

## REFINING COMMON SENSE: TYPES OF KNOWLEDGE IN MANAGEMENT STUDIES\*

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### ABSTRACT

Drawing on Pepper's *World Hypotheses* we describe four different approaches to obtaining formal knowledge in management studies. These approaches are: formism, mechanism, contextualism, and organicism. All of them are valid ways of refining common sense that resist synthesis. Applying Pepper's framework in as extremely diverse a field as management studies (focusing on organizational behaviour (OB) and strategic management (SM) in particular) we show the different assumptions and knowledge claims made by different types of theorists in management and, moreover, we shed light on the sources of conceptual rivalry that often characterize the field. By way of illustration, the Mintzberg-Ansoff debate on the nature of strategic management is focused upon for closer examination. It is shown that analysing this debate in terms of Pepper's framework one can understand and evaluate the epistemological differences between Mintzberg and Ansoff, which stem from their adherence to contextualist and mechanistic-cum-formistic types of knowledge respectively.

### INTRODUCTION

Management studies has historically been an extremely diverse field. Its diversity has been manifested not only through the many different (often disconnected) problems management scholars choose to study, nor through the multiple and shifting membership of the management studies community which includes academics, consultants, and occasionally practitioners, but also through the conceptual fragmentation of the field (Whitley, 1984b). Indeed, it appears to be no accident that some of the most influential books in management studies (such as, for example, Mintzberg, 1979; Morgan, 1986) owe their success, partly at least, to suggesting a conceptual reorganization (i.e. a novel classification) of the plethora of theories and models one encounters in the field. Such classifications organize their extremely diverse material, and help the reader to make some sense of it.

The chief problem, however, of the hitherto suggested conceptual classifications is that their heuristic power is not as great as it could be. In Burrell and Morgan's (1979, pp. 22-35) typology, for example, one can ignore, without

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much loss, the 'regulation vs. radical change' dimension which appears to be more a property of social theories and less an ontological assumption about features of the social world. As Donaldson (1985, pp. 27–34 and 40–6) has pointed out, there is no reason why 'functionalism', for example, should be concerned exclusively with stability-cum-regulation as Burrell and Morgan suggest, instead of radical change as well. Burrell and Morgan's typology is ultimately reducible to the ontological 'subjective vs. objective' dimension concerning the assumptions social theories make about the nature of the social world (see Evered and Louis, 1981; Morgan and Smircich, 1980). Such a set of assumptions, however, useful as it certainly is, is not sufficient for spelling out the logical organization that social theories attribute to the social world. Slicing the cake in the way Burrell and Morgan propose, does not, for example, bring out sufficiently the differences between researchers as diverse as, say, Ansoff (1991), Donaldson (1985), Hersey (1984), Miller and Friesen (1980), Mintzberg (1990), and Pettigrew (1990).

It is the purpose of this article to suggest a framework that will be rich enough for understanding the different types of knowledge produced in management studies. We will borrow such a framework from Pepper (1942), and will illustrate it with examples from management studies, particularly from Organizational Behaviour (OB) and Strategic Management (SM). The debate between Mintzberg and Ansoff will be later focused upon in order to investigate in more detail the different assumptions, methodologies, and knowledge claims made by these two scholars which, as we will suggest later, stem from their subscribing to very different types of knowledge. It is the claim of this article that Pepper's framework enables us to appreciate the nature of competing knowledge claims made by management scholars as well as understand the subtleties of their disagreements. Throughout the article, by the term 'types of knowledge' we mean types of *formal* knowledge, namely, knowledge which is generated by social scientists through the systematic study of the social world (Whitley, 1993).

#### PEPPER'S WORLD HYPOTHESES

In his *World Hypotheses* Pepper (1942) argued, some time ago, that human knowledge is an endless process of cognitive refinement: the criticism and improvement of common-sense claims (cf. Payne, 1975/76, 1982). Cognitive refinement occurs in two ways. First, by a process of what Pepper called 'multiplicative corroboration', namely, a process of merely obtaining inter-subjective confirmation of certain phenomena. And secondly, by 'structural corroboration', that is by constructing theories or hypotheses about the world and comparing them with empirical data. For Pepper, structural hypotheses do not merely produce predictions whose validity is decided on comparison with real data, but also they organize the evidence they encounter and try to accommodate it even when anomalous. In other words, structural hypotheses are inquiry systems for obtaining knowledge (cf. Churchman, 1971), and as such they do not merely reflect aspects of social reality but also impose a cognitive organization upon it (Burrell and Morgan, 1979).

Table I. World hypotheses

	<i>Analytic theories</i>	<i>Synthetic theories</i>
Dispersive theories	Formism (Root metaphor: similarity)	Contextualism (Root metaphor: the historic event)
Integrative theories	Mechanism (Root metaphor: the machine)	Organicism (Root metaphor: the integrated whole)

Source: Pepper (1942).

Pepper distinguishes four 'world hypotheses', which he considers to be the most adequate ways of refining common sense. He also argues that world hypotheses are epistemologically incommensurate – one cannot reject one on the basis of another and, thus, they cannot be synthesized into an overarching world hypothesis. These four world hypotheses are: formism, mechanism, contextualism, and organicism. Each one is associated with a different 'root metaphor' (Pepper, 1942), and characterized by a different set of assumptions concerning the logical structure of the social world (see table I). Below, each type of knowledge is described and illustrated with relevant examples from management studies, particularly from OB and SM.

### *Formism*

Formism is based on, and profits from, the human capacity to identify similarities and differences – in short, to categorize (cf. Mitroff and Mason, 1982). Its root metaphor is similarity. Objects, events, processes – all sorts of phenomena – are construed as discrete facts that can be classified in several ways. Formism is characterized by two main features. First, it is an *analytic* theory: complexes or contexts are derivative, not an essential part of categorization. And secondly, it is a *dispersive* theory: '[F]acts are taken one by one from whatever source they come and are interpreted as they come and so are left. The universe has for these theories the general effect of multitudes of facts rather loosely scattered about and not necessarily determining one another to any considerable degree' (Pepper, 1942, pp. 142–3). In other words, those advancing formistic knowledge claims seek to capture similarities and differences between discrete objects of study without being necessarily concerned to offer an account of the underlying mechanisms that are responsible for any similarities and differences identified.

Insofar as human thinking inevitably involves making conceptual distinctions, and highlighting selectively only certain aspects of phenomena, it may be argued that all human knowledge is inescapably formistic to some extent. Indeed, Pepper's attempt (and, equally, for that matter, our aim here) to delineate four distinctive types of knowledge and describe them in terms of two dimensions (see table I) is a typically formistic way of making sense of an object of study. Similarly, Burrell and Morgan's (1979) classification of theories and paradigms in organizational analysis, as well as Morgan's (1986) presentation of the OB litera-

ture in terms of eight 'images of organization' are both illustrations of formistic thinking.

The preceding examples, however, are examples of a 'soft' (or 'weak') version of formistic thinking. The principle purpose of such authors (with Morgan being a notably good example) is discursive, communicative, and interpretative. Usually, no assumption is made that those conceptual distinctions which researchers favour reflect the 'true' state of things: simply that analytical categories are a researcher's invention to enable him or her to talk intelligibly and coherently about an object of study (see also Rorty, 1991). Like Wittgenstein's ladder, such concepts, categories, and distinctions may be thrown away after one has used them to climb a wall. As will be seen later, such a 'soft' version of formism is close to a contextualist approach to knowledge for they both share an anti-realist stance: our knowledge is conceived more as a social construction and less of a supposedly true reflection of an independent reality.

By contrast, a 'hard' version of formism tends to attribute conceptual categories not merely to an author's ingenuity and to a community's acceptance of them, but to the real world itself. Objects of study are thought to exhibit certain systematic, observer-independent similarities and differences, and the task of the social scientist is to find out what they are. Zoology, botany, and chemistry are the paradigmatic sciences for those subscribing to such an approach to social scientific knowledge; the ultimate taxonomy is the Holy Grail they are after.

In management studies, in particular, more often than not, the construction of typologies has been underpinned by the logic of 'hard' formism. Environments, structures, technologies, control systems, leadership styles, organizational cultures or whatever else happens to be of interest to academics or practitioners have usually been made sense of through relentless classification (see Daft, 1989; Robbins, 1990). Samples of 'excellent' or 'awful' organizations, for example, have been dissected for similarities which, once revealed, are assumed (but only assumed, not demonstrated) to be the causes of organizational excellence or failure respectively (see Peters and Waterman, 1982).

As will be seen later in our discussion of Ansoff's claims, 'hard' formists assume that their typologies reflect the world as it is, and that the relationship between actors and the phenomena they seek to influence is predominantly instrumental. For Ansoff (1991), for example, 'environmental turbulence' is not merely a concept invented by researchers seeking to understand a particular class of phenomena; rather, it is an objective property of all business environments which researchers ought to capture with their research instruments as finely as possible. Having done so, namely, having represented business environments by a set of logically connected categories, practitioners can then begin to think how to influence business environments at will.

It is when formists attempt to use knowledge instrumentally that they usually take one further step and become mechanists. For to identify only the similarities and differences between objects of study is not enough to influence social reality; one needs also to know how similarities and differences have come about, what are the mechanisms responsible for their appearance. To do so, 'hard' formists need to transcend the merely taxonomic character of their inquiry, and search explicitly for causes. Hence, they usually turn to mechanism.

### *Mechanism*

The root metaphor of mechanism is, of course, the machine. Like formism, mechanism is an *analytical* world theory: discrete elements or factors, not complexes or contexts, are what mechanistic thinking is interested in. Unlike formism, however, mechanism is *integrative*: the world appears well-ordered, it somehow hangs together, and 'facts occur in a determinate order and where, if enough were known, they could be predicted, or at least described, as being necessarily just what they are to the minutest detail' (Pepper, 1942, p. 142). There are six features that are immanent in the mechanistic type of knowledge, and they are described below.

First, the object of study is regarded as ontologically given, fully describable, and algorithmically compressible. It is assumed to consist of discrete parts whose *locations* can be specified. In the case of a social object of study this means that its parts, as well as the relationships among them, can be represented in an abbreviated form (Cooper, 1992; Tsoukas, 1993a). Leavitt's (1965) representation of an organization as consisting of tasks, a structure, people, and technology is a good example of such thinking. Obviously, the parts of an object of study determine its functioning, and the more refined representations of them we can make the better our understanding of the functioning of the entire object (cf. Mitroff and Mason, 1982).

Second, the parts of an object of study are re-described in some quantitative form which is different from our common-sense perception of them. Organizational structure, for example, may be reduced to three dimensions: formalization, centralization, and complexity (Daft, 1989; Mintzberg, 1979; Robbins, 1990). In OB, in particular, there has not always been agreement about the operationalization of key constructs (cf. Mohr, 1982), but the conviction is that operationalization is not only possible but indispensable. Pepper calls such measures *primary qualities*.

Third, there is an effective relationship (ideally a *lawful* one) between the parts of a study object. In the natural sciences such laws are represented in the form of function equations. In OB and SM, more modestly, statistical correlations are the closest we can get to describing empirical regularities between parts.

Fourth, although parts are quantitatively re-described, there are always some *secondary qualities* which are temporarily relegated to the status of background characteristics. At any point in time, such qualities may not be directly relevant to a particular investigation, but they are not forgotten since they are related to the study object. Organizational culture, for example, was such a secondary quality in the Aston studies (see Donaldson, 1985).

Fifth, secondary qualities are somehow connected with the study object by some *principle* and, as Pepper (1942, p. 193), referring to a machine, argued: 'if we were to make a complete description of the machine we should want to find out and describe just what the principle was which kept certain secondary qualities attached to certain parts of the machine'. Notice the insatiable appetite of mechanistic thinking for ever more complete descriptions and finer representations, so that an abbreviated representation of the logic by which the parts of a study object hang together may ultimately be achieved (Barrow, 1991). The point being made here is not that such an abbreviation may or

may not be achieved at any point in time, but that such an abbreviation is *achievable*. In OB, for example, the increasing attention paid to organizational culture and cognitive processes in organizations (cf. Kilmann et al., 1985; Sims et al., 1986), and the desire to find out if and how they are related systematically to other organizational characteristics, exemplify this feature of mechanistic thinking.

Sixth, just as there are stable relationships between the primary qualities, it is possible that secondary qualities may exhibit stable relationships among themselves (ideally expressed by *secondary laws*).

The reader may have already recognized the sort of thinking we have described above: the contingency approach by another name. Indeed, as Payne (1975/76, 1982) has remarked, mechanistic thinking has long dominated OB. For example, the larger the size of an organization, the higher the degree of formalization, the larger the number of hierarchical levels, the higher the degree of centralization, and so on (see Donaldson, 1985, p. 161).

In spite of its widespread use, however, it is doubtful whether mechanistic thinking has been really successful in OB. In a survey of organizational psychology, Payne (1975/76) has noticed the little variance that mechanistic models have been able to account for: the unsatisfactory level of correlation coefficients reported by several studies; the poor control of alternative propositions, and the fundamental difficulties in obtaining representative samples (for similar remarks see also Mohr, 1982). Similarly, Webster and Starbuck (1988) have made similar claims about industrial and organizational psychology. Having analysed data on effect sizes for the five most common variables organizational psychologists have studied (i.e. job satisfaction, absenteeism, turnover, job performance, and leadership) between 1944 and 1983, Webster and Starbuck concluded that theories in organizational psychology have failed to explain increasingly higher percentages of variance over time – the largest of the correlations reported is only 0.22.

Like formism, mechanism views the relationship between actors and phenomena in instrumental terms. It thus underplays actors' reflexivity and their potential of transforming the very reality a mechanistic theory seeks to explain and predict. As Payne (1975/76) argued, even if the predictive power of mechanistic types of knowledge were adequate, the amount of data one would need in order to make use of them would be inordinately high. Fiedler's (1967) contingency model of leadership, for example, requires organizations regularly to assess leaders' LPC scores, measures of the group atmosphere, task structure, and the leader's position power in the organization. Such a regular exercise would turn organizational members into form fillers. What, however, is even more important is that actors' reflexivity vitiates attempts to represent reality as it supposedly is: the very fact of such a leadership assessment exercise taking place at all is likely to influence actors' assessment of the situation and thus modify their responses to the relevant questions. It is precisely actors' reflexivity that makes Payne (1975/76, p. 209) sceptical about Fiedler's model, and about the utility of this type of knowledge more generally: 'Would the model hold up if these measures were regularly taken in the organization and people knew they were being related to the assessment of the leader's performance? . . . Research results of this kind do not transfer easily to the actual world' (see also Tsoukas, 1994).

### *Contextualism*

Unlike formism and mechanism, contextualism is *synthetic*: it takes a pattern, a *gestalt*, as the object of study, rather than a set of discrete facts. Like formism, contextualism is *dispersive*: the multitudes of facts it seeks to register are assumed to be loosely structured, not systematically connected by virtue of a lawful relationship. There is no search for underlying structures, and the distinction between appearances and an underlying reality is not accepted. Its root metaphor is the historic event, continuously changing over time. An historic event is assumed to lie at the intersection of several trajectories whose origins and destinations are unknown to an inquirer (Barrett and Srivastava, 1991).

*Change* and *novelty* are two fundamental features of contextualism. Change is regarded as endemic in social systems: taking their cue from Heraclitus, contextualists believe that one cannot step into the same river twice. Every event reconfigures an already established pattern, thus altering its character. Every moment is qualitatively different and should be treated as such. Every event, specified at a particular point in time, can be apprehended in terms of two additional features: *quality* and *texture*. Quality is the intuited wholeness of an event: texture is the details and relations making up the quality. We understand events by grasping intuitively the whole pattern (a face, a mood, a song, a painting, etc.), and when we wonder why we are so sure of our intuitions we start analysing their texture.

Historic events always have a certain quality and texture which continuously mutate into something novel over time. Notice that quality and texture are like the two sides of the same coin: when we intuit the whole we suppress its details (i.e. its texture), and when we analyse a pattern we tend to underplay its wholeness (i.e. its quality). As Pepper (1942, p. 239) put it, 'Qualities are most commonly in the focus of our attention but never (except for philosophic or aesthetic purposes) in the focus of analysis'.

The quality of an event has a *spread*, an inter-penetration of past and future. An event is never what is immediately available but also includes its contiguous past and present. This very paragraph I am writing draws on the preceding text, and although I haven't finished writing it you may have already realized what I am getting at. To a mechanist, of course, such a statement sounds unnecessarily vague. The only notion of time mechanists accept is that of schematic time: the temporal ordering of distinct events (e.g. 'the' is the first word in the previous sentence; 'only' is the second word, and so on). While contextualists do not deny the usefulness of schematic time, they also insist on the notion of qualitative time. In Pepper's (1942, p. 242) words: 'In an actual event the present is the whole texture which directly contributes to the quality of the event. The present therefore spreads over the whole texture of the quality, and for any given event, can only be determined by intuiting the quality of the event'.

It has, hopefully, become clear that contextualists categorically accept change as an inherent feature of the world, and seek to accommodate the ontological claim that the social world is incessantly on the move (Cooper and Fox, 1990). It is also clear that contextualists work from the present event outward. They can make some definite claims about the present event but they are less confident of making claims about underlying mechanisms that may have caused the present

event. This is indeed both the strength and the weakness of contextualism. By privileging the historic event contextualists are able to highlight its uniqueness and aid our understanding of it, but are unable to offer (and uninterested in offering) generalized statements about empirical regularities underpinned by more fundamental structures. For contextualists the world is not algorithmically compressible, hence there is no systematic way of investigating it – only loose, ephemeral frameworks guiding human understanding.

Thus contextualists always face a dilemma: either they can confine their analyses only to facts of direct verification, with the result being that their frameworks will be lacking in scope; or they may increase the scope of their claims by conceding the validity of indirect verification, in which case they would have to admit that the world has a determinate structure, thus falling back on one of the other world hypotheses. To such a dilemma, however, contextualists might playfully reply, 'How can you be so sure that nature is not intrinsically changing and full of novelties?' (Pepper, 1942, p. 279). Indeed, how?

The links between interpretivism and contextualism are obvious; the very language of contextualists often draws on literary metaphors. The contextualists' emphasis on the construction of narratives and stories for the interpretation of unique episodes makes them the prime exponents of 'narrative rationality' (Hunter, 1991, ch. 2; Weick, 1987; Weick and Browning, 1986). In management studies qualitative research has usually been based on contextualist premises (Morgan and Smircich, 1980). Pettigrew's (1987, 1990) investigation of organizational change, for example, is an attempt to generate relevant knowledge within an avowedly contextualist framework. His account of change eschews invoking deeper structures, it avoids recording regularities, and is not concerned with outlining forms of organizational change congruent with situational characteristics. Instead, loose frameworks are offered which purport to help practitioners with organizing their material so that rich portraits of change episodes may be painted.

An additional stream of publications written within a loose contextualist framework are those offering advice to managers from the benefit of either personal or documented experience (Blanchard and Johnson, 1983; Harvey-Jones, 1988; Iacocca, 1985; Kanter, 1983). Using lay language, such books are directly accessible to practitioners and offer them information about 'how others do it' as well as advice about 'what works, and what doesn't' (cf. Thomas, 1989; Whitley, 1988, 1989). The fact that such collections of stories have proved so popular highlights the limits of the types of knowledge produced by formism and mechanism: it is almost impossible to establish closed systems in the social world in order to obtain stable forms and regularities (Tsoukas, 1992, 1993a). Narratives, being loose flexible frameworks, are close to the activities of practitioners, are richer in content, and have a higher mnemonic value (Daft and Wiginton, 1979; Weick, 1987). The practitioner is invited to connect them flexibly to his/her personal experience and interpret them liberally, something which he/she is not encouraged to do with formistic and mechanistic knowledge.

### *Organicism*

The root metaphor of organicism is the integrated whole. Although its name is loaded with biological connotations this need not be the case. Organicism deals



with historic processes which are regarded as essentially organic processes: the unfolding of a logic that is immanent into the object of study. Through a sequence of specified steps an organic process eventually culminates in a *telos* – that is, an ultimate, most inclusive structure. The process unfolds in the direction of greater inclusiveness, determinateness and organicity – organic processes are progressive. The Hegelian and Marxian views of the ‘laws of history’ are some of the best examples of organicist thinking on a grand scale.

Organicism does not leave much to chance. The world may not appear to be, but it really is coherent and well-integrated. The world indeed is a *cosmos*, and we can identify the manner in which it hangs together. Organicism is characterized by seven features, which Pepper (1942, p. 283) describes as follows:

- (1) Fragments of experience which appear with (2) *nexuses* or connections or implications, which spontaneously lead as a result of the aggravation of (3) *contradictions*, gaps, opposition, or counteractions to resolution in (4) an *organic whole*, which is found to have been (5) *implicit* in the fragments, and to (6) *transcend* the previous contradictions by means of a coherent totality, which (7) *economizes*, saves, preserves all the original fragments of experience without any loss.

Organicism sees fragments of events connected in meaningful, though often incomplete or contradictory, ways. The conflicts in a nexus of events are resolved via a higher synthesis, which, while recognizing the particularity of fragments, transcends them and harmonizes them in a more complete *holon*. Notice that for organicists fragments of experience do not matter as such since it is their ultimate explanation in terms of underlying structures that is cognitively important. Thus, organicism is more prone than other world hypotheses to explaining away empirical anomalies or dismissing as unimportant ‘secondary qualities’. Insofar as the integrated whole is of such ontological significance, organicism strives for comprehensiveness and underlying structures, but it leaves little room for autonomous human action (Castoriadis, 1987, part 1).

In management studies there have been increasingly influential streams of research dealing with evolutionary processes, configurations of organizational and environmental characteristics, and modelling organizations on biological organisms, all of which are broadly within the organicist type of knowledge (cf. Gersick, 1991). The contrast between Pettigrew’s (1987, 1990), Mangham’s (1988) and Johnson’s (1987) contextual approaches to organizational change on the one hand, and Miller and Friesen’s (1980), and Tushman and Romanelli’s (1985) quantum models of change on the other is a vivid example of the widely different cognitive styles between contextualism and organicism (see also Poole and Van de Ven, 1989).

Another example of organicist thinking is Mintzberg’s (1979, 1989) set of organizational configurations arranged along time in evolutionary terms. Organizational features and behaviour, for Mintzberg, are explained in terms of a set of five underlying components which are put together in five characteristic ways. Thus, the behaviour of ideal-type configurations provides the conceptual template for the explanation and prediction of actual organizational behaviour. Furthermore, as organizations grow there are conflicts among the various structural components they are made of, which are resolved by the organiza-

tion jumping onto a new arrangement of these components (i.e. a new configuration).

Similarly, models of organization that have developed via analogical reasoning (Tsoukas, 1991, 1993b) exhibit several traits of organicist thinking. Beer's (1991) Viable System Model (VSM) is a good case in point, although it lacks an evolutionary dimension. VSM is a model that has been developed by modelling organizations on the human nervous system. The five sub-systems and their relationships that make up the nervous system are the biological analogues of similar organizational systems. The integrated wholeness that characterizes the nervous system is transferred into the domain of organizations. Thus, organizational problems are diagnosed in terms of dysfunctions between parts of the whole system, which is sought to be redesigned in order to eliminate such dysfunctions.

#### A CASE STUDY: THE MINTZBERG-ANSOFF DEBATE ON THE NATURE OF STRATEGIC MANAGEMENT

For Pepper the types of knowledge outlined above are incommensurate and resist synthesis. Not infrequently, their exponents have found it difficult to communicate with one another despite working in the same disciplinary field. However, this should not come as a surprise. Fundamental assumptions about the organization and functioning of the social world do not stand outside it but are crucially involved in its constitution (Rosenberg, 1988, ch. 2; Sayer, 1984; Winch, 1958, ch. 4). Furthermore, the kinds of research questions asked, the objects selected for study, and the criteria for evaluating knowledge claims are all intimately connected with the underlying assumptions of what is valid knowledge and how it may be obtained (see Burrell and Morgan, 1979; Morgan, 1980, 1986; Pinder and Bourgeois, 1982). Pepper's four-world hypotheses provide a framework for appreciating the different types of knowledge generated in management studies and, as we will show below, they help us to understand better the arguments involved when researchers, who have different conceptions of knowledge, engage in a debate. We will illustrate these points below through focusing on the relatively recent exchange between Mintzberg and Ansoff (see Ansoff, 1991; Mintzberg, 1990, 1991), which provides an excellent example of the different types of knowledge these scholars espouse, and the nature of disagreements that ensue.

Echoing themes of his earlier work on strategy, Mintzberg (1990), more recently, sought to describe and critique the main tenets of what he calls 'the design school of strategic management'. The latter, according to Mintzberg, has historically been the most influential school of thought in SM; it proposes a model of strategy that views it as a conscious process of design to achieve a fit between a firm's external threats and opportunities on the one hand and its internal strengths on the other. Such a view of strategy is predicated on three premises, he argues. First, the formulation of strategy precedes clearly its implementation. Secondly, the process of strategy formulation is one of a consciously controlled thought involving senior managers and, more specifically (and crucially), the CEO. And third, such a process is explicit and the strategy produced

should also be explicit, simple, and unique. In short, from a cognitive point of view, the most fundamental assumption of the design school is that of the quasi-dichotomy between thinking and acting, and the consequent identification of thinking with strategy formulation on the one hand, and of acting with strategy implementation on the other.

For Mintzberg, strategies are formulated in such a manner only in a minority of cases in which information is simple, so that it can be comprehended by a single brain (or a few brains) and the environment is stable, so that the strategy can be implemented as intended. More often than not these conditions do not obtain and, therefore, strategies are never as deliberate as the design school assumes (or requires) them to be; they, inescapably, have elements of emergence. More realistically, strategies can form as well as be formulated. Thinking and acting are intertwined, and truly creative strategies are more likely the result of experiential trial and error than of detached analytical thinking (see also Mintzberg, 1978, 1987, 1989).

Ansoff (1991), naturally, will have none of this. In his reply to Mintzberg he criticizes him for lack of coherence in his argument, for deriving prescriptive from merely descriptive statements and, on the whole, for exaggerating his claims about emergent strategies which, for Ansoff, in an inversion of Mintzberg's argument, are encountered only in a minority of contexts. Ansoff's critique reveals a mechanistic-cum-formistic conception of knowledge which is in sharp contrast to Mintzberg's avowedly contextualist thinking with regard to strategy. Ansoff's critique consists essentially of two parts. The first part replies to Mintzberg's criticisms (a) that the design school denied itself the chance to adapt, and (b) that other prescriptive schools of thought in SM have also remained frozen in time. These claims of Mintzberg's are only contingently linked to the main core of his argument against the design school which was outlined above. One could even agree with Ansoff's reply on these points and still adhere to Mintzberg's core argument. For this reason, therefore, we shall not examine Ansoff's first part of his reply more closely.

The second part, however, attempting to rebut Mintzberg's core assertions, reveals Ansoff's own mechanistic-cum-formistic epistemology for SM. Ansoff charges Mintzberg with lack of precision and vagueness when referring to the environment of firms. Ansoff (1991, p. 455) writes:

One learns that managers:

cannot be sure of the future. Sometimes organizations need to function during periods of unpredictability. Sometimes organizations come out of a period of changing circumstances into a period of operating stability (Mintzberg, 1990: 184).

Nothing is said about how often is 'sometime', what is meant by 'unpredictability', by 'changing circumstances' or how long and how prevalent are the 'periods of operating stability'.

The only complete sentence devoted to the environment does not help very much:

. . . environment is not some kind of pear to be plucked from the tree of external appraisal, but a major and sometimes unpredictable force . . . (Mintzberg, 1990: 185).

This cryptic statement begs all kinds of questions: whose environment is being discussed; what kind of influence does the force exert on organizations; under what circumstances is it exerted; what impact does it have on strategic behavior, etc.

Ansoff's discourse exhibits all the main characteristics of mechanistic thinking. His remarks are primarily concerned with questions of representation and frequency. The business environment is construed as a potentially fully describable entity which can be adequately represented via a set of dimensions, categories, or variables, expressed, ideally, in quantitative terms. Such measures, called by Pepper 'primary qualities', should be investigated statistically so that certain regularities, obtaining under certain empirically verifiable conditions, may be ascertained. Indeed, the bulk of Ansoff's criticism precisely consists of a torrent of references to empirical studies aiming to demonstrate the validity of his contingency model of strategy.

Ansoff does not seem to be beset by philosophical doubts about the nature of reality which his model of strategy seeks to reflect. For a descriptive statement to be valid, he remarks, 'it must be an accurate observation of reality' (1991, pp. 455-6). Empirical research, therefore, according to Ansoff, seeks to describe the regularities the world consists of, and then, on the basis of these empirically established regularities, to recommend prescriptions to decision-makers for future action. Prescriptions for strategic action in the future become possible if the conditions that make such action possible are similar enough to the conditions that have been empirically established in the past, so that action in the future can follow the patterns of action in the past.

A mechanistic view of strategy differs radically from that based on contextualist premises. For contextualists, strategy making is 'a creative process (of synthesis) for which there are no formal techniques (analysis)' (Mintzberg, 1991, p. 465), nor can it be objectively operationalized by a researcher for it then loses its context-derived distinctiveness. Strategy making stems from a deep direct knowledge of local contexts and from the intimate understanding that is generated by actors engaged in trial and error (Mintzberg, 1987, 1989). To attempt to detach strategy making from its intrinsic embedment into local contexts for the purpose of aggregating pertinent findings and compressing them in a quasi-algorithmic formula, is to destroy the very features of strategy making that make it a uniquely creative process, inextricably bound up with personal, tacit knowledge (Polanyi and Prosch, 1975, ch. 2).

Such personal knowledge is possessed and utilized only by those who are intimately involved with the details of a business, and should a researcher want to objectify such knowledge for the purpose of a mechanistic investigation he/she would destroy it. Instead, a qualitative approach, employing narratives as the main medium of exposition, is better suited to capture the many context-dependent nuances, details, and flexible temporal connections that characterize strategy making (see Brown and Duguid, 1991; Hunter, 1991; Morgan and Smircich, 1980; Susman and Evered, 1978; Tsoukas, 1993a; Weick and Browning, 1986; Weick, 1987).

Thus, for contextualists like Mintzberg, the concept of strategy does not indicate a centrally formulated plan for a substantial commitment of resources to

particular products and processes over fairly long periods of time (as does for Ansoff, 1965, 1984, and the design school more generally) but, simply, patterns in a stream of decisions that have not been made necessarily at the centre (see Mintzberg, 1979, 1987, 1989). Such a view of strategy allows for patterns not to be viewed as fixed but as inherently changeable and reconfigurable depending on the observer ('Patterns, like beauty, are in the mind of the beholder, of course', writes Mintzberg, 1987, p. 67). It also offers the investigator the possibility of looking for connections over a wider span of real time (what Pepper in his discussion of contextualism calls 'spread') and over a broader spectrum of concrete events than would have been allowed by the linear structure and the abstract form of statements produced by mechanistic-cum-formistic thinking.

By contrast, mechanists privilege the investigator and his/her 'scientific method' which is modelled on the method of the natural sciences (Rosenberg, 1988, p. 19). Ansoff's reply is indeed permeated by the tone of the serious-looking scholar reprimanding an amateur social scientist for not using properly or adequately the canons of 'scientific method', identifying abstract facts which stand for objective properties of the object of study, and then connecting these facts statistically to identify lawful regularities. Of course, what Ansoff does not appreciate, and Mintzberg (1991) in his rejoinder is curiously reticent to point out, is that his precepts lack the universality that he assumes they have; the cognitive categories as well as the evaluation criteria he employs are formulated only within a certain template of formal knowledge (that of mechanism-cum-formism) which, although historically dominant in the social scientific discourse, is only one type of knowledge amongst others.

#### DISCUSSION

As we have already seen, mechanists eschew studying uniqueness and singularity preferring instead the investigation of abstract properties which are assumed to be generic and lawfully connected. Attempting to distinguish an abstract property of *all* business environments Ansoff (1991, p. 459) singles out the concept of environmental turbulence. By contrast, faithful to his mistrust of objective variables, Mintzberg (1991, p. 464) remains sceptical: 'What in the world does "turbulence" mean anyway? And who has ever made a serious claim of measuring it?' Adhering to mechanistic thinking Ansoff presupposes that an independent mind can measure an objective feature of the environment (i.e. turbulence) which may then be correlated with the appropriate strategic behaviour:

[A]n organization will optimize its success when the aggressiveness of its strategic behavior in the environment and its openness to the external environment are both aligned with the turbulence level of the organization's external environment. . . . The levels of success in organizations which are aligned with the environment were substantially higher than in organizations which were out of alignment (Ansoff, 1991, p. 459).

The identification of past empirical regularities enables Ansoff to put forward prescriptions for future action. But, on what grounds are such prescriptions valid?

A prescription is valid, writes Ansoff (1991, p. 456), only when it can 'offer evidence that use of the prescription will enable an organization to meet the objective by which it judges its success'. The implied symmetry between explanations of past regularities and predictions of (or recommendations for) future action is a characteristic feature of mechanistic thinking, although Ansoff implies that it is (or ought to be) a feature of all knowledge.

It is the assumption that regularities in the past can be extrapolated into the future which lends mechanistic thinking its 'scientific' authority and its consequent capacity to authorize (in both senses of the word) courses of action (MacIntyre, 1985, p. 104). Indeed, as MacIntyre (1985, p. 107) aptly observed, should this assumption be undermined the very basis of authoritative managerial action would become questionable. Yet, insofar as human praxis is under-determined by the past (determined to be sure, but not completely), the nature of organizational action is necessarily open-ended (open yes, but not infinitely open), potentially creative (creative certainly, but not *de novo* construction), and, thus, able to break away from past regularities (Briskman, 1980; Tsoukas, 1992, 1993a).

The capability of social theories to predict (and therefore prescribe) a future course of action is not as strong as mechanists seem to think (although this is not to suggest that it is entirely absent). There are two reasons for this. First, insofar as current practices partly depend on current systems of knowledge, predictions about the likely results of future practices depend on predictions of the growth of knowledge. However, as Popper (1982, p. 62) has remarked, 'we cannot predict, scientifically, results which we shall obtain in the course of the growth of our knowledge'. The logical contradictions besetting self-prediction are well known: if we were to know today what theories we will know tomorrow then these theories would occur to us today and not tomorrow (MacIntyre, 1984, ch. 8; Popper, 1982, pp. 60–5). Had the opposite been true, radical innovation would have been impossible (Whitley, 1989). Thus, if Western notions of organization and criteria of commercial success (typically derived from Weber) had been in some sense fixed and absolute, the rise of, say, Japan as an economic superpower would not have occurred. For radical innovation to be possible, the future ought to remain not only unknown but *unknowable* (Tsoukas, 1992).

The point about the potentially creative nature of human praxis is also brought out by Mintzberg in his discussion of Honda's strategy that captured two-thirds of the American motorcycle market:

Honda's success, if we are to believe those who did it and not those who figured it, was built precisely on what they initially believed to be one of Igor's 'probable non-starters' – namely the small motorcycle. Their own priors were that a market without small motorcycles would not buy small motorcycles. Had they a proper planning process in place, as Igor describes it in these pages, this non-starter would have been eliminated at the outset – plan 'rationally' and be done with it' (Mintzberg, 1991, p. 464).

Mintzberg underscores here the trial-and-error character of successful strategies as well as the vicious self-fulfilling prophecies into which one is embroiled as soon as one takes knowledge of past regularities as an absolute guide for future action.

By contrast, as we saw, Ansoff privileges the certainty that such knowledge provides to practitioners.

While contextualist thinking construes prospective action as potentially novel and open-ended, mechanistic thinking conceives of it as being, essentially, a modified extension of the past. To *the extent* that social life is institutionalized and follows certain patterns and routines the mechanistic assumption is not mistaken: prospective action does not always break away from the patterns of the past (Berger and Luckmann, 1966, pp. 65–84; Tsoukas, 1993a). Similarly, to *the extent* that social life historically evolves often in ways that no one can really predict or anticipate, the contextualist assumption is not incorrect either. The problem, of course, is to know the scope of each 'extent' respectively. Knowing the area of their applicability, however, is beyond the scope of all four types of knowledge discussed here. This is because for a type of knowledge to be aware of its own limits, it implies that there could be a meta-position to take from which to view itself and the other types of knowledge. But, as Pepper and others have argued, such a meta-position does not exist (who could tell us where it is? who could tell us what 'strategy' really is?) and that is why Pepper's world hypotheses are more than mirrors reflecting aspects of the social world, but are also competing discourses that view (and shape) the social world in terms of their own categories (see also Foucault, 1971).

Ansoff's defence of the design school is as good an illustration as any of the taken-for-granted nature of the basic categories and premises of a particular type of knowledge. Revealingly, Ansoff not only defends his position but also attempts to reconstruct Mintzberg's model in terms of the categories of mechanistic-cum-formistic thinking:

Thus empirical research described above shows that Mintzberg's Prescriptive Model is a valid prescription for organizations which seek to optimize their performance in environments in which strategic changes are incremental and the speed of the changes is slower than the speed of the organizational response (Ansoff, 1991, p. 459).

Similarly, while Ansoff cites a wealth of quantitative empirical studies to support his claims, Mintzberg resorts to 'the sample of one' – singular cases such as his favourite examples of Honda, or Sam Steinberg's retailing business – which best exemplify what he thinks are the key features of strategy making.

#### CONCLUSIONS

We have described in this article four different approaches to obtaining formal knowledge in management studies, drawing on Pepper's *World Hypotheses*. Those subscribing to these four approaches vary widely in terms of the research questions they pose, the research methodologies they utilize, and the evaluation criteria they adopt. Epistemological differences can indeed be so great that, as the exchange between Mintzberg and Ansoff indicates, even foundational concepts (such as, for example, that of 'strategy') are conceptualized and researched in radically different ways. Mintzberg and Ansoff,

subscribing to incommensurate types of knowledge, clearly cannot agree on what *is* strategy.

From a contextualist point of view, strategy making is rooted in local contexts so that, stripped of its contextuality, it is no longer strategy making proper. By way of analogy, as Winch (1958, p. 107) aptly observed, both the Aristotelian and Galilean systems of mechanics use the notion of 'force', but its meaning within each system is substantially different: 'the relation between idea and context is an *internal* one. The idea gets its sense from the role it plays in the system' (Winch, 1958, p. 107). For Mintzberg strategy making is an inherently creative process which can neither be formalized nor be abstracted out of its context. All formal knowledge can do is to offer an account of the local context-in-time, as well as give voice to the intimate experience possessed by actors themselves. The richness of strategy making, therefore, can be brought out only through the narrative mode of exposition. Thus, in contextualist epistemology actors are given their voice in the researcher's narrative; they speak in their own words, and the researcher is merely the 'interpreter' (Bauman, 1987, pp. 4–6) between the community he/she describes and the audience to which he/she reports his/her findings.

Contrast this picture of strategy making with that drawn by mechanists. For Ansoff strategy making is an objective process which is the task of the researcher to describe and explain. Strategy, therefore, is construed to having certain generic properties which can be abstracted out of their local contexts and correlated with other generic organizational properties under certain specified conditions. Once such correlations have been ascertained ('. . . at 0.05 or better confidence level' as Ansoff, 1991, p. 459, is keen to point out) they can serve as the basis for recommending prospective action. Researchers, therefore, are seen as 'legislators' (Bauman, 1987, pp. 4–6) whose authority to prescribe solutions is based on the allegedly superior knowledge that is generated by the application of the scientific method to management problems.

In a practically-oriented field such as management studies (Whitley, 1984a) prescriptions to guide practitioners have historically been extremely important. For Ansoff (and for mechanists in general) practical action in the future ought to be guided (determined?) by practitioners' knowledge of regularities in the past. What this view assumes is that the future action of an individual firm can be guided reliably by the past actions of a large number of firms which have been aggregated (and thus their context-dependent features have been abstracted) for certain research purposes. Uniqueness and singularity are not particularly valued by mechanists, and it shows in their research designs and the questions they investigate. Thompson (1956–57, p. 103), for example, expressed his disdain for 'the tyranny of the particular' (Medawar cited in Feyerabend, 1987, p. 122) as follows:

If every administrative action, and every outcome of such action, is entirely unique, then there can be no transferable knowledge or understanding of administration. If, on the other hand, knowledge of at least some aspects of administrative processes is transferable, then those methods which have proved most useful in gaining reliable knowledge in other areas would also seem to be appropriate for adding to our knowledge of administration.



For contextualists, by contrast, such a view of management studies and of practical action is unacceptable. As Susman and Evered (1976, p. 590) have put it:

Appropriate action is based not on knowledge of the replications of previously observed relationships between actions and outcomes. It is based on knowing how particular actors define their present situations or on achieving consensus on defining situations so that planned actions will produce their intended consequences.

Mintzberg's research on strategy making has also echoed similar concerns. He has consistently emphasized the importance of experience and non-programmable personal knowledge as the most essential prerequisites for strategy making. What Mintzberg sees as the most salient feature of the latter is creative action: the inherent potential of human praxis for novelty. Judgement, personal knowledge, and experimental action are his mottos, whereas for Ansoff, action informed by formally generated knowledge of past regularities is the main feature of successful strategic behaviour.

Well, 'who is right?' is a tempting question to ask. Tempting though it may be, it is also the wrong question to try to answer. As Pepper emphasized, there is no independent ground, no Archimedean point, from which one may pass a judgement. World hypotheses are epistemologically incommensurate. They all capture aspects of reality and in doing so they legitimate themselves for making more universal knowledge claims. Epistemological incommensurability, however, need not be translated into sociological incommensurability. Insofar as types of knowledge are not disembodied logical-cum-cognitive artefacts, but also *social* constructions which fight for acceptance within particular institutional settings, there are social rules that help arbitrate between them. It would be interesting to investigate how, in management studies, incommensurate types of knowledge are legitimated in particular socio-temporal junctures and gain institutional ascendancy. Expanding on such a project, however, would be beyond the scope of this article.

#### NOTE

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