of a problem, but perceiving it as easily surmountable; (5) accepting the existence of a problem, but perceiving other problems or issues to take a higher priority; (6) failing to muster adequate support for action; and (7) taking action, but the chosen action proves to be inadequate, mismatched to the problem, or unsuccessful. Two corollary challenges include applying these social learning levers to real-world cases and evaluating their efficacy.
5. **Create well-documented, testable strategies for applying social learning to 'minding the gap'.** Assuming that interest in improving quality of life and concern for the environment are strong and sincere – that people are not hypocritical – it becomes important to identify or create well-documented, testable social learning techniques and instruments to help people to: (1) better understand these values and concerns, (2) put these values and concerns into perspective relative to their other values and concerns (particularly those that are otherwise unstated and taken-for-granted), (3) make the difficult to discern impacts of their actions more conspicuous and glaring, and (4) test how they link their values and concerns to their daily actions and practices. If the outcomes of peoples' actions and practices are widely inconsistent with their highest values and aspirations and if after engaging in this process they see these values as fundamental to their world view, then the real work becomes identifying additional, well-documented and testable social learning strategies

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to promote both more consistent individual and public policy decision making for 'minding the gap'. Two corollary challenges include applying these social learning strategies to real-world cases and evaluating their efficacy.

6. **Develop educational strategies to support capacity building for individual learning, so that people are poised to participate in the highest forms of active social learning.** Apply these strategies in the real-world and evaluate their efficacy.
7. **Apply social learning to model strategies for recognizing, understanding, and publicizing maladaptation – and evaluate their efficacy.** Examples might include using the media (internet, movies, videos, etc.) and teach-ins to grab and capture peoples' attention by viscerally highlighting deeply troubling unsustainable behaviors associated with issues such as global climate change, loss of cultural diversity, or the impending water crisis. An important corollary challenge is to also provide strategies for effectively responding to these forms of maladaptation.
8. **Apply social learning to model ecoculturally sustainable behaviors – and evaluate their efficacy.** Examples might include, creating and publicizing a community sustainability indicators project that is directly integrated with policy and practice or creating a new housing project that demonstrates that small, super-energy efficient, green homes are stylish and comfortable as well as cost saving.

As noted earlier, social learning means many things to many people. There is as yet no widely accepted, clear and coherent interpretation of social learning. Social learning may even surpass 'sustainability' and 'sustainable development' for its breadth and diversity of interpretations. It goes without saying that there is also no lucid, well-developed social learning for sustainability paradigm. This, however, is no reason to abandon any of these terms – quite the contrary. A modest degree of vagueness and ambiguity can provide an entry point for all and stimulate a process of clarification, questioning, and conversation that, in the end, may prove far more important than any definitional consensus.

The paradox of social learning is that it can result in our ruination or our renaissance. Our goal is not simply to evade collapse. There is a vital difference between growing ever cleverer and becoming wiser. Steady improvement in quality of life for all rests on developing, and continually renewing, our capacity to bridge the gap between our values and our actions. The secret to making this ostensibly insoluble problem soluble hinges on recognizing that information is not knowledge and knowledge is not understanding. The promise and power of learning for sustainability involves internalizing this distinction *and* learning to appreciate that understanding results from access to information, the capacity to make sense of it, the opportunity to openly debate its significance, the sophistication to draw meaning from it, and the

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wisdom to put it into context. This is how we build the capacity and conviction – individual and collective – to bring consonance between our highest values and our actions.

While many of the ideas and concepts embraced by advocates of social learning have tremendous potential to facilitate a transition to ecocultural sustainability, the term currently runs the risk of being perceived as a silver bullet or panacea. At its best, active social learning may very well encourage a deeper, more robust understanding of cause and effect, ongoing moral development, and creative, anticipatory problem solving – these benefits, however, are not guaranteed. I have attempted to add some modest clarity and coherence to our understanding of the meanings and potential of social learning and outline some of the challenges before us – but many questions remain unanswered and considerable work and collaboration remains before us.

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