

The Environmental Agenda in Organization and Management Research

– Towards Interdisciplinarity?

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Abstract: *This article explores the evolution of the environmental agenda in organization and management research. This is done by studying how the research community responded to calls for interdisciplinarity voiced in key journals in the mid-1990s. It finds that some aspects of the interdisciplinary agenda have not been taken up; in particular the study of the biophysical environment has been difficult to integrate into organization and management studies. The study considers the reasons for these difficulties especially from a sociological and cultural perspective on academic work, and explores the viability of different scenarios for future development.*

Key words: interdisciplinarity, organization studies, management studies, natural environment

1. Introduction

If the 1960s and 1970s saw the rise of the environmental movement, and the 1980s saw the emergence of the 'green consumer', the 1990s have been termed the decade of the 'greening of industry'. This has been reflected in an increased interest in environmental issues in organization and management research¹. This was heralded as a long overdue awakening; after all, business corporations and other large organizations are central actors in the environmental crisis (for example, Perrow 1997).

¹ Organization and management research are sometimes viewed as two separate fields, which however have significant overlap. Organization studies deal more with organizations as institutions and organizational behaviour, whereas management studies are more directly involved with, for example, managerial control and competitive strategy. Management research is mostly conducted at business schools, while organization theory is also contributed to by, for example, sociologists, psychologists and political scientists. The link to business support and business education varies: business organizations are popular subjects of research, but there is a strong "critical management" community, and many organization theorist distance themselves from the immediate service of business or public administration. A variety of different approaches are used, ranging from the game-theory-based research in competitive strategy, to sociological analyses of organizations as institutions or psychological studies of organizational behaviour, all the way to interpretive studies borrowing from literary theory (Pfeffer 1993). In contrast to economics, no single paradigm is hegemonic (Whitley 1984).

In the mid-1990s, researchers in the field were optimistic. They expected that environmental concerns would transform the way we view companies and organizations in general (Shrivastava and Hart 1994). The increase in environmentally related literature was noted as a sign of change. For example, Kivisaari and Lovio (1996) found 20 articles on environmental issues in the 1994-1995 volumes of the leading management, strategy and organization journals. Furthermore, these articles called for a paradigm shift: “a simple expansion of the management agenda to include environmental issues is not enough”.

One of the problems identified in the literature was the failure of traditional organization and management theories to conceptualize the natural environment as a serious and independent force that organizations need to deal with. Organization theory was “de-natured”. The environment had been “castrated”. New conceptualisations were needed. There was a strong push towards interdisciplinary theory development.

The issue of how this challenge has been met has raised discussion among the environmental community of organization and management scholars (Welford 1998; Kallio 2001; Wolff 1998). Many suggestions have been made for how the discipline should orient itself in the future vis-à-vis the environmental challenge. These discussions are similar to those in environmental sociology, anthropology and in ecological economics (for example, Gowdy and Carbonell 1999; Escobar 1999; Murdoch 2001).

What I have found lacking in these debates, however, is a regard for the social context of research and the nature of academic work. There is a growing body of research on science and scholarship as *work*, which paints a very different picture of the nature of research than does the philosophy of science (for example Mulkey 1979; Latour 1987; Ziman 2000; Becher and Trowler 2001). It is from this perspective that I attempt to trace the rocky path of the interdisciplinary environmental agenda in organization and management research.

As empirical data, I have used journal articles and the communication patterns that citations between them reveal. I have also made use of analyses of how sociology and economics have grappled with the environmental issue, as well as of some previous studies on environmentally oriented organization and management research. My analysis also draws on ten years of informal “participant observation” of academic work in the field. In the final sections, I consider some explanations to why interdisciplinarity has been so difficult, and explore some suggestions for dealing with the problem.

2. The Environmental Agenda and how it was taken up

In the following, I shall briefly outline the context in which environmental issues entered the scene. Then, I will turn to how the “environmental challenge” was presented to the broader academic community, and study the response that this agenda gave rise to.

The emergence of environmental concern in the 1990s

The “greening” of industry began in the 1980s, due to a variety of external and internal factors, including environmental crises, increased customer pressures, industry self-organization, and professionalization of environmental functions (for example, Schot and Fisher 1993). Following the rising corporate and public interest, business writers joined the scene in the early 1990s. The first type of literature to emerge was prescriptive, and presented “success stories” in environmental management (Pataki 2002). It gained its most significant literary outlet in textbooks, business books, and practitioner journals.

As it appeared that more and more companies were doing something about the environment, researchers also became interested in studying the “greening of industry”, especially by constructing models of different stages or types of organizational “greenness” (for example, Räsänen et al. 1995; Pataki 2002). These were usually common sense models of environmental responsiveness (for example, compliance vs. proactivity). The dominant theme in much of the discussion was that environmental issues presented companies with opportunities, not only burdens (see, for example, Pataki 2002).

The growth of research on the topic led to the birth of a number of journals dedicated to business and the environment. *Business Strategy and the Environment* was established in 1992, with the aim to provide a forum “Through which business practitioners can be exposed to alternative paradigms”. In 1993, *Greener Management International* was launched, with an even more pronounced practitioner focus. As an exception to the prevalent optimistic managerialism, *Industrial Crisis Quarterly* changed its name to *Industrial and Environmental Crisis* (later *Organization and the Environment*), and continued to study the downside of organizations’ interactions with the natural environment.

The new journals mark the birth of a new field of research dedicated to environmental issues in organization and management. Some aspects of this evolving literature have been studied by, for example, Dobers et al. (2001). Yet the issue of interdisciplinarity begs the question of how the “core” of organization and management research has responded to the environmental agenda.

A new research agenda is set to the organization and management community

It was not until the mid-1990s that the rise of environmental concern appeared in the “core” organization and management journals² (Gladwin 1995). I have selected as “agenda setting” eight articles published in that period, which claimed that standard organization and management research has failed to recognize the environmental agenda, and voiced strong calls for interdisciplinarity.

Four of the articles were in many ways similar (Shrivastava 1994; 1995a; 1995; Purser et al. 1995). They claimed that current organization and management theory has failed to conceptualize organizations’ relations with the natural environment. This was attributed to, for example, a *denatured* view of the organizational environment as being a product of human institutions and actions, *anthropocentrism*, *egocentrism* (acceptance of the selfish character of organizations), and an *objectivist view of knowledge* (lack of ethical understanding). The authors highlighted the fundamental role of the biophysical environment in human well-being, pointed to signs of an environmental crisis, and challenged researchers to adopt an interdisciplinary approach.

These authors proposed to replace the current management paradigm with an “ecocentric” one. Yet the interpretations of its research implications varied: for example, Shrivastava (1995a) suggested studying industrial ecosystems and ecocentric management practices (for

² In management research, the *Academy of Management Review* (review articles and theoretical pieces) and the *Academy of Management Journal* (empirical studies) are in many ways the most influential, whereas in organization research, *Administrative Science Quarterly* is paramount (see the *Journal Citation Report* maintained by ISI Web of Science). More reflective and avante-garde research has its own forums, such the European *Organization Studies* and the interdisciplinary *Organization*. In management research, semi-academic journals with a practitioner audience, for example, *Harvard Business Review*, are also prominent. There are also many specialized journals on, for example strategic management, human resource management and organizational behaviour.

example, low energy and resource use, non-hierarchical organization, total quality environmental management). Purser et al. (1995) were more specific: researchers should study “ecological choice” (how sociotechnical systems and organizational linkages lead to different types of impacts on the natural environment), “ecological learning” (how organizational members learn to create viable organizational designs) and “ecological democracy” (non-exploitative organizations).

In contrast, Gladwin et al. (1995) preferred to substitute ecocentricism with a more moderate “sustaincentricism”. Nonetheless, their proposals for further research expand the scope of management research to include broad social effects (for example, the impacts of free trade), fundamental cultural issues (such as the challenges of feminist research), as well as more cross-fertilization with natural and physical sciences: “Significant contributions toward understanding ecologically sustainable economies and societies will arise only from new fundamentals, new languages and new lenses”.

Three of the articles presented more focused research agendas. Starik and Rands developed the concept of “organizational fit” to analyse how adaptive different levels of the organization and its operating environment are to the natural environment. Jennings and Zandbergen (1995) suggested that institutional theory can be useful in understanding how organizational norms develop around sustainability issues. King (1995) studied the role of common property management systems in avoiding “ecological surprise”, using historical, anthropological and ecological data on long-standing communities. Themes suggested by these authors for further research included how perceptions of the natural environment evolve, how new rules and governance systems emerge, and how contextual factors (for example, history, culture, politics) influence this process.

All in all, the research agenda set out was radical and far reaching. Most of the authors shared a discontent with current research approaches in organization and management. A recurring theme was the call for *interdisciplinary research*, which meant integrating both the biophysical environment and the broader social impact of business into organizational analysis. Many authors also took up the issue of *ethics and values*, and suggested they be given more import in organizational research. A shared feature was also the extensive reference to literature outside the field of organization and management, including political science and sociology as well as ecology and other natural sciences. The agenda was also, however, eclectic: the authors proposed expanding a variety of different organization theories, or borrowing entirely from outside the field – and their suggestions for substantive issues for further research ranged far and wide.

How has the agenda been taken up?

One test of whether environmental concern has been able to transform organization and management theory is how the “agenda setting” papers have been referred to in the subsequent literature. Did anyone respond to the challenges presented, and how did they interpret them? I have used citation analysis based on the *Social Science Citation Index (SSCI)* as an empirical measure of the response that the “agenda setting” articles gained³. Table 1 presents the number and type of subsequent citations made to the eight “agenda setting”

³ Citation analysis is frequently used in the sociology of science. There are many problems in claiming that the number of times an article has been cited is a reliable measure of its influence, or even that the way it is cited reflects the citing author’s interpretation of the cited reference (see, for example Leydersdorff and Amsterdamska 1990). In spite of this (and lacking better measures), co-citation networks can be considered a useful representation of the structure of ideas in a scientific field, and thus central to a naturalistic account of scientific work (Ziman 2000).

articles. Column 2 indicates the number of times they have been cited in the literature included in the *SSCI* (June 2002).

In the subsequent columns, I have classified the type of study citing these articles. All articles have been most cited by studies on environmental management in companies (column 3). For most of the articles, the second most prevalent type of citing article is another conceptual one (column 4). A number of citing studies (column 5) are more specifically on organizational psychology or sociology, while others focus on broader social issues (column 6, “society and the environment”). The final column (“non-environment”) indicates the number of citing studies that were not specifically on environmental issues.

Table 1. Number and types of articles citing eight agenda setting articles on environmental concern in the organization and management literature.

“seminal article”	times cited	type of citation				
		environmental management – empirical or normative	business /organizations & environment – conceptual	organizational psychology or sociology	society and environment	non-environment
Gladwin et al. (1995) Shifting paradigms for sustainable development	34	19	4	3	7	1
Jennings & Zandbergen (1995) Ecologically sustainable organizations – an institutional approach	28	14	3	3	4	2 (general org. theory, mgmt)
King, A. (1995). Avoiding ecological surprise – lessons from long standing communities	6	2	2		2	-
Purser et al. (1995) Limits to anthropocentrism – toward an ecocentric organization paradigm	20	9	4	2	4	1 (social responsibility)
Shrivastava (1995) Ecocentric management for a risk society	35	10	10	3	6	4 (social responsibility, human resources, risks, org. theory)
Shrivastava (1995) The role of corporations in achieving ecological sustainability	47	26	6	5	8	2 (epistemology, stakeholder theory)
Starik and Rands (1995) Weaving an integrated web – multilevel and multisystem perspectives of ecologically sustainable organizations	23	15	4	2	2	-
Shrivastava (1995) Castrated environment – greening organizational studies	17	7	2	2	2	2 (technology & society)
	210	83	36	20	35	12

The articles dealing directly with environmental management in companies⁴ appeared mostly in management and organization journals, but also in, for example, engineering journals. To discover how the agenda was interpreted in them, a closer look was taken at a sample of 26

⁴ Unfortunately, the more practically -oriented European journals are not included in the *SSCI*. However, Dobers’ et al. (1998) survey of key references in *Business Strategy and the Environment* indicates that only one of the “agenda setting” articles (Shrivastava 1995b, cited 4 times) is included among the top 42 references used in articles in that journal, whereas much more reference is made to the strategic management literature.

⁵ This sample started with 58 citations to Gladwin (1995), Starik and Rands (1995), Shrivastava (1995a), Jennings and Zandbergen (1995), King (1995) and/or Purser et al. (1995). These citations were in 37 separate articles (i.e., many cited more than one of these references). 11 of these could be located, so the final sample was 26 articles appearing in 12 organization and management journals.

articles citing six of the most interdisciplinary oriented “seminal” articles⁵. Most usually, the articles were cited in the “Introduction/Background” section of the citing study (15 authors, eight of whom did not cite these references elsewhere). Typically, the “agenda setting” authors were cited as justification for the research topic:

“Many researchers have recently suggested an increasing need for management theory development in the area of ecological sustainability and the business system (Gladwin et al., 1995; Jennings and Zandbergen, 1995; Shrivastava, 1995; Starik and Rands, 1995; Stuart, 1995).”(Daily and Huang 2001).

Another way of using the literature was to identify different approaches to environmental management – more conventional or more radical. In this case, some authors located their own research in the more “conventional” school (see quote below), which was typical for strategic management research. In contrast, other authors viewed their own approach as compatible with that of the agenda setting authors, although their interpretations of what this means ranged from developing “dynamic systems models” to finding ways to minimize waste.

“...two main areas of research. One area uses an interdisciplinary approach and discusses the paradigmatic implications of including the dynamics of the biophysical environment into traditional economic and management paradigms. Researchers argue that including the biophysical environment will help overcome the anthropocentric bias in organization theory....

...While ethics and social responsibility are important areas in framing corporate responses to environmental issues, a strategic planning approach is thought to be more relevant given the managerialist nature of the study.” (Bannerjee 2001).

Moreover, some citing authors (as in the previous quote) identified the “new agenda” as an interdisciplinary one, with a focus on the biophysical environment, whereas others emphasized its social and moral aspects, for example:

“This social movement has highlighted and reinforced the idea that productive organizations exist to not only generate profits, but also to enhance the general well-being of humankind (for example Gladwin, 1992; Jennings and Zandbergen, 1995; Shrivastava, 1994).”(King and Lenox 2000).

Another way of using the “agenda setting” literature was in developing the research framework (9/26 authors). Here, the literature was most frequently used as a source of measures for progressive environmental management (for example, constructing interview questions). Finally, some authors did use the literature to identify substantive issues to study. In these cases, the focus was usually on organizational aspects and managerial issues (for example, the role of employees or senior management, environmental information systems, or the influence of institutional forces). In contrast, no studies in this category took up the more radical ideas of studying “organizations as systems of destruction” (Shrivastava 1995a) or whether female managers are more “sustaincentric” (Gladwin 1995). Moreover, suggestions for including the biophysical environment have been followed only partly: when included as a variable, the natural environment appears in the form of managerial *interpretations* or management *activities* (for example, pollution prevention).

Studies in the “organizational psychology and sociology” category (20 citations) applied existing frameworks in organizational analysis without a distinct managerial interest. These included attempts to explain decision-makers’ behaviour toward the natural environment using existing psychological theories. Authors with a more interpretive approach tried to capture the fundamental social and psychological forces influencing interpretation and ac-

tion vis-à-vis the natural environment. While the biophysical environment was not prominent in this line of research, some articles did address more critical issues raised by the “agenda setters” (for example, critiques of rationalism and objectivism).

A number (38) of the citing articles continued the discussion on conceptual or philosophical issues related to business or organizations and the environment. A sample of these articles⁶ indicates much work devoted to the development of measures for corporate environmentalism, on the one hand, and to the moral and ethical aspects of environmental issues. Only five papers actually continued the discussion on interdisciplinarity in the study of organizations and the biophysical environment. Some interesting epistemological issues were raised, for example, by Meima (1996). This discussion gained some responses in 1996, but (at least in the light of research indexed in *JSCI*) the debate appears to have petered out.

Some articles (35), on the other hand, dealt with the relationship of other social actors with the environment: for example, NGOs, consumers or policy makers. About half of these were published in management journals, while the other half are distributed among journals dealing with natural resource use, general social science or business ethics – indicating an interest in the research from outside the discipline.

The final category, “non-environment”, can be taken as a measure of the impact of environmental research on the parent discipline. The 13 references in this category were widely distributed in focus. A few dealt with general organization theory (for example, institutional theory), a few with social studies of technology, some with corporate social responsibility, and some with epistemological issues in organization theory (for example “relationality”). So, there appears to have been some recognition that the environment holds interest for organizational theorizing, but not much. If environmentalism had “transformed ... organization theory dramatically”, as Shrivastava and Hart (1994) predicted, one would expect a larger share of articles in this group.

In terms of empirical research, it appears that the field has largely evolved into an application of existing organization and management theories to environmental issues. This may be very useful, as many environmental specialists (for example environmental engineers) lack an understanding of how organizations work in practice – and hence, may have naïve ideas about how to influence them from an environmental perspective (for example, Gladwin 1993; Mac 2000). Existing concepts and findings in organization and management research can help to understand the human, organizational and institutional aspects of environmental change. In these terms, there has been significant progress in the research (cf. Starik and Marcus 2000).

However, subsequent research has done little to reconceptualize the relationship between organizations, management and the natural environment, and even less to apply such reconceptualizations in empirical research. The empirical research is pragmatically aimed at solving practical problems in environmental strategy and management, or applies existing frameworks in organization and management theory to understand this new aspect of firm and organizational behaviour. Furthermore, the field is not taken very seriously in the mainstream literature: the natural environment appears as a special issue – very rarely as a source for new, generalized theory development.

⁶ There is significant overlap in this category. Taking as a sample 23 citations to the six most interdisciplinarily oriented “agenda setting articles” (see previous footnote) gives 17 individual articles, five of which appeared in the original *AMR* issue in 1995, leaving a sample of 12 papers following up on the agenda set.

3. Why has it been so Difficult to Expand Disciplinary Boundaries?

In the following, I first consider some “internalist” (paradigmatic) and “externalist” (contextual) explanations for the difficulties in expanding the disciplinary boundaries of organizational and management research to include the biophysical environment. I then turn to the social organization of the discipline for some additional factors that help to understand the specific trajectory that environmental research has taken in the field of organization and management.

The original reformists of organization and management studies addressed their calls at the discipline, calling it, for example, denatured and anthropocentric. Similarly, environmental sociologists have laid the blame on the “human exemptionalist paradigm” in sociology, which assumes that humans are outside nature and not influenced by it (Catton and Dunlap 1978). They also blame the Durkheimian tradition in sociology, which has restricted sociological analysis to the study of “social facts” (for example Murphy 1995). Ecological economists see an even broader variety of problems in mainstream economics – including, but not restricted to, “human exemptionalism” and viewing nature as a resource only (for example, Gowdy and Carbonell 1999). These authors thus give an *internalist* explanation to the problems of interdisciplinary research – it is obstructed by the established paradigm (world-views, methods and criteria for truth claims) in the discipline.

Can social science really be blamed for the anthropocentric nature of social institutions? In my view, this would give excessive credit (or dismerit) to social science. Murphy (1995), presents one explanation that acknowledges external forces: sociology (and the other disciplines mentioned here) arose in a specific historical period when human societies had freed themselves from the immediate constraints of nature, and had not yet encountered the “backlash”: the unexpected consequences of modernity. Thus, due to technological development most institutions have managed to live – for a period – as if nature did not matter, and social scientists, following these institutions, have lived accordingly. This would be one element of an *externalist* explanation: researchers draw on dominant cultural mindsets when constructing their views of the world.

Yet there are at least two counter arguments to a purely externalist explanation. One is that social scientists need not have restricted their analyses to “social facts” (the beliefs of the institutions they study) while disregarding structural forces “playing behind the backs of the actors” (for example, Murphy 1995; Dunlap 2001). Social constructivism and interpretive approaches have gained significant ground in sociology since the early 1980s. This interpretive shift has also occurred – somewhat later – in organization and management theory (Pfeffer 1993). Interestingly, organization theory also provides a test of Murphy’s hypothesis that social constructivism is to blame. A variety of structural approaches, such as “resource dependency” and “population ecology” continue to thrive in organization theory. These are approaches that explain the behaviour of organizations purely in terms of structural characteristics of the organizational environment. Yet they are equally “denatured” in their explanations: the organizational environment is conceptualised purely as an economic and social one (for example, Shrivastava 1995a). Furthermore, the previous review of the research citing the “agenda setting” articles indicates that interpretive approaches may actually challenge existing managerialist world-views and problematize dominant “social facts”, which more realist perspectives tend to reify by taking them for granted.

Another counter argument to a purely “externalist” explanation is the co-construction of social science and society. While it would be naive to believe that social science is transferred into social practice as such, it would be equally simplistic to believe that it has no impact on its field of study – which, according to many theorists, is becoming increasingly

reflexive (Beck et al. 1994). In the field of organization and management, this reflexivity is exceptionally prominent (for example Abrahamsson 1996). This reflexivity also provides another source of explanation to why environmental research in the field of organization and management has not transcended existing managerial concerns. It has been conducted by researchers who are environmentally concerned, and who work in close contact with business and other organizations. Firstly, researchers need the compliance of these organizations to obtain data: excessively esoteric research topics (for example, “organizations as systems of destruction”) might not appear legitimate, and thus might impede access to data collection in the companies. Secondly, the findings of the researchers have an impact on how business and other organizations behave. If researchers are excessively critical of current management efforts, or ignore them completely, this may discourage even the modest efforts of current corporate environmental managers.

It is also necessary to take into account the social organization and distinctive culture of the academic organization and management community (cf. Becher and Trowler 2001). In this context, two aspects in the “environmental awakening” of the field seem to have put off the more theoretically adventurous researchers. These are the normative tone of the first spokesmen, and their practical orientation (cf. for example, Räsänen 1995; Fineman 1999; Dobers 2001). In the field of organization and management, the normative provision of management advice is somewhat suspect to more academic researchers. They have connections with the “old” efficiency oriented, rationalistic view of management (cf. Wolff 1998), and are in conflict to the contextual, historical, interpretive and political approaches in many current schools of organizational theory. In a similar way, the researchers’ problem oriented focus and attempts to help the “greening of industry” may, in fact, have worked against interdisciplinary *conceptual* development. In the discipline, researchers with a problem-oriented focus tend to fall outside the paradigmatic and epistemological debates (cf. Hassard and Kelemen 2002).

Training and tradition also have a role in defining the selection of research approaches and methods. The nature of the research process both within the natural and the social sciences operates within the confines of a research tradition. While, in the social sciences, a “normal science” model is frequently absent, it is replaced by a variety of schools of thought focusing on different aspects of human action, culture and social structure. This has been termed “paradigm incommensurability”, but it can also be viewed as a matter of skills, training and instruments at hand. For example, Klok and Mauser (2002) illustrate the problems in linking company environmental management to changes in the biophysical environment. It is also a matter of what the relevant audience (i.e., peers in one’s discipline) are trained to view as relevant. In organization theory, for example, it has been proposed that a suitable mix of *novelty*, *familiarity* and *ambiguity* are necessary for the acceptance of new conceptualisations by academic colleagues (McKinley 1999).

These problems, in fact, are already evident in the “agenda setting” articles. While advocating an interdisciplinary approach, the proposals for further research presented do not all match the ambitious tones set out in the beginning of the articles. Some of the research suggestions, such as “total quality environmental management” (Shrivastava 1995b), are actually quite mundane and managerialist. In attempting to capture the interest of a broad audience by mixing normative, conceptual and managerial issues, they may have lost the force of their theoretical point. In this respect, Catton and Dunlap’s (1982) – from today’s perspective positivistic and boring – suggestion to include the natural environment as an independent or dependent variable in sociological analysis is at least clear in its methodological implications.

It seems that the basic assumptions of organization and management theory – as well as social science in general – have some bearing on the difficulties in developing theories that seriously take the natural environment into account. It is also clear that these assumptions have a historical foundation within the discipline, and also within the broader development of society. Furthermore, these assumptions and their historical development are constitutive of how communities of researchers develop skills, instruments and criteria of academic merit – to say nothing of external rewards such as funding or tenure. It is against this background that I will, in the following, consider the feasibility of some suggestions for dealing with the transdisciplinary nature of environmental problems. I have categorized these as three scenarios:

1. Division of labour and issue oriented research, which in essence means forgetting about interdisciplinary theory, and focusing on applying existing theories to environmental problems.
2. Integration of social and natural sciences, which incorporates a variety of suggestions for theoretical integration.
3. Closing the divide, which looks at post-structuralist suggestions for doing away with the Cartesian legacy (division between mind and matter) in academic research.

Division of labour and issue oriented research

Many would argue that true interdisciplinarity is a chimera, and researchers should confine themselves to study what they know and are competent in dealing with. The human – and organizational – aspects of environmental problems can be studied perfectly well as social issues. This would imply a division of labour: it is the role of natural scientists and environmental organizations to raise environmental issues – once raised on the social agenda, social scientists can study their social aspects and determinants (Perrow 1997; Wolff 1998). From this perspective, a focus on the study of “social facts” does not present a problem. It need not mean that environmental issues are merely social constructs – but rather, that understanding the social construction process, and the way humans and organizations give meaning to environmental problems is central to how they can be solved or ameliorated by human institutions.

This type of development would not preclude *multidisciplinary* research, especially assembling social and natural scientists around a common, practically oriented topic. As such research is today mostly funded by extra academic sources, it would probably not include the resources for extended theory development, but remain focused on practical policy issues (cf. Conrad 2002).

This scenario would probably mean that environmental research within organization and management would remain a specialty, an application of existing theory – and a response to the level of environmental concern and visible environmental problems in society. Research would continue to be published mostly in specialized journals – and on special occasions (perhaps commemorating spectacular environmental crises), in special issues of mainstream journals. Environmental issues could also feature as “cases” in more theoretically guided organizational research (for example, crisis research). Insofar as external audiences continue to need this kind of research, the body of empirical research would expand. Yet without much recognition within the discipline (and publications in the “best” journals), not much funding would be available for theoretically oriented research in the field.

Integration of social and natural sciences

Many authors suggest that social scientists should integrate the concepts of natural science, specifically biology and ecology, into their explanations. For example, Dunlap (2001) suggested including environmental conditions variables in sociological explanation. Gowdy

and Carbonell (1999) go even further and suggest that ecological economists should apply sociobiologist E.O. Wilson's idea of *consilience*: "The assumptions of one branch of knowledge should confirm to the accepted facts of other branches".

This scenario is rather problematic, both in terms of the theory and the sociology of science. It implies a unified view of science as body of consistent and uncontroversial knowledge – a view that is incompatible with most current theory of science. One need not be a supporter of strong social constructivism in science studies to see that disciplines, concepts, communities of researchers and empirical instruments are central in producing scientific knowledge. Using different tools, the different disciplines produce knowledge that derives from different vantage points, and may appear mutually contradictory (Haila and Levins 1992; Sarewitz 2002). This variety of ways in which nature can be studied and conceptualised implies that any unitary grand narratives of nature will probably remain "just-so-stories" (Rose 1999).

The idea that social scientists should incorporate *all* the facts of natural science also encounters some practical problems. Apart from a number of "laws of nature" that are so widely recognized as being trivial, very few facts remain eternally uncontested. So, while for example the second law of thermodynamics raises no controversy today, the derived concept of *entropy* has engendered significant debate within the ecological economics community (Kåberger & Månsson 2001). How could an outsider follow and make sense of such debates well enough to be able to sift out what is considered a "fact"? Finally, ideas about integrating the natural and social sciences usually come from the direction of the natural sciences (recently especially sociobiology). In the past, social scientists have reacted with revulsion to the political consequences of such views (Murphy 1995), and at the least, this would probably raise fears of biological imperialism. Thus, although it appears quite possible to integrate individual pieces of natural science within social science (for example, Dunlap 2001), it seems unlikely that a grand theory of nature organization interaction would emerge out of such a process, or be widely accepted as a foundation for future research.

Closing the divide

Other scholars go back to the division between the social and the natural sciences, often attributed to Rene Descartes, for the roots of why it is so difficult to integrate non-human actors into social theory. Such discussions have been most notably driven in postmodern social theory, in feminist research, and in science and technology studies. There are many variants of "anti-essentialist" social research on the natural environment (see, for example, Haraway 1991; Escobar 1999), but I shall here refer primarily to the line of thought developed by Latour and colleagues (for example, Law and Hassard 1999).

Unlike a number of purely social constructivist studies of science, actor-network theory has attempted to study science and technology using a symmetrical approach to human and non-human actors (Callon 1986). Thus, scientific discovery or technological development cannot be reduced to the "social" any more than they can be reduced to the "technical" or to the "natural". This is because these categories do not exist in reality as separate entities: society is a hybrid, constituted as much by non-humans and humans (Latour 1993). Instead of the reified concepts pertaining to the "social order" and the "natural order", actor-network theory suggests the analysis of actors (human and non-human) and the networks that provide them with the ability to act. This dissolves the problem of agency and structure in social theory – there is no society "out there", but merely enabling and constraining forces mobilized as the network changes (Latour 2000). Similarly, there is no nature "out there", but rather, forces of natural objects that resist (for example, when nature "strikes back"), or comply (for example, when enrolled in the networks of technological systems) with the interests of actors. As an additional bonus, this view also splits the divide between externalist and internalist accounts of why social science has so much trouble in dealing with the

natural environment. If we take the co-construction of science, technology and modern society (including social science) seriously, then there is no “inside” and “outside” left.

Such a view obviously does away with “human exemptionalism”, and thus has raised interest in environmental sociology (for example, Murdoch 2001). Yet it leaves many problems unsolved: the method is continually under construction (Law and Hassard 1999), and doing away with the standard tools of social science makes empirical research extremely challenging. A variety of theoretical arguments with the “symmetrical approach” have also been raised, including the asymmetrical relationships between actors with different kinds of capabilities, powers and accountabilities (for example, Suchman 2000; Murdoch 2001).

What would organization and management research along these lines look like? One problem with this approach in the context of organization and management would probably be its overload of novelty (cf. McKinley 1999): novel topic (environment), new methods and novel concepts. On the other hand, there has been significant interest in actor-network theory in organization studies recently (for example, Jorges and Czarniawska 1998; Gherardi and Nicolini 2000), and some reference also in the context of organizations and the natural environment (Molloy 1999; Heiskanen 2000). Likewise, some of the few “general theory” citations to the environmental agenda in organization and management studies that I found pointed in this direction. Perhaps this might be a way of drawing the more critical and theory oriented organizational scholars into the debate?

Concluding remarks

The conceptual development of interdisciplinary research encounters many problems. Specific problems arise in social science research on the natural environment, which involves making some kind of new “contract” between the natural and social sciences. In this article, I have studied the “case” of the “discovery” of environmental problems in organization and management research in the 1990s. This case shows how interdisciplinary ambitions are easily lost, and the natural environment becomes one application of existing theories and research approaches. There is nothing wrong with *intradisciplinary* research – in fact, insights from organization theory may be very useful for practical purposes (for example, understanding why it is difficult for organizations to change), and environment as an “issue” can be a useful source of empirical material for the existing schools of thought. Yet this development trajectory makes environmentally oriented research very dependent on the vagaries of public environmental concern, and provides little basis for cumulative, long-term development of the field.

The problems in environmental social science are usually discussed as disciplinary ones, in which the “discipline” is understood as a research paradigm – often with a focus on ontological and epistemological assumptions within the paradigm. I have attempted to provide a more naturalistic account of the problems of interdisciplinarity, in which theory of science issues are mixed with other issues, such as the social organization of academic work, the identity and division of labour within disciplines, between them, and between researchers and research subjects. While yet very incomplete, in my view this approach could further the *practice* of interdisciplinarity by taking seriously the practical, institutional and cultural conditions of academic work. I do not mean to deny the worth of more philosophical endeavours. Yet, as a person doing research as a profession, as work, I feel the need to consider the theoretical and practical options side-by-side: what kind of scenarios would they lead to, what kind of alternative paths lie ahead?

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References

- Abrahamsson, E. (1996). Technical and Aesthetic Fashion. In Czarniawska, B. & Sevón, G. (eds.). *Translating Organizational Change*. Berlin, New York: Walter de Gruyter.
- Banerjee, S.B. (2001). Managerial perceptions of corporate environmentalism: Interpretations from industry and strategic implications for organizations. *Journal of Management Studies* 38 (4): 489-513.
- Becher, T. & Trowler, P.R. (2001): *Academic Tribes and Territories*. Buckingham: Open University Press.
- Beck, U., Giddens, A. & Lash, S. (1994). *Reflexive Modernization. Politics, Tradition and Aesthetics in the Modern Social Order*. Oxford: Polity Press.
- Callon, M. (1986). Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of Saint Brieuc Bay. In J. Law (Ed.) *Power, Action and Belief: a new Sociology of Knowledge? Sociological Review Monograph*. London, Routledge and Kegan Paul. 32: 196-233.
- Catton, W.R. & Dunlap, R. (1978). A new ecological paradigm for post-exuberant sociology. *American Behavioral Scientist* 24: 15-47.
- Conrad, J. (2002). Limitations to Interdisciplinarity in Problem Oriented Social Science Research. *Journal of Transdisciplinary Environmental Studies* 1 (1).
- Daily, B.F. & Huang S.C.A. (2001). Achieving sustainability through attention to human resource factors in environmental management. *International Journal of Operations and Production Management* 21 (12): 1539-1552.
- Dobers, P., Strannegård, L. & Wolff, R. (2001). Knowledge interests in corporate environmental management. *Business Strategy and the Environment* 10: 335-343.
- Dunlap, R. E. (2001). Environmental Sociology. A Personal Perspective on Its First Quarter Century. *Organization & Environment* 15 (1): 10-29.
- Escobar, A. (1999). After Nature. Steps to an Antiesentialist Political Ecology. *Current Anthropology* 40 (1): 1-30.
- Fineman, S. (1999). Making green goods. *Paper presented at the 15th EGOS Colloquium*, 1999, Warwick Business School.
- Gherardi, S. & Nicolini, D. (2000). To Transfer is to Transform: The Circulation of Safety Knowledge. *Organization* 7 (2): 329-348.
- Gladwin, T. (1993). The Meaning of Greening: A Plea for Organizational Theory. In: Fisher, K. & Schot, J. (eds.) *Environmental Strategies for Industry: International Perspectives on Research Needs and Policy Implications*. Washington D.C. :Island Press.
- Gladwin, T., Kennelly, J.J. & Krause, T.S. (1995). Shifting Paradigms for Sustainable Development – Implications for Management Theory and Research. *Academy of Management Review* 20 (4): 874-907.
- Gowdy, J.M. & Carbonell, A.F. (1999). Toward consilience between biology and economics: the contribution of Ecological Economics. *Ecological Economics* 29: 337-248.
- Hails, Y. & Levins, R. (1992). *Humanity and nature*. Pluto Press, London.
- Haraway, D. (1991). *Simians, Cyborgs, and Women*. New York: Routledge.

- Hassard J. & Kelemen, M (2002). Production and consumption in organizational knowledge: the case of the 'paradigms debate. *Organization* 9 (2): 331-355.
- Heiskanen, E. (2000). *Translations of and Environmental Technique: Institutionalization of the Life Cycle Approach in Business, Policy and Research Networks*. Helsinki: Acta Universitatis Oeconomicae Helsingiensis A-178.
- Jennings, P.D. & Zandbergen, P.A. (1995). Ecologically Sustainable Organizations – An Institutional Approach. *Academy of Management Review* 20 (4): 1015-1052.
- Joerges, B. & Czarniawska, B. (1998). The Question of Technology, or How Organizations Inscribe the World. *Organization Studies* 19 (3): 363-385.
- Kåberger, T. & Månsson, B. (2001). Entropy and economic processes – physics perspectives. *Ecological Economics* 36 (1): 165-179.
- Kallio (2001). The shade of 'green' in organization studies: a synopsis of the past, the present and the future. In Suominen, A. (ed.): *Liikkeenjohdon rajoja etsimässä – Searching for the boundaries of business culture*. Publications of the Turku School of Economics and Business Administration C-1; 2001.
- King, A. (1995). Avoiding Ecological Surprise – Lessons from Long-Standing Communities. *Academy of Management Review* 20 (4): 961-985.
- King, A.A. & Lenox, M. J. (2000). Industry self-regulation without sanctions: The chemical industry's Responsible Care Program. *Academy of Management Journal* 43 (4): 698-716.
- Kivisaari, S. & Lovio, R. (1996). Greening of management and technology studies: do we need reconceptualization? In Kivisaari and Lovio (eds.): *Bright Ideas? - Environmental management in Finnish perspectives*. Helsinki: Helsinki School of Economics B 164.
- Klok, A. & Mauser, A. The evolution of environmental management: from stage models to performance evaluation. *Business Strategy and the Environment* 11: 14-31.
- Latour, B. (1987). *Science in Action*. Milton Keynes: Open University Press.
- Latour, B. (1993). *We Have Never Been Modern*. Brighton: Harvester Wheatsheaf.
- Latour, B. (2000). When things strike back: a possible contribution of 'science studies' to the social sciences. *British Journal of Sociology* 51 (1): 107-123.
- Law, J. & Hassard, J. (1999).(eds.) *Actor-Network Theory and After*. Oxford: Blackwell Publishers.
- Leydesdorff, L. & Amsterdamska, O. (1990). Dimensions of Citation Analysis. *Science, Technology and Human Values* 15 (3): 305-335.
- Mac, A. (2001). When firms make sense of environmental agendas of society. *Journal of Cleaner Production* 10: 259-269.
- McKinley, W., Mone, A. & Moon, G. Determinants and developments of schools in organization theory. *Academy of Management Review* 24 (4): 634-648.
- Molloy, E. (1999). *Management Technologies: Ideas, Practices and Processes*. Lancaster: University of Lancaster.
- Mulkay, M. (1979). *Science and the Sociology of Knowledge*. London: George Allen & Unwin.
- Murdoch, J. (2001). Ecologising Sociology: Actor-Network Theory, Co-construction and the Problem of Human Exemptionalism. *Sociology* 35 (1): p111-133.
- Murphy, R. (1995). Sociology as if nature did not matter: an ecological critique. *British Journal of Sociology* 46 (4): 689-907.
- Pataki, G. (2002) *In Search for an Ecologically Sustainable Corporation*. Budapest: Budapest University of Economic Sciences and Public Administration.
- Perrow, C. (1997). Organizing for Environmental Destruction. *Organization and the Environment* 10 (1): 66-72.

- Pfeffer, J. (1993). Barriers to the advance of organizational science: Paradigm development as a dependent variable. *Academy of Management Review* 18: 599-620.
- Räsänen, K. , Meriläinen, S. & Lovio, R. (1995). Pioneering descriptions of corporate greening: some notes and doubts on the emerging discussion. *Business Strategy and Environment* 3 (4): 9-16.
- Rose, S. (1999). Review of “Consilience: The Unity of Knowledge”. *Endeavour* 23 (1): 36-37.
- Sarewitz, D. (2002). Science and Environmental Policy: An Excess of Objectivity. Teoks. *Earth Matters: The Earth Sciences, Philosophy, and the Claims of Community*. Prentice Hall.
- Schot, J. & Fischer, K. (1993). Introduction: The Greening of the Industrial Firm. In: Fisher, K. & Schot, J. (eds.) *Environmental Strategies for Industry: International Perspectives on Research Needs and Policy Implications*. Washington D.C. :Island Press.
- Shrivastava, P. (1994) Castrated environment – greening organizational studies. *Organization Studies* 15 (5): 705-726.
- Shrivastava, P. (1995a) Ecocentric management for a risk society. *Academy of Management Review* 20 (1): 118-137.
- Shrivastava, P. (1995b) The role of corporations in achieving ecological sustainability. *Academy of Management Review* 20 (4): 936-960.
- Shrivastava, P. & Hart, S. (1994). Greening Organizations – 2000. *International Journal of Public Administration* 17 (3/4): 607-635.
- Starik, M. & Marcus, A.A. (2000). Introduction to Special Research Forum on the Management of Organizations in the Natural Environment: A field emerging from multiple paths, with many changes ahead. *Academy of Management Journal* 43 (4): 539-546.
- Starik, M. & Rands, G.P. (1995) Weaving an integrated web – multilevel and multisystem perspectives of ecologically sustainable organizations. *Academy of Management Review* 20 (4): 908-935.
- Suchman, L. (2000). *Human/Machine Reconsidered*. Online publication of the Department of Sociology, Lancaster University at <http://www.comp.lancs.ac.uk/sociology/soc040ls.html>. Referenced July 10, 2002.
- Welford, R. (1998). Corporate environmental management, technology and sustainable development: postmodern perspectives and the need for a critical research agenda. *Business Strategy and the Environment* 7: 1-12.
- Whitley, R. (1984). *The Intellectual and Social Organization of the Sciences*. Oxford: Oxford University Press.
- Wolff, R. (1998). Beyond environmental management – perspectives on environmental management research. *Business Strategy and the Environment* 7: 297-308.
- Ziman, J. (2000). *Real Science: What it is, and what it means?* Cambridge: Cambridge University Press.