Abstract

This paper considers the implications for management education arising from the agenda of sustainable development. Sustainable development is regarded here as a reforming approach to human activity designed to address the environmental and social problems provoked by development. Sustainable development represents the first major institutional response to recent problems of global change. It is an agenda for governance, which affects business and many other sectors of global society and the global economy. Although this agenda is known and being addressed by some governments, businesses and communities, the problems that provoked that agenda continue to affect contemporary society. In addition, society, particularly business, has to contend with the other forms of global change. These include economic and financial changes—brought about through information technology and the liberalization of trade and capital markets: as well as social and cultural change—through the migration of people, tourism and business travel and the reification of cultural icons and life-styles. Business contributes to these changes through its actions and change also brings forward new issues for managers to address.

Universities and business schools have been slow and selective in responding to these changes. This paper reviews the response that has been made by business programs to the environmental aspects of modern industrial and business practice. The paper discriminates between approaches to environmental management and the more fundamental agenda of sustainable development, which has led some authors and practitioners to regard sustainable development as the basis for a new paradigm for business. The paper examines the way that environmental issues have been introduced to the management curriculum, in Europe and North America, from the late 1980s onwards, and discusses the ideas that have informed the content of these early approaches. The paper concludes by anticipating how sustainable development will impact the content, approach and structure of business programs.
Management Education for Sustainable Development

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Introduction

Environmental management (Berry & Rondinelli, 1998) and sustainable development (Hart, 1997) have surfaced in the mainstream of management scholarship (Academy of Management Review Special Topic Forum, 1995) some ten years after the publication of the report for the World Commission on Environment and Development (Brundtland, 1987) brought global attention to these issues and some five years after discussion of Agenda 21 at the Earth Summit in Rio de Janeiro (Agenda 21, 1992). The attention by scholars has reflected the attention by some leading businesses to their environmental and social impacts (Fischer & Schot, 1993; Schmidheiny, 1992). This paper examines the significance of these changes for management education and the MBA curriculum in particular. It considers the response from business schools and faculties of management to the incorporation of environmental content in the business curriculum (MEB, 1993; Moser & Arnold, 1993; Shrivastava, 1994; Ulhoi & Madsen, 1995; UNEP, 1994a; Roome, 1994). It goes further in anticipating how the agenda for sustainable development could change the character of the business curriculum in the coming years. It suggests that as environmental education is being accommodated within the business curriculum, so global change and sustainable development begin to raise more fundamental questions about the content, approach and structure of business education.

The paper is divided into three main sections. The first section explores the context to
current environmental concerns, their link to the broad thrust of contemporary global change and the response provided by sustainable development. The second sets out a framework that discriminates between environmental management and the demands of sustainable development on business. Here the capabilities required for successful environmental management and sustainable development in business are identified. With this background the paper reviews recent approaches to the incorporation of environmental education in the business curriculum and anticipates the changes that will follow from a move toward management education for sustainable development.

1. Global Change, Sustainable Development and Business

Global change is a paramount social and business issue of our time. Global change is not used here simply to refer to the economic globalization or internationalization of business that follows from the World Trade Organization’s objectives of free trade or the moves by major business to access global markets through strategic alliances. The last thirty years of the millennium have been characterized by global change that has assumed a variety of forms (Mittleman, 1996). These changes have arisen in progressive waves, which have become increasingly interwoven so that we now confront a complex web of relationships in which the distinctions between cause and effect are blurred (Roome, 1998).

The first substantive wave of global change, in the modern era, centers on the environmental effects of development around the globe. This has manifest itself in the loss of biodiversity, the threat to fragile eco-systems, the reduction in environmental quality, the incidence of toxic and/or accumulation chemicals, the diminution of natural feedstocks, such as coastal and deep sea fisheries, and the threat to life-support systems such as the ozone layer and a stable climate (World Conservation Strategy, 1981). These changes have been brought
about through the environmental demands of industrialization and the social and environmental problems provoked by under-development. Industrial activity and technological innovation, for its part, has provided the basis for economic development in advanced and rapidly industrializing economies. Yet industries’ resource and energy needs and use of the environment as a pollution sink together with the effects of patterns of material consumption have contributed to global problems such as climate change, the depletion of the ozone layer, the loss of biological diversity, and growing levels of resource use. They have contributed to more local and regional environmental problems connected with air and water quality, land contamination, waste, the bio-accumulation of toxic materials, habitat destruction, noise and congestion. At the other extreme of development there is a cycle of poverty that is mainly experienced in developing countries. This arises from population pressures, the division of resources and the drive for economic development. Here sectors of the global population are deprived of basic human needs and security with respect to food, shelter, health, education and family planning. The most needy are forced to survive, either, by exceeding the carrying capacity of their environment, or, by choosing pathways for development which fail to respect environmental constraints.

The overall resource constraints of the planet and the projected growth in population imply that the pattern of production and consumption in developed economies is not sustainable and that the pathway to development used in the industrialized world can not be replicated in developing economies (Brundtland, 1987). This suggests that changes are necessary in both developed and developing economies (Agenda 21, 1992). These global environmental pressures continue (United Nations Environment Programme, 1997).

A second, and more recent wave of global change, connects a number of the emerging forces
in economic and financial systems. These include the move toward economic liberalization, open markets and free trade, the structural changes in business brought about through mergers, strategic alliances, the move toward international production and marketing systems and the concentration of capital power by Transnational Corporations. These factors have been aided by the spread of information technology that has contributed to increases in the reach of business and increase the portability of capital (Korten, 1995). These changes and the implications of economic and financial interdependence provoke both advantages in terms of economic opportunities and more efficient markets but also create the ground for volatility and instability in national and global economic and political systems.

The third wave of change is still emerging. It relates to a range of, often, contradictory social and cultural tends. On the one hand we are experiencing the emergence of a mobile, ‘international’ elite. For some members of this elite their financial resources and power are no longer subject to the governance structures and rules of any one nation state. For others their intellectual capital applied in and across many different national and local settings as they move from employment location to employment location. In addition we are witnessing a much more rapid exchange of ideas and images through the new communication media. And as a consequence of business travel, tourism, the globalizing media and the communications superhighway so we are experiencing the emergence of dominant cultural ‘icons’ which provide standards and expectations of life style. These dominating images are often characterizations of the life style of the economic ‘elite’ from those industrialized countries that provide the technology and capital that underpins these media. On the other hand there is a melding and mixing of cultures through migration of peoples, often inspired by conflicts linked to resource scarcity, political instability, ethnic and ideological strife or the economic pull of the industrial societies. This creates a potential for many new tensions
around questions of cultural and national identity. It can generate tension between the identities of cultural groups, which coexist in multi-cultural locations or between new entrants and the established cultures who populate an area. It raises profound questions about nationhood and identity, the value ascribed to cultural heritage and traditions, and, the emergence of new mixed-cultural societies.

The specific concern of this paper is with the first wave of global change arising from the social and environmental consequences of development and the way this is influencing business education. But it is important to note that all three forms of change continue to drive adaptations in the thinking and practice of business. In part these changes are fueled by the decisions and practice of business itself: for example through the competitive strategies of global growth of Transnational Corporations (Gladwin, 1998). But business is also developing its own responses to these changes. Consequently business managers need to understand the nature of these changes in order to make the most of the economic opportunities they provide and to share responsibility for addressing the undesired consequences that arise from the changing nature of business, industrial activity, social and economic structures and systems.

A key issue here is that there are multiple perspectives on the nature of these changes and their implications for economic, environmental and social systems. Frequently the outcomes of human economic activities on environmental and social systems are not known and may not be predictable --for example as is the case with the introduction to the market of a new synthetic chemical, a genetically modified organism or a new technology. Even when these outcomes are relatively localized--as is the case with the location of a new industrial plant, hydro-electric schemes, hazardous waste incinerators or nuclear waste disposal sites --there is
often a lack of consensus about whether those changes are desirable. It is not surprising then that the effects of global change and sustainable development are socially contested, with groups and factions taking different, potentially divisive positions (Gladwin, 1998).

As with all forms of global change new demands are placed on citizens and decision-makers, in government, business and the non-government sector. In practice the changes brought about through ‘economic development’ have given rise to the emerging shape of the pattern of production and consumption. This pattern is an expression of our experience of development. It is shapes and reinforces our individual and collective image of development. It is provides the model within which our economic, political and social systems judge advancement and success. For example, despite the rapid pace of change we have seen few alterations to the way we measure ‘economic development’ in national accounts despite longstanding misgivings about the outcomes that are omitted, or counted wrongly or inappropriately (Pearce, Markandya & Barbier, 1989).

Global change then is complex, dynamic, uncertain and contested. It challenges the adequacy of current institutions of governance at international, national and local levels. It is redefining the scope and direction of decision-making, as well as the structures, organization and activities of institutions around the globe. This includes business and the financial community. It brings different actors and sectors in society, and different parts of the world, into new relationships. Yet innovative approaches are urgently required to meet the challenge of global change: approaches that are based on new understandings of how we assess and respond to the causes and consequences of change.

To date the response to the ‘problems of development’ has been more concerted than the
chaotic, ‘tyranny of decisions’ that has shaped the dominant social paradigm of ‘development’. That response in the form of the agenda for sustainable development has assumed the form of a model for governance which seeks to curb the social and environmental consequences of past forms of development (Brundtland, 1987). It is a new prescription, an agenda for governance (Agenda 21, 1992), which requires decision-makers, institutions, governments, business and other organizations and citizens to modify their choices and actions. But this agenda should be seen as a response to historic problems of development. Since Agenda 21 was agreed in 1992 we have begun to confront the effects of the other forms of global change set out above—economic and financial globalization and cultural global change. Sustainable development, then, needs constantly to be redefined in the light of our successes and failures in matching the demands generated by past forms of global changes and as new issues add more complexity and uncertainty to the issues we face.

Relating these contextual remarks to the changes taking place in business programs leads me to suggest that global change is impacting the content of business education and the structure and identity of the institutions, which provide that education. Yet business education has been relatively slow to respond to the broad sweep of global change. And it has been highly selective in its response to global changes. A growing number of programs have introduced ideas about economic and financial globalization and the internationalization of business. The number of international MBA programs has developed rapidly to complement existing MBAs. New programs have been introduced to reflect the demand for ‘global managers’. These new offerings focus on the capabilities needed for managers to contribute to organizational success of companies competing in new internationalizing markets. They provide courses in international marketing; managing diversity; and the development of linguistic and cultural sensitivity, either through courses in regional studies and comparative
management, or, experientially through coop placements, exchange programs overseas and overseas assignments. These courses are frequently added to the core of relatively standard MBA programs.

Some programs have begun to harness the same communication media that is speeding up global change to provide multi-location and/or distance learning offerings.

In contrast there has been a far less significant response in business programs to the issues of governance and organizational change demanded by the environmental and social consequences of business and industrial activity. And within this limited response while environmental management has begun to find its way into business programs in Europe and the USA, the broader reforming agenda of sustainable development has only just begun to be recognized.

An important issue underpinning these differential responses is that the internationalization of business is an extension of the domain of the dominant social paradigm and logic of conventional economics. It has emerged as a competitiveness issue in the interaction between businesses. On the other hand environmental pressures, and the demand for sustainable development, arise as a consequence of a critique of the current paradigm. It is an agenda for change that arises from demands from a range of non-business constituents. And it raises notions of a new or altered paradigm that challenges our conventional views of economic sand business.

The next section reviews the differences between environmental management and sustainable development and identifies the managerial capabilities required by each approach.
2. Discriminating Between Environmental Management and Sustainable Development

Corporate environmental management is defined as a set of organizational processes which are used to identify and shape responses to the impacts that business activities have on the Earth’s biological, physical but also cultural resources and systems. Environmental management involves three principal dimensions shown in Figure 1.

[Insert Figure 1 about here]

Approaches to corporate environmental management have developed rapidly over the past ten years with the advent of new concepts, such as pollution prevention, product stewardship, environmental management systems, eco-efficiency, total quality environmental management, industrial ecology (Hall and Roome, 1996) and responsible care (Chemical Industries Association, 1989). These concepts are operationalized and implemented through a series of tools and techniques. For example, the concept of product stewardship requires the development of new products which are associated with reduced environmental burdens. Implementing this concept requires the use of tools and techniques to establish the types of environmental impacts that arise over the life-time of the product, measure the consequence of those different impacts, in terms of environmental change, and provide an assessment of the significance of those impacts for society. These tools and techniques contribute to ‘design for environment’ protocols or sub-protocols such as ‘design for disassembly’ or ‘design for remanufacture’.

The generic analytical tool to support these protocols is life-cycle analysis. Life-cycle analytic techniques can be more or less sophisticated. They can be devised to discriminate
between the impact of environmental changes on different groups in society or to different natural systems. They can permit the development of improved environmental performance of products without impairment to a product’s functionality or its overall cost structure.

In its turn the application of environmental management concepts, protocols and tools bring about the need for organizational change. This also takes many forms. It can focus on internal organizational change to bring about integration between environmental and business concerns in corporate practices (Shelton, 1995). ‘Design for environment’, for example, requires the integration of environmental dimension of product development within the established system of research and development, marketing and production engineering that contribute to a company’s new product development process. It can involve change in the relationships between business entities that make up production systems, supply or value chain. New products that emphasize the reuse of post-consumption material will alter a focal organization’s relationship with its suppliers, agents or customers. For example US regulations requiring a minimum content of recycled fiber in newsprint creates demand by Canadian pulp and paper manufacturers for recycled fiber when without the regulation they would tend to use virgin pulp.

The advent of voluntary environmental management systems (EMSs) (see for example, International Chamber of Commerce, 1989; British Standards Institution, 1992; Canadian Standards Association, 1993 and 4) and their incorporation within environmental regulations in some regional jurisdictions (European Commission, 1993) and [globally acknowledged] international standards (ISO, 1996) are promoting environmentally-led organizational change.
EMSs provide a structured set of tools and techniques within a given organizational framework that range from environmental policy statements, with their symbolic and purposive qualities, to the environmental management systems audit, with their concern to improve the operational effectiveness of management and to remedy deficiencies in the company’s performance. Implementing these systems requires different types of organizational change. Introducing an EMS raises issues about the relationships between the EMS and existing business processes. It impacts company mission, policy and priorities, company documentation and performance systems. It influences individual management duties and responsibilities and demands training. It alters the interaction of actors whose work contributes to the accomplishment of business and environment objectives. It impacts the flow of resources to activities and alters the power structure within the organization.

While environmental management provokes organizational change in business, the point of departure for sustainable development is to encourage a new form of business and social thinking and practice. Distinctions between environmental management and sustainable development can be traced to the early 1990s (see for example the conference reports by Ashford & Meima, 1993; Clarke & Georg, 1995). Although the terms environmental management and sustainable development have often been conflated by practitioners and academics (Roome, 1995), are still often used interchangeably (United Nations Environmental Programme, 1994b) the distinctions have become more widely acknowledged and specified (Gladwin, Kennelly & Krause, 1995; Hall & Roome, 1996; Hart, 1997; Roome, 1995, 1997 and 1998). What then are the differences?

The logic here is that the Brundtland Report (1987) defined sustainable development as a concern for the impacts of human activity, which affect the quality and quantity of the
environmental, social and economic opportunities and endowments available to current and future generations. It implied the integration of environmental values and policies with development strategies as well as a concern for equity between members of the present generation and between today and future generations. In this sense sustainable development is both a goal and process. As a goal it requires new criteria and governance rules to judge whether activities today are more sustainable than yesterday. These criteria can be expected to shift with changing social needs as new generations express their views on sustainable development. The criteria to measure progress toward the goal of sustainable development are consequently expected to shift over time.

Sustainable development as ‘process’ emphasizes the development of adaptive institutional structures and systems that enable society’s vision of sustainable development at any one point in time to be specified and implemented. As Brundtland (1987) says, ‘[S]ustainable development is a process of change in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change........enhance both current and future potential to meet human needs and aspirations.’ This ‘process’ involves forms of development that are tailored to the unique biological, physical and social characteristics of different settings and the human needs expressed in those settings. Sustainable development then is a context specific agenda for the governance of change. It is a form of continuous experimentation--a complex, emergent social and industrial experiment informed by a set of guiding principles--it is not the product of a ‘grand design’ found in a formalized planning procedures.

Using Figure 1, to explore sustainable development. The main conceptual issue for sustainable development is that it focuses on bringing about transformative change that
redirects economic and social development so that the environmental fabric of the planet is not jeopardized, now or in the future. Sustainable development is a process of change. This requires tools and techniques, which measure the consequences of change in economic, environmental and social terms.

Contemporary thinking suggests that this does not mean simply extending economic tools, such as full-cost accounting, to bring environmental impacts into economic metrics. It implies the measurement of impacts that arise in economic, environmental and social domains and the development of criteria and decision-rules to enable transparent choices to be made when trade-offs between economic, social and or environmental changes are required. Moreover, the transformative orientation of sustainable development and the concern for the interests of future generations requires the use of tools and techniques such as scenario planning and backcasting (Vergragt and van der Wel, 1998; Vorley, 1998) which enable new socio-technical systems to be envisioned and assessed.

The use of these tools is however designed to support the overall focus on agreed transformative change which sustainable development places at its conceptual center. Beyond this conceptual core sustainable development calls for processes for change which better reflect the multi-party, multi-actor character of the transformations that need to be accomplished (Starik & Rands, 1995; Purser, Park & Montuori, 1995, Roome, 1998). This requires organizational and actor relationships that enable those affected by change to enter into dialogue to promote a shared understanding of the opinions about change, and, to identify actions that permit the focal organization and its broader socio-technical system to accomplish the move toward sustainable development.
These processes are informed by principles that reflect the essence of sustainable development—precaution, inclusiveness, justice and respect for different perspectives and for environmental limits. Business can either assume its role as one of the stakeholders in these processes or act as a facilitator of the process, when it wants to provoke lead change [see for example the experience of sustainable forestry management (Ostlund & Roome, 1998)]. Businesses that take on facilitating roles of this kind must undertake a key switch in their thinking. They are less driven by the concern to find profitable applications for their hard technological competences, and more by their organizational capacity to facilitate processes through which economic opportunities are identified and technological options are agreed. In this way business opportunities arise by defining problems together with other stakeholders and identifying technical and organizational solutions that meet those needs in efficient and effective ways within social and environmental limits. Sustainable development involves a move towards this kind of ‘service orientation’ based on problem solving approaches to customer needs and social and environmental limits.

A clearer image of the distinctions between the practice of environmental management as the accommodation of environmental issues within the existing business paradigm and sustainable development as a new paradigm that shapes business is set out in Figure 2. These distinctions are connected to a set of five key frames of reference. These five frames are the decision frame that provides the reference within which business decisions are made. The organizational frame concerns the relationships between organizational entities that are affected by decisions. The time frame that defines the time boundary for the information on which analysis and decision-making are based. The ethical frame and values system that indicates the principles guiding and shaping decisions. And, finally, the change frame that corresponds to the frame within which decisions are implemented and organizational
adaption takes place. These frames have implication for the resources and capabilities available to organizations.

[Insert Figure 2 about here]

Figure 2 characterizes environmental management as concerned almost exclusively with the environmental impacts arising from the process of a focal company and the supply chain, of its products and services. It involves bringing the environmental dimension of products, services and processes into an economic frame of analysis through the use of techniques such as full cost accounting linked to activity-based costing systems or investment appraisal techniques that incorporate environmental costs. The time frame for these economic analyses is determined by the operational life of products, services or processes in the light of discount rates. The value frame used as the backdrop to organizational decisions is almost exclusively utilitarian, in which utility is derived by people from the consumption, use, appreciation and supply of goods, services and resources. This is tempered to varying degrees by the voluntary acceptance in some organizations of the concept of product stewardship or notions of corporate responsibility.

In contrast sustainable development represents a changed paradigm for development and business. It seeks to provide a new framework within which the business and economic system operates. In this way it shapes the thinking and practice of business. Moreover, sustainable development is a highly context dependent concept that involves a continuous redefinition of goals and process. This implies that sustainable development involves decisions which reshape context rather than simply accepting context as a given. So for example, sustainable development includes questioning the traditional goals and assumptions.
of organizations, the purpose of decision-making and the scope of analysis that contributes to organizational choice. Figure 2 implies that managing for sustainable development places decisions in an organizational frame that goes beyond the company and its supply chain. It places decisions in the context of the overall network of environmental, social, and economic connections that are connected to patterns of production and consumption. In this setting, decisions can not be made simply by bringing environmental values or social considerations into the framework of economic analysis, reducing social and environmental values to economic metrics through the use of techniques such as full cost accounting or forms of social-cost benefit analysis. Sustainable development recognizes that only some values can, or should, be reduced to economic analysis. This suggests the measurement of the impacts of business in economic, social and environmental terms.

These tradeoffs between the values that exist in different domains—economic, social and environmental—require equally broad ethical systems of or value frames to guide choice. Logically if it is necessary to measure environmental and social impacts separately from economic measures it is also inappropriate to judge the trade-offs between those domains using economic metrics alone. Figure 2 recognizes that the utilitarian dimension of present-day profit seeking firms which respond to market signals that reflect the value placed by people on resources, goods and services will remain a critical determinant of choice in the economic space of the sustainable enterprise. Sustainable development does not imply that economic decisions and profit seeking are irrelevant. What it suggests, however, is that these values have to be considered along with values from other ethical systems which are determinants of choice that affect social and environmental space. These values emphasize product stewardship and precaution, respect for environmental limits and social needs. They acknowledge equity demands, inclusiveness and justice in the process of choice. For these
reason companies which have stated commitments to sustainable development also recognize the importance played by principles of corporate responsibility in measuring their performance [see for example, Ontario Hydro (1993) or the open debate about values recently provoked in Royal Dutch/Shell Group (Shell, 1997 and 1998)]. These principles capture the sense that economic choices made within the frame of sustainable development are constrained by self-imposed values and principles. These stand as touchstones that provide reference points for the organization to gauge progress towards sustainable development.

The time frame of analysis for sustainable development also extends beyond the immediate concerns of the life of current products and processes that is characteristic of environmental management. The time scale for sustainable development is inter-generational. This means a concern for the (ir)reversibility of decisions as well as the need to move inward, from the boundary set by an intergenerational time scale, rather than working outward from a boundary determined by the time frame of a product or processes’ expected life. This implies the routine application of synoptic forms of planning—such as scenario techniques—which allow the time frame for decision-making and analysis to be set in terms of generational shifts. Extending the time horizon for analysis moves the focus of decisions from products and processes to fundamental technologies on which those products are based, and, from the interests of current consumers of those products to the fundamental needs of society. These needs are expressed in terms of technologies and basic systems such as nutrition, health, transport, communication, housing and clothing as well as the use of labor.

The change frame for sustainable development is consequently determined by the frames of reference that determine the boundaries of the decision, organizational, time and ethical
frames of choice. These frames mean that business organizations, striving for sustainable development, are prepared to consider changing the relationship of the organization in the socio-technical system to bring about an altered social, economic and environmental impact.

Figure 2 suggest that despite their different frames environmental management and sustainable development share ontological characteristics: they draw on a systemic, holistic, multi-disciplinary and cross-functional worldview. The difference is that environmental management, as practised, is subordinate to the dominant economic paradigm while sustainable development provides an alternate paradigm for business.

What then are the organizational resources or capabilities that are needed to bring about success in corporate environmental management and sustainable development? Roome (1994) examines this from the viewpoint of the content of courses on environmental management for business students. Hart (1995), in his natural-resource-based view of the firm, addresses these skills from the perspective of the capabilities needed for successful environmental management performance. Hart goes on to make some tentative conclusion about the capabilities for environmental sustainability.

This work suggests that successful environmental management in business draws on capabilities such as:
1. The capacity to develop understandings of environmental management concepts being introduced into the organization;
2. The ability to develop and use the tools and techniques on which environmental performance is measured--the component tools and techniques of environmental management systems--or extended forms of traditional business techniques such as full-cost accounting;
3. Awareness of the managerial and organizational limitations of the concepts, tools and techniques in use within the organization;

4. The capacity to bring about the integration of environmental concept, tools and techniques in their connection to existing concepts, tools and techniques used within the organization;

5. The ability to accomplish the internal organizational changes that enable effective integration of environmental and business objectives;

6. The ability to work with external stakeholders—suppliers, customers, agents, neighbors—to bring about the organizational changes and altered organizational relationships that follow from commitment to environment objectives;

7. The capacity to reflect environmental values in business decisions.

In particular, these ideas suggest that businesses, which undertake successful environmental management, have the capability to negotiate business solutions in complex multi-party settings involving an increasingly diverse array of environmental constraints.

In a more recent work on major organizational and social transformations toward sustainable development led by industry reported by Roome & Bergin (1998) they identify a set of capabilities required to accomplish the transformation to sustainable development. They argue that these major transformations do not take place through planned organizational change but through the agency of much more experimental organizational forms or action-learning networks. These are conceived as meta-textual networks, which span both a focal organization and the many groups, organizations and interests that constitute the focal organization’s socio-technical field. A critical aspect of these networks in bringing about the move towards sustainable development is the capability of a set of ‘network champions’.

These network champions link the many different ‘communities of practice’ which need to
learn and act in ways that contribute to sustainable development.

The capabilities of these network champions include:

1. The ability to measure, evaluate and integrate economic, environmental and social dimensions of business activity;
2. The versatility of change agents to communicate with each of the many different communities that constitute an organization’s meta-text network;
3. The ability to bring together multi-actor or meta-text networks to identify and agree visions about sustainable futures;
4. The ability to develop collaborative action on multi-actor projects which secure change toward agreed visions and sustainable futures;
5. Capability to undertake change within existing paradigm(s) as well as change that challenges and redefines paradigm(s);
6. The ability of change agents to order and reorder new communities of sustainable practice as a way to promote stronger networks, to increase knowledge sharing and to heighten the potential for innovation;
7. The ability to appropriate and maintain organizational and social legitimacy for change and access resources for innovation.

3. Approaches to Environmental Management Education and Sustainable Development in Business Programs
Given the distinctions between environmental management in business and sustainable development discussed above, it is now possible to consider the response being made in business education programs. First it is necessary to acknowledge that the programs that have been developed in this area often reflect the complex interplay of cultural factors and educational systems in different countries. These factors include: national traditions and institutional structures for education; societal attitudes to the environment and to education; the availability and approach of business education and the availability of environmentally literate academics; the traditional strengths and approach of disciplines; and the commitment of individual members of Faculty, Deans and educational institutions to greening the curriculum.

For example, in the UK, Canada and some Scandinavian countries, Environmental Studies and Environmental Science courses have been offered at Bachelors, Masters and Doctoral level since the 1960s. This has created a group of environmentally literate faculty. Yet, the focus of their research and education has been dominated by ideas from natural resource management and public policy, in the form of urban and rural planning, environmental planning and management, and community development and planning. This focus has served to place public and non-governmental organizations, community groups and activists as the main constituencies for environmental education skills. These constituencies employed graduates from these programs as well as providing the professional focus for study. Traditionally there was little concern for business perspectives except as a focus of environmental regulation and community protest. Nevertheless these courses were significant in the emergence of thinking about environmental management as an interdisciplinary field (see for example the early work of O’Riordan (1971) or the work of Paehlke & Torgerson (1990)).
Environmental management ideas began to influence business thinking in Europe and North America in the late 1980s. There was recognition that management education needed to acknowledge the emerging significance of environmental issues in corporate thinking and practice. Demands on Environmental Schools and Faculties arose from these new constituents. However, their emphasis on public policy, community environmental action and planning, with their own distinctive constituencies, created real barriers for these Faculties to work with business. Business Schools began to fill the gap in the provision of environmental education by extending their program offerings to their established business constituencies to include environmental management. In the USA, this was catalyzed by the Management Institute for Environment and Business (MEB, 1992). They extended their involvement into Europe through a conference at INSEAD in October 1990 (MEB, 1990).

A variety of models for institutional change and curriculum development, to bring environmental education into the business curriculum, were developed (Ali Khan, 1992; Department of Education & Science, 1992; Committee of Vice Chancellors and Principles, 1992, MEB 1993). Teaching materials were encouraged and promoted [for example MEB, 1992; CSA, 1995). The content and approach of some of these early environmental contributions to undergraduate and master courses are reviewed elsewhere (Moser & Arnold, 1993; Roome 1994; Shrivastava, 1994; Ulhoi & Madsen 1995). These authors illustrate the routes to create new educational offerings. These include combining courses, for example by cross-listing course from existing business programs--such as business and society, business ethics-- and environmental programs—such as Environmental Impact Assessment, Environmental Thought and Values, Eco-Tourism. Developing new courses, which focus on the technical and managerial dimensions of environmental management concepts, tools and
techniques in business. For example, the business applications of environmental management systems, environmental auditing, life-cycle analysis, design for environment as well as ‘extended’ approaches to business decisions—full-cost accounting, activity-based costing, environmental risk assessment.

Some programs built courses that combine contemporary management thought with environmental thinking (Roome, 1994; Shrivastava, 1994). In this last area there has been a particular emphasis on the contribution of systems thinking, quality management, organizational learning and change, and corporate responsibility. These provide some of the key notions that connect environmental management to business thinking and practice.

The organization of these courses has either involved electives, concentrations (groups of electives), joint programs between Faculties, and the introduction of environmental management examples into the core course in economics, strategy, accounting, organizational behavior and so on.

Different approaches have different functions. Concentrations develop capabilities for dedicated environmental managers, whereas stand alone electives and the introduction of material into core courses tends to promote environmental awareness and literacy in management students as a whole.

The pedagogy and content of these courses has reflected the traditions of business programs and the interests and orientation of faculty. Harvard Business School for example developed a number of environmental management cases. However, the approach preferred by the author promotes pedagogy that is consisent with the ontological and epistemological
character of environmental thinking. This emphasizes systems thinking, direct experience through the analysis of problems and practice in companies as well as the development of a critical appreciation of the tools, techniques and theoretical and conceptual constructs that inform business and environment. Material on concepts and theory can be presented didactically, but there is also a strong commitment to experiential forms of learning, about the application of tools and techniques and the management of organizational change (see Figure 1) through group projects. Material is frequently presented by student groups rather than by faculty or visiting speakers.

These presentations can take many forms. Learners make short presentations on company practices and issues—for example, involving analysis of the environmental issues confronted by particular companies, the way that companies are communicating their approach with stakeholders, or the link between environmental management approaches and a company’s organizational culture and strategies. This information gained by students through contact with companies can then be compared, discussed and related to theoretical and conceptual ideas from the literature by the whole class.

The emphasis placed by environmental management on the alternate perspectives of stakeholders implies a need to involve learners in teams, or, to use role plays in which learners assume many of the contradictory positions that inform the organization’s internal and external stakeholders in relation to so many environmental concerns. Case studies, or role plays, that simulate multi-stakeholder business and environment problems in which students assume the role of the different groups, which have an interest in the decisions under consideration - roles might include suppliers, regulators, environmental activists, community groups, consumers, trade unionists as well as government departments—are valuable. The
intent is to surface the tactics and strategies of different groups but also to identify the values that inform the positions taken, which must be acknowledged in managerial analysis and choices.

The emphasis on experiential learning grounds concepts developed through courses in the experiences of organizations. This can be brought about through small group consulting projects with companies. These exercises can be extremely demanding. In the past the author has undertaken consulting projects with a number of companies and other organizations. These have ranged from the development of recommendations for environmental management approaches and systems for companies in petrochemicals, food, retailing, pulp and paper, manufacturing, finance, tourism and the hotel industries. Projects examine the use of specific tools: environmental reporting, green procurement, environmental risk management and assessment in the financial sector, environmental performance measures, supplier auditing, environmental training programs and environmental communication. At its most advanced these projects have included the generation of ideas on the implications of sustainable development for mining and energy companies. Projects have also involved work with community groups that face business generated environmental problems and the development of market and business plan for a pressure group’s new business and environment program.

A characteristic of these exercises is the engagement by students with practising managers as groups undertake research, reporting writing and presentations on real business issues. Yet this raises a range of ethical issues when groups conduct research on human subjects indicates the need for a clearly stated ethical policy to which students agree. The potential for litigation, in the event that the recommendations of student projects are acted on...
uncritically, should be recognized. At a more practical level projects of this kind have to be negotiated where there is potential for mismatched expectations between student groups, faculty and sponsoring companies and practitioners.

The author has also used a number of exercises to illustrate the interdependency of environmental and economic phenomena and the problematic and contested nature of the environmental information generated by environmental management tools and techniques. For example, group exercises have been developed on environmental reporting, life cycle analysis and new product development. In the environmental reporting exercise, groups are set the task of ranking a set of environmental reports using criteria used to judge national Environmental Reporting Awards. In these awards the judging panel is often made up of organizations which use different criteria that reflect their expectations about environmental reports. Groups are required to use one of the judging schemes to evaluate their set of reports. Each group reads and ranks the reports against the criteria and then presents to the class an account of the reports they have read, the judging criteria they used and the outcome of the evaluation. After each group has presented their findings it is possible to discuss the differences between the environmental reports in the overall set as well as the differences in the criteria.

In the same way, a number of life-cycle analyses were produced in the early 1990s which focused on disposable versus reusable diapers. Groups of learners can be given one of these life-cycle analyses to read and assess. Groups prepare a presentation which assesses the clients who commissioned the report they are studying; identifies the key assumptions and boundaries of the life-cycle analysis, reviews the issues and conclusions of their report and undertakes a content analysis of the way information is presented in the report. After all
groups have resented it is possible to discuss why different analysis give rise to conflicting assessments of the environmental impacts of diapers. It is also possible to examine the uses and abuses of life-cycle techniques—as a basis for marketing and advertising or as a component in new product development. These experiential, group-based approaches to develop learners’ understanding and awareness of the skills needed as part of the extended business paradigm of environmental management developed in Figure 2. However, this approach is does not provide a basis for the examination of the capabilities requires for the new paradigm of sustainable development.

Sustainable development presents a paradigmatic and educational paradox. Few companies have taken on the challenge of the transformative change required by sustainable development. It is not easy, then, to find practical projects for learners to work on experientially. How then do you expose students to the idea that sustainable development demands a new paradigm for business (Gladwin et al, 1995; Roome, 1995 and 7; Hoffman & Ehrenfeld, 1998) when there is so little corporate practice that goes beyond the accommodation of environmental issues in business? This is critical concern given the concept of sustainable development envisioned earlier in this paper and the questions sustainable development provokes about the purpose of business, the processes of decision-making and planning and the conventions about organizations and their interaction with stakeholders.

Business education that addresses sustainable development must ultimately develop students’ ability to contemplate and participate in transformative change designed to move business
together with its socio-technical system in the direction of a more sustainable state. Such courses should offer content and pedagogy that is consistent with this notion of sustainable development and that are in line with the capabilities identified earlier.

This means that business programs should reflect the need to develop an appreciation of the processes needed to negotiate change in a more plural world. This can begin by exposing learners to the ways that different stakeholders see the world by offering business students far more exposure to different stakeholders, social groups and organizations other than business. Coop programs, internships and group projects with voluntary, community and environmental groups and the public sector offer a source of experience in developing the sensitivity to non-business cultures that are required by ‘network champions’. These experiences can help develop learners’ appreciation of the different ideas, languages and mental maps used by communities of practice or interests that need to be spanned if groups are to learn from one another and act together toward sustainable development.

Projects and assignments that focus on process as well as content are also important. For example, using creativity exercises, role-plays involving dispute resolution techniques or scenario planning processes as ways to vision the future.

Skills content is important too, particularly the mastery of tool and techniques. This should not focus exclusively on economic analysis--such as investment appraisal and project budgeting. It is important to expose learners to other measurement techniques, which correspond to environmental and social impacts. These need to be supported by tools such as, stakeholder analyses and ethical audits, which enable the interests and values around and within processes of management to be made transparent.
In terms of their outlook ‘network champions’ who are able to support learning and action for transformative change should be able to think systemically, to integrate ideas and gain the commitment of multiple constituencies by developing the trust and credibility that is needed to enable change to be leveraged. But a substantive issue is how to support the development of these skills and capabilities in the business curriculum. They require highly developed multidisciplinary competence, a capacity to think in systems terms and to relate to widely divergent groups of stakeholders from business, labor, public policy, non-governmental organizations (ngos) and community interests and a capacity for self-reflective inquiry.

This raises important issues about the organization of the curriculum, the structure of Business Schools and Faculties of Management and the faculty they can draw upon. As far as the organization of the curriculum is concerned. It is suggested that MBAs should consider adopting the educational model used in medical and engineering programs, where students have intensive periods in formal education interspersed with periods in practice. These periods in practice are obligatory so that student’s can not qualify without having gained a range of guided professional experiences before they can practice. In the case of sustainable development programs these periods of practice should involve placements and projects with a wide range of different groups in different settings. Programs will consequently become longer, against the current trend for shorter programs based on intensive classroom experience. This approach lends strong support to the notion of life-long learning with continuous updating of skills and reflection of capabilities.

The emphasis on multi-disciplinary approaches and process in teaching requires a rather different faculty and course organization than in most business programs. Team-teaching,
where faculty transcend their own discipline to facilitate knowledge and encourage the exchange of ideas about content and values becomes more critical. Forms of education with a high ‘process’ content in fact run counter to the analytical, quantitative, disciplinary skills that are encouraged in faculty at so many ‘leading’ research driven business schools and programs. Mathematical modeling and games based on restricting assumptions and single disciplinary perspectives have little bearing on the type of values-rich, transformative change or the interpersonal skills identified as so critical to sustainable development.

In structural terms sustainable development requires Business Schools and Faculties of Management to develop their own network of constituencies so that they can provide learners with experiences with a range of constituencies that go beyond their conventional business contacts. One way to create these networks is through effective partnerships between Business and Environmental Studies Faculties which draw on their currently separate constituencies. But for these partnerships to be more than token gestures it will be necessary to develop agreed ontological assumptions on which joint programs are based.

Whether programs for sustainable development are based on revisions in Business Schools and Faculties of Management or new partnerships with other faculties the courses will require a high normative content, an emphasis on leadership and the facilitation of multi-stakeholders process, change and learning. These are difficult capabilities to develop, moreover, they are essentially subversive to current thinking and practice in business. They run counter to the trend toward shorter, more intensive programs taught by technical specialist who educate technical specialists. In the short term it would seem pragmatic to seek to equip learners with skills that seek to meet the present-day business needs for environmental management capabilities while encouraging the more subversive aspects of sustainable development over
the longer term.

In this longer term it is possible to conceive a new generation of Faculties of Sustainable Development which provide the intellectual home for sustainable development programs designed for the next generation of leaders in business and society. Whether it is possible for Universities and Business Schools to adapt in this way depends on their own capacity to develop joint action with businesses, government, the voluntary and community sectors and on their capability to act as models of the principles of sustainable development. That will be a difficult challenge.

Conclusions

This paper examines the contribution of management education to learning for environmental management and sustainable development. It distinguishes between environmental management and sustainable development. The current practice of environmental management in business is seen to accommodate environmental concerns through an extension of the existing business paradigm while sustainable development is envisioned as an altered business paradigm, which involves a more integrated approach to the economic, environmental and social outcomes of business decisions. This has important implications for management education.

With this distinction in mind the paper examines the content and pedagogy used to teach environmental management. It then raises issues about teaching sustainable development in the light of recent work on the capabilities for organizational and social transformation for sustainable development.
It suggests that education for environmental management and sustainable development requires a particular pedagogic emphasis that highlights experiential learning and sees faculty as facilitators of learning and change brought about through critical encounters between theory, concept and practice. Education for sustainable development is seen to demand fundamental, critical analysis of the existing paradigm of business and of business education. In particular, education for sustainable development rejects economic explanations of the firm in favor of deeper contextualization of the firm in social, economic and environmental systems; unidimensional business solutions are replaced by multi-dimensional solutions that reflect the plural context of choice; case studies are rejected in favor of role plays, consulting projects and experiential learning; short time horizons are matched with more long term visions of change. Moreover, hard skills, taught without attention to their underlying values, are complemented by the development of process skills and a concern for explicit and transparent values. Experimental, adaptive life-long learning related to continuous personal development and organizational change is encouraged.

The implication is that as sustainable development challenges current business thinking and practice so it challenges the norms, organization and content of management education and research. Sustainable development then requires an alignment between the structure, content, pedagogy and process of business education and the principles of sustainable development. This obliges teachers, learners and practitioners to develop deep discourse across disciplines; to establish a richer, more holistic picture of business organizations and business decisions; to bring the development of networked relationships and the management of plurality into the learning process; and to provide a critical analysis of the conventional assumptions that underpin business and management. While it is conceivable that environmental management can be introduced into the business curriculum by extending traditional areas of management,
the fundamental issue raised by education for sustainable development is the need to redesign business education from the ground up. The question then will be whether students, employers and management educators can find ways to explore the paradigm of sustainable development within existing programs or whether new institutional settings and programs will have to develop to provide the basis for this new thinking and practice.

References


Shell (1998) *Profits and Principles- Does there have to be a Choice?* Charterhouse Printing on Behalf of HR Marketing & Communications.


Figure 1 Principal Elements of Environmental Management and Sustainable Development

- Concept
  Eg: Product Stewardship

- Tools and Techniques
  Eg: Life-cycle Analysis

- Organizational Change
  Eg: Integration of Environment & Business
  Inter-organizational Change
Figure 2. Frames for Environmental Management and Sustainable Development in Business

<table>
<thead>
<tr>
<th>Environmental Management</th>
<th>Framing</th>
<th>Sustainable Development</th>
</tr>
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<tbody>
<tr>
<td>Accommodating environmental values in business through economic analysis</td>
<td>Decision frame</td>
<td>Evaluating &amp; integrating economic, environmental &amp; social outcomes of business choices</td>
</tr>
<tr>
<td>Company &amp; its supply chain</td>
<td>Organizational Frame</td>
<td>Economic, institutional, social &amp; environmental systems &amp; networks that shape the pattern of production &amp; consumption</td>
</tr>
<tr>
<td>Determined by the life of products/services and processes</td>
<td>Time frame</td>
<td>Technological life time and intergenerational time scale</td>
</tr>
<tr>
<td>Utilitarian ethics with attention to product stewardship and corporate responsibility</td>
<td>Values Frame</td>
<td>Utilitarian + product stewardship limited by principles of precaution, respect, justice, equity and inclusiveness</td>
</tr>
<tr>
<td>The company and its supply chain, processes, products &amp; services</td>
<td>Change Frame</td>
<td>Limitless - up to reinventing technologies, organizations, institutions &amp; socio-technical systems</td>
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</tbody>
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