Eco-economic theory building: Implications for researching small and medium-sized enterprises

by

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The DEMS project

The Danish Environmental Management Survey (DEMS) is initiated in order to achieve information of the situation in Danish companies regarding their attitude to and handling of problems related to the environment (internal as well as external). The project is a cooperation between the Department of Information Science and the Department of Organization & Management. The DEMS project is one among other similar activities at the Aarhus School of Business and it has several international links. For further information please look at www.org.hha.dk/org/dems/ or contact:
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Introduction

To date, and in response to increasing public pressure to act, environmental issues have generally remained the domain of large corporate companies as demonstrated by a dramatic strategic shift by leading motor manufacturers (Burt, 1999) and multi-national electronic companies (Anon., 1997). It is hardly surprising, therefore, that real academic interest in this field is growing simultaneously with this trend. As a consequence, the academic community has generally failed to respond to the environmental challenge concerning small and medium-sized enterprises.

Several researchers have, however, taken up the challenge and through initial investigative work stimulated the quest for a new research agenda. Probing research questions established in new phenomena certainly may challenge the epistemological and ontological assumptions which underpin business research strategy. Imperatively, questions portraying multi-dimensional aspects (as the environment does) demand an adequate sense of inquiry by researchers. Subsequently, the gauntlet is thrown down for the development of suitable theoretical research perspectives.

This paper seeks to address contemporary approaches to studying business strategy and the environment and to build research questions that are able to enhance the quality of research in this emerging field. Fundamentally, the paper links
the development of the epistemological nature of business research with current academic trends. Crucially, the paper extends the debate by suggesting a need for a research strategy that is able to provide a sound foundation for theory building.

**Historical Perspectives in Theory Building**

The end of the last century witnessed an ascendancy towards idealistic positivism; a hegemonic approach described by Houldsworth (1995) as the development of a logical, experimental and methodological approach to natural sciences that featured eminently during the early development of the social sciences. Only during the turn of the century has there been a realisation that the systematic, reductionist nature of the positivists may lack the more human-value orientated approach of the social sciences.

Subsequently, fragmentation between the natural and social sciences grew during the first half of the twentieth century, so that by 1957, Popper had become the advocate of a clear disparity between 'science' and 'non-science'. The notion that the scientist may refute hypothesis, empirically test wrong propositions and open the whole process to criticism has since been left floundering. Popper’s concept fails to link phenomena in the real world to the conceptual elements of scientific theories; an unsatisfactory approach to developing the scientific process.
Through the conception of the term 'paradigm' (Kuhn, 1962), the differentiation between science and non-science has been further enhanced. That research phenomena may be compartmentalised by the meta-theoretical assumptions that support them has become a highly contentious issue in theory building in the business sciences. Confusing the issue further, Kuhn extends the concept of paradigm in no more than 21 ways (Morgan, 1980), beyond merely a perception of reality to the development of schools of thought and to the methodological process of scientific puzzle solving through the operationalised use of specific texts, models and research tools.

Within each paradigm exist differing metaphors used as visionary tools to develop a sense of worldly realism. Such an imaginative portrayal of reality developed through subjective processes may assist the researcher to explain the world in an objective manner. The subjective nature of the metaphor, however, produces a one-sided analysis provoking critical analysis. This in turn leads to an acceptance of specific methodological approaches. Obsession with a metaphorical expression thus becomes an accepted description of reality, which, when operationalised through the practical use of puzzle-solving techniques, links theory building with methodology.

The metaphor may therefore be deemed by many researchers as instrumental in theory-construction. Whilst the use of metaphor provides certain parameters by which the researcher may develop theories, the metaphor may also limit scope for valuing the potential of different schools of thought. Certainly there are many researchers with claims to elucidating useful paradigmatic
solutions to theory building in the business sciences. At this point, it is interesting to reflect on the use of a highly debatable model proposed by Burrell and Morgan in 1979. Their interactive model allows for different approaches and perspectives to share common fundamental assumptions about the nature of the reality addressed.

**Functionalist:** Empirical knowledge is developed objectively via a distanced analysis of interpersonal relationships. Society is perceived as 'real' and exists within a regulated, orderly structure.

**Interpretative:** Reality does not exist in a 'real' sense and results in subjective research processes. The researcher takes a more participatory role by aiming to understand the process through which shared multiple realities progress. Although there is a real world, it exists through a subjective web of language games.

**Radical Humanist:** Reality is socially created, based on the psychological process occurring in the mind. Psychological processes are utilised to align humans with thought and action.

**Radical Structuralist:** The real world structured by man equates reality as just a perception of people. Intrinsic tensions dominating the change process may be transcended by praxis.

When operationalised by Burrell and Morgan in their infamous model described above, the Kuhnian notion that paradigms may exist independently becomes a contentious issue. That paradigms consist of differing beliefs and languages resulting in
a void between competing paradigms has resulted in propositions that there exists incommensurability between paradigms. It is presumed by the model, therefore, that there may be no understanding between paradigms:

A synthesis is not possible, since in their pure forms they [paradigms] are contradictory, being based on at least one set of opposing meta-theretical assumptions. They are alternatives, in the sense that one can operate in different paradigms sequentially over time but mutually exclusive in the sense that one cannot operate in more than one paradigm at any given point in time, since in accepting the assumptions of one, we defy the assumptions of all the others (Burrell and Morgan, 1979: 25)

Weaver and Gioia (1994), however, call for a greater plurality between paradigms. They suggest a need to break down incommensurability to allow for multi-paradigmatic investigation. They argue that if incommensurability did hold then it becomes difficult to envisage contradictions between paradigms, for if incommensurability were true then we could not translate other languages.

In learning a particular language, one also learns to classify experience in a unique way. Different languages classify and, hence, describe experience in a unique way. The clichéd example used by Gregory (1983) concerns the many words the Eskimo use to classify snow. Skiers and snow removal experts no doubt have complicated classification of their own. Even
among these snow experts, snow classifications would be different, making direct comparison impossible. Gregory (1983) continues to expand the case for partial incommensurability by referring to the use of the Sapir-Whorf hypothesis, whereby language translations are subsumed by cultural translations, suggestive of commensurability between multi-cultural organisations.

The possibility suggested by anthropologists that cultural differences may be transcended may allow for the use of transition zones to bridge paradigms, at least if only at the edge of paradigm boundaries (Gioia and Pitre, 1990). Ideally, such a postulation may indicate how different theoretical approaches might be related but does not rectify fundamental differences between phenomena.

To validate multi-paradigmatic investigation, the question of commonality arises. For competing paradigms to communicate, commonality within phenomena must exist. Commonality provides a multi-faceted feature to business studies allowing each paradigm to produce a different perspective on a given topic of study. Each can draw differing characteristics of organisational phenomena which in-turn present a broad base of theoretical views.

In an attempt to retain an element of commonality between paradigms, Gioia and Pitre (1990) extend their debate by postulating a structural solution. In disregarding the human element in knowledge creation, structuration is portrayed in a similar vein to functionalism. Structure becomes independent of
the human variable in which it resides. From a structuralist viewpoint society can change structures, but cannot function without pre-existing structures in place. As structures break down over time, it becomes more difficult to take a pragmatic interest in the nature and operation of structures. Thus, a pragmatic approach is time dependent. Time dependency, therefore, becomes an important issue in developing theory building. The greater the extension of time, the more structures will breakdown and the more interpretative the investigation becomes. Over time, therefore, can we find some commensurability between paradigms?

The debate over commonality is interesting in terms of post-modernists’ attempts to interpret differing schools of thought. Post-modernists themselves are split between conventionalists and radicalists. If the lack of understanding between peoples of differing tongues can be compared to the loss of cohesion stimulated by the post-modernists, then how can a partial commensurability be achieved? Languages themselves are never unambiguously translated; they are merely transformed into a socially constructed mode of understanding. The real meaning of a word may subsequently be lost in its translation. If the same is true for differing paradigms, then the real benefit of partial incommensurability is the prospect for a wider form of discourse than can be communicated across paradigms. Full commensurability would therefore suggest limitations to theory building in the business sciences.
Current Affairs - Business Strategy and the Environment

During the 1960s a new movement evolved demanding for a greater protection of the natural environment. The concept of 'Green Politics' was thus born. For several decades since, the green movement has driven changes in legislative demands and affected consumer-behavioural patterns.

Following a greater realisation that the human impact on the planet’s life-support system may endanger our own survival, the term 'Sustainability' developed as the 'buzz' word of the 1990s (Aloisi de Larderel, 1998). It alludes not only to the ecological crises at hand but to wider social, political and cultural challenges which will require the development of new methods, skills, and attitudes.

As we enter the 21st Century, and with the spread of industrialisation throughout the developing countries, are we faced with the greatest challenge in human history? Will we be able to rise to the test? Will future generations face economic collapse? Or will new technologies and man's great ability to respond in times of adversity provide the spur to greater human development?

In response to this challenge, certain leading names in the corporate world (i.e. BP Amoco and Sony) are realising that good environmental performance is good for business. Relationships with green groups and regulatory bodies have
become less strained and more co-operative. More frequently corporate structures are appointing green champions, often at directorship level (i.e. Chris Gibson-Smith, BP Amoco) to steer the company towards environmental best practice. Larger companies have thus responded with the implementation of environmental initiatives throughout their organisation.

Unfortunately, however, there is a great deal of ignorance amongst small and medium-sized companies (SMEs) concerning environmental issues as they relate to business economics. Certainly there are additional problems associated with SMEs in that resources may be limited creating further barriers towards the integration of environmental management practices or indeed any form of change. Recent surveys (i.e. Welford, 1995; Smith, 1998; and Madsen and Ulhøi, 1995) have identified that whilst there are significant barriers to change (implementing environmental initiatives inherently suggests some form of organisational change), there are a small group of companies who are taking a proactive strategy to environmental management and thus to change generally.

Change, however, has not been instantaneous and has required significant organisational shifts in company operations. The implementation of management systems controlling environmental aspects of the business has required a great deal of overlap in strategic management approaches. Simply, it is not enough just to plan but to change attitudes, to develop learning strategies and to locate business operations in advantageous market niches.
Current Research Strategies

Theoretical Perspectives

The ecological environment is a highly complex entity that is poorly understood by scientists. A suitable understanding of phenomena encompassing interactions between business operations and the natural environment may therefore be rather delusive. An attempt to define clearly the research paradigm or multi-paradigmatic approach must therefore pay heed to the choice of phenomena under investigation. Is it indeed possible to identify commonality? And is a multi-paradigm analysis possible? Importantly, does such diversity provide us with a better understanding of how business operation impact on the ecological environment?

The need for the development of the paradigm discourse is prompted by Miller:

Thus, the debate presents us with widely disparate views about how to proceed. While technical optimists place their faith in the salutary effect of scientific and technical information judiciously used, technosceptics insist that it is human irrationality that is the major stumbling block to the resolution of environmental problems...thus, while the neo-Malthusians and catastrophists believe that our more irrational behaviours could well lead us to disaster believers in
the power of human reason see a cornucopian future of peace and prosperity (Miller, 1999).

This statement fundamentally affects the paradigm debate as it demonstrates that the way the researcher views the world may be linked with the level of objectivity required by the nature of the subject. The functionalist approach, for example, provides a paradigm by which business and the environment may be perceived as a real-world existence, that what we observe exists. A higher level of objectivity allows the researcher to explain events within the firm over a short-time period and may allow the researcher to analyse complex management systems within the firm. Certainly the systematic approach of current environmental management strategies permits the researcher to conduct empirical analyses and to take a reductionist approach by segregating environmental phenomena (such as emissions to land, air and water) into controllable variables.

Critically, academics have generally accepted that environmental audit is the solution and something we must do rather than asking questions as to how organisations implement it. The lack of critical academic inquiry into the greening of business, therefore, may itself be seen as partly a consequence of the reliance of green business to 'evangelical rhetoric'. Evangelism does however promote discourse and a sense of certainty in a world of relativity. Subsequently, environmental excellence may only occur under perfect conditions and reality is a political football played on a greener business pitch. Further, attempts to define the real are social constructions. As Newton
and Harte (1997) state, 'your (supposedly) higher values justify your epistemological deceit'.

A minority of radical researchers (Welford, 1995), however, question the profit maximisation culture which promotes such green evangelism. They hail for a paradigmatic shift from economic expansion to ecological conservation. Radicalists question the dominant corporate paradigm and demand for a greater co-operative management style. Welford, for example, seeks to counter the more pragmatic approach to environmental management by addressing problems in a more holistic setting where environmental management is portrayed as an aspect of sustainable development. In his book *Environmental Strategy and Sustainable Development – The corporate challenge for the 21st century* Welford (1995) links changes in human values to fundamental change and denigrates the pragmatic paradigm of environmental management to the status of superficial change.

**Contemporary Research Approaches**

Current investigative work attempting to reveal business attitudes towards the environment and to describe state-of-the-art environmental management practices has subsequently taken a normative approach. Newton and Harte's (1997) illuminating paper describes how the 'environmental debate' has become the victim of 'green evangelism', a rhetorical strategy by which business is able to justify a shift from regulatory to market-based incentives for organisational eco-change, to use environmental excellence and corporate environmental
strategies to place the responsibility of environmental protection with the market, and in essence reduce the influence of state control.

This trend is illustrated by Steger and Meima (1998) in their book *The strategic dimensions of environmental management*. The authors maintain that the market should take a prime role in environmental-problem solving. Subsequently, environmental problems are closely associated with strategic management, demonstrated through reference to traditional normative models as introduced by Porter in 1986\(^1\). Interestingly, Steger and Miema (1998, p.123) extend their debate to include alternative strategic approaches. Models and typologies relating to corporate learning processes are criticised for their lack of understanding of 'corporate realities'; they maintain that offensive environmental strategies may not necessarily be appropriate. Further, they state that these schools of thought are ethically motivated, hence, do we enter the realms of metaphorical incommensurability? In contrast, Prahalid and Hamel (1996) and Mintzberg et al (1998) attempt to develop strategic management that goes beyond the market place and are suggestive of possibilities for theory building in environmental management.

The self-styled attempt by Mintzberg et al (1998) to unify the ten schools of strategic management displays a need to get 'beyond the narrowness of each part of the beast'. Crucially, Mintzberg et al look to link culture and structure to the market.

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\(^{1}\) Porter's model focuses on competitive advantages in the market place.
place, whereas Prahalid and Hamlel (1996) search for a new dimension. They attempt to link learning and market place with a greater leaning toward resource management. This approach demands a greater understanding of how the company manages internal characteristics such as core-competency, networking, innovation and change.

The need for a broader research approach is expressed by Cramer (1998). Cramer indicates that environmental policy in business is an emerging discipline that identifies progress in theory building and targets areas of new research. The understanding of the processes underlying the decision-making in companies and the linkage between various driving forces may be potential research strategies which will require: the study of environmental conduct by in-depth case studies, observational research within the company, dealing with the complete set of factors influencing companies’ behaviour and empirical studies which should be formulated in theoretical frameworks relying upon various existing fields, such as organisation theory, evolutionary economics, strategic management, technology dynamics and behavioural studies.

State-of-the-art research in the field of environmental management is epitomised by Clarke and Roome (1999) who have taken up the challenge. They discuss the results of a survey of a Canadian company that has taken a proactive stance to environmental issues. The use of the case study allows the researcher to describe in a normative and hence objective manner the development of environmental management within the company.
The need for a broader appreciation of strategic management approaches is demonstrated by this case. The company has developed through a process of planning but also of learning through the development of networks with NGOs, other companies and the local community. The importance of competency, the history of the firm and innovation drivers have all proven to be valuable components in the development of environmental management.

It is further suggested that the success of the company to take a lead in developing environmental management relates to products that are highly specialised with a competency already existing within the firm. A point the authors make in describing the unique position of the firm in the market place. Newton criticises such research strategies as these companies’ products already have some connection with the environment. Subsequently such conditions may not hold true in the majority of research inquires.

The need for a multi-paradigmatic approach to researching the field is prompted by the reference to Clarke and Roome (1999). In there investigation the company has set out a corporate policy that addresses 'sustainability'. The lack of knowledge controlling sustainability variables and associated human-values makes the concept of sustainability more difficult to assess objectively. Therefore is there a need to link differing paradigms; the objective approach required to understanding how companies implement environment initiatives with a more subjective-holistic appreciation of global environmental issues.
Conclusion

An inconclusive debate concerning paradigm incommensurability has more recently been superseeded by calls for a greater degree of plurality between competing paradigms. Emerging academic interest concerning the association between business activities and the natural environment may necessitate a shift in the epistemological assumptions underpinning approaches to business research. This may provide a spur to revealing possibilities for partial commensurability between paradigms. The stage for plurality to display its virtues is thus set.

A requirement for a greater discourse between paradigms is demonstrated by current approaches to business and environmental issues. A growing realisation by firms, academics and politicians that there is a need for a greater commitment to sustainable development conflicts with current approaches to researching environmental issues. Sustainability pertains to the protection of our life-support system over an infinite period. In contrast, management systems that link environmental initiatives with business systems proceed over much shorter time periods.

The shorter time scale and well-defined variables associated with environmental management may allow the researcher to take a more objective and thus normative approach to understanding how environmental initiatives are integrated within the core activities of the firm. Sustainability issues,
however, relate to a far wider range of variables and over such
time-scales that the research approach becomes far more
subjective. The trend for academic research in the field (i.e. to
focus on surveys and case studies relating to environmental
management) bears witness to the strong level of objectivity
within current modes of research approaches. Contemporary
research, thus, may have fallen foul of the green evangelical
rhetoric emanating from those who prescribe auditing and
subsequent systemised management solutions to environmental
problems; and a greater reliance on the market to regulate
environmental misdemeanours.

The rhetorical nature of trends in this field has generally filtered
down from the corporate sector. Although, surveys have
indicted a general sense of ignorance concerning environmental
issues amongst SMEs, there are indications that a small but
growing proportion of the sector may be developing proactive
strategies towards the environment. Free from the need to
develop strategy in the fashion of the 'corporates', is there now
an opportunity to take a more broad perspective of
environmental issues? Does this perhaps offer a real opportunity
to take a partially commensurable approach whereby
systematically operationalised environmental initiatives are
investigated objectively within a more subjective, sustainability-
orientated framework?
References


Related Publications

During the life of the project the following papers, conference presentations and working papers have been published (some of them in Danish):


Madsen, H.; Ulhøi, J.P. (1997), Mange virksomheder har fået øje på miljøet, Civiløkonomen, 10, 4-5.


Madsen, H.; Ulhøi, J.P. (1996), Corporate Environmental and Ressource Management - Overview of results from a survey of the present greening situation in Danish companies, DEMS WP 4, skriftserie H nr. 94, Department of Information Science, The Aarhus School of Business.


Madsen, H.; Ulhøi, J.P. (1995), Sustainable Corporate Management in Denmark - Overview of results from a survey of the present greening situation in Danish industry, DEMS WP 3, skriftserie H nr. 90, Department of Information Science, The Aarhus School of Business.


Rikhardsson, P.M.; Ulhøi, J.P.; Madsen, H. (1993), *Sustainable Corporate Management in Denmark - Research Agenda and Planning the Initial Interview Survey*, DEMS WP 1, skriftserie H nr. 82, Department of Information Science, The Aarhus School of Business.
The following publications are related to the DEMS project as they involve research of environmental management in general:


Rikhardsson, P.M.; Ulhøi, J.P.; Madsen, H. (1994), Corporate development and the natural environment: Corporate reporting