REALIST AND POSTMODERNIST PERSPECTIVES ON INFORMATION SYSTEMS RESEARCH: POINTS OF CONNECTION

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ABSTRACT

There has been considerable debate in the information systems (IS) literature as to which research methodology is most appropriate to address IS related problems. This paper contributes to that debate by contrasting the post-modernist approach with that of the critical realist. A major strand within the postmodernist perspective is concerned with the various aspects of knowing – that is, it is primarily epistemological in focus. In contrast, traditional realist approaches are more ontological in focus in their acceptance and concern for a reality external to perception. Realist and postmodernist approaches are generally presented as in opposition to each other, yet as this paper will argue, a suitably aware contemporary realist approach to research can accommodate many of the proposals of the post-modernist. Critical realism is presented as such a contemporary realist philosophy in that it takes account of both ontological and epistemological viewpoints. It is argued that such a philosophy has the potential to provide a basis for developing a robust methodological approach to IS research.

Keywords: Research methodology, critical realism, postmodernism, information systems

INTRODUCTION

For several years now, there has been ubiquitous debate amongst information systems (IS) academics as to which research methodology is most appropriate to research IS problems (e.g., Galliers(1991); Orlikowski and Baroudi (1991); Walsham (1995); Iivari *et al*. (1998); Mingers (2001); Eldabi *et al*.(2002)). Recent debate has suggested that the complex nature of IS research suggests that a hybrid approach is most preferable (Lee, 1991; Mingers, 2001; Eldabi *et al*., 2002). Nissen *et al*. (1991) point out research arguments tend to concentrate on either the nature of what is investigated (ontology) or the nature of human knowledge and understanding that can possibly be acquired through different types of research and the appropriateness of the methods of investigation (epistemology). In a practical field such as IS research has tended to examine epistemological issues, often ignoring the important nature of the objects of enquiry. For example, recent calls for pluralism in IS research have tended to focus on methodological matters rather than the ontological issue as to the underlying nature of the objects of enquiry (e.g. Mingers and Gill, 1997). Pluralist approaches can be seen to be in line with the 'post-modern condition', which is described by Jackson (1991) as thriving on "instability, disruption, disorder, contingency, paradox, and indeterminacy", and requiring recognition of multiple interpretations of the world.

In a similar vein Robson (1993) suggests that if a research approach relied (solely) on a singular methodological standpoint, some unknown part(s) or aspect(s) of the results obtained would be attributable to the restrictive aspect(s) of the method (not) used, in obtaining such result(s). Robson (1993) states that "we can never obtain results for which some method has not been used to collect them, [so] the only feasible strategy [therefore] is to use a variety of methods" (p.230). Yet methodology cannot be considered separately from underlying conceptions of what makes up the world. For example, Archer (1995, p. 28) has suggested that "once social analysts have been assured that ontology and methodology are separate issues, why should they not conclude that they can merely select the methodology which pragmatically seems most useful to them (thus sliding rapidly into instrumentalism), because if ontology is a separate concern, then it need to be no concern of theirs".

It is impossible to formally describe aspects of the world without such being grounded on a particular implicit or explicit, conscious or subconscious philosophy. Within such a practically focused area such as IS design and implementation philosophical and associated ontological issues are sometimes relegated to relatively minor role in the research process. Ormerod (1997, p. 421) presents such a view when he emphasizes the pre-eminent importance of practical issues:

> Any choice mechanism should, in my view, be rooted in practical requirements rather than in theoretical considerations with which very few practitioners could feel at home. In simple terms the approach (methods and their theories) chosen must support a process of intervention (practice) in a particular context to achieve the desired outcome …If a philosophical justification for action is needed it can be found in American pragmatism, Bhaskar's transcendental realism, Feyerabend's iconoclastic critique of philosophical positions or postmodernism.

Such an argument presents a not uncommon 'consultancy' type approach to IS research with practicality dominating the researcher perspective. Ormerod (1997) further suggests that: "the choice of methods will depend on the organizational context, the degree of participation envisaged the consultant's skill and on the nature of the outcome required" (p. 415). Ignoring the fact that perceptions as to organizational context and practical outcomes necessarily reflect an *implicit* philosophical position, such a view also neglects the useful role that philosophy can *explicitly* play as underlabourer to research and practice, underlabourer being taken from Locke (1894) as "clearing the ground a little...removing some of the rubbish that lies in the way of knowledge" (p.14). In contrast to post modernist approaches, which tend to neglect philosophy (see Kilduff and Mehra, 1997), the critical realist argues for an intimate and important role for philosophy within research.

Against this contextual backdrop, this paper suggests that philosophical considerations do have an important role to play in IS research and practice. We will also contrast the differing perspectives offered by the post-modernist and the realist and suggest that a suitably aware realist approach can provide a necessary recognition of both epistemological and ontological issues.

PHILOSOPHICAL CHALLENGES TO POSITIVISM

Bhaskar (1989) places critical realism within contemporary philosophy alongside post-modernism and critical theory as a particular response to the crisis of positivism. In a similar fashion Orlikowski and Baroudi (1991) classify IS research traditions as basically following three major philosophical approaches – positivist, interpretive and critical, the interpretive and the critical responding to shortcomings in the positivist. Their neglect of contemporary realist approaches perhaps reflects the fact that a "naïve" form of realism provided the foundational philosophy for positivism. As detailed below, critical realism rejects many of the earlier proposals underlying such a naïve or traditional realism.

The use of the term "critical" within "critical realism" is perhaps unfortunate in that it can be seen to align the philosophy with Habermas' critical theory. The use of the word "critical" within critical realism seems to have grown out of Bhasker's (1989) argument for a critical or careful application of the scientific method to social situations. Critical theory and critical realism have a similar emancipatory focus but Bhaskar would suggest that critical theory along with interpretivism suffers from a neglect of ontological issues. He argues in "Philosophy and the Idea of Freedom" (Bhaskar, 1991) that critical and interpretive approaches are too concerned with epistemological issues. He suggests that whilst the hermeneutic focus on identification and uncovering of inequitable structures is an important first step in emancipatory action, unless something is actually done with this knowledge real effective emancipation is not possible. This ontological focus is a vital part of the critical realist approach.

Blaikie (1993) suggests that contemporary responses to dissatisfaction with positivism include:

- critical theory;
- realism;
- contemporary hermeneutics;
- structuration theory; and
- feminism.

Mingers (2001) suggests that the interpretive/hermeneutic and the positivist perspective have tended to dominate the study of IS in recent years. Both approaches provide markedly different views of the world and the means to study it. Guba and Lincoln (1994) state that in terms of epistemology or the relationship between the knower, would-be-knower and what can be known, positivism is dualist and objectivist in that it assumes:

- objective reality can be captured and analyzed meaningfully;
- the observer can be separated from the observed;
- observations and generalizations are free from situational and temporal constraints;
- causality is linear and there are no causes without effects, no effects without causes; and
- inquiry is value free.

The interpretivist and the positivist also have fundamentally different stances on the role of experiment in research. Empiricism refers to a set of philosophical beliefs formed around the idea that experience, rather than reason, is the source of robust knowledge of the world (Morick, 1980). The term has also come to mean the practice of investigating the nature of the world using practical or experiential methods, rather than by applying or developing theories, or assuming guiding principles. Empiricism dictates that one settles questions about the nature of human thought and action by accepting only assertions and claims that can be probed by direct observation. The interpretivist is, however, more receptive to theory and principles, not necessarily insisting that what cannot be measured should be ignored in this context.

Positivism places emphasis on facts as distinct from values or meanings, and the use of scientific method in which theory is deduced as a result of formulating and testing hypotheses. This approach can identify cause-and-effect through 'the constant conjunction' of events, resulting in what has been called the 'covering law' orthodoxy (Popper, 1959). This orthodoxy is essentially devoted to the pursuit of explanations, which take the form of general laws. The reasoning behind interpretivism (induction) on the other hand proceeds from specific observations (data but not necessarily in quantitative form) to general principles (laws). The observations may suggest generalizations, which if repeatedly tested and confirmed can lead to discovery of a lawful relationship (Babbie, 1992).

According to Babbie (1992) both induction and deduction are essential to the process of hypothetico-deductive scientific method. Induction always involves some selection of what data to attend, implying 'theory', no matter how implicit. Deductive inference, however, involves some intuitive aspects in that its predictions are tested inductively. Deductive inference is also heavily dependent on the initial step of generating hypotheses (or propositions) from general laws or theories. Hence, if the general law is false, then deduction can be logically valid but false in relation to the real world. According to Popper (1959) theories can never be conclusively proven from repeated observations that 'confirm' them. They can however be falsified by just one instance, that is, where their predictions are not confirmed. Critical realism, on the other hand, argues that within the social sciences predictive use of theory and falsification makes no sense in the open contextual systems within which social science must operate.

Fundamentally, the epistemological position of the interpretive perspective rejects the natural sciences as an appropriate foundation for social science inquiry. The 'anti-naturalist' school of thought believes that the subject matters of the social sciences are so different to that of the natural sciences that an entirely different approach to empirical work is needed. In contrast to this approach Bhaskar's critical realist approach argues for critical and careful application of the methods of the sciences to the study of society – *a critical naturalism*. Bhaskar (1989) argues that the methods of the sciences *can* be applied to social situations although in significantly different ways grounded in the significantly different subject matters. He sees science as an ongoing developing process of explanation and enlightenment rather than the derivation (or Popperian falsification) of immutable scientific laws; scientific and social research involving the steady unearthing of the increasingly deeper structures and mechanisms which make up the objects under study.

Walsham (1995) discusses three different ways of viewing reality:

- external realism which considers reality as existing independently of our construction of it;
- internal realism which views reality as an inter-subjective construction shared between individuals; and
- subjective idealism which sees reality as a personal construction of each individual

In particular, Walsham (1995) has suggested that interpretivist research in the IS area has tended to concentrate on internal and subjective realism.

Along with many realist approaches Bhaskar (1978, 1979, 1986) argues for an external realism in that he suggests that there exists a reality totally independent of our representations of it; the reality and the "representation of reality" operating in different domains, roughly a transitive epistemological dimension and an intransitive ontological dimension. As Lawson (1997) suggests critical realism as proposed by Bhaskar (1978) is developed around a scientific realist position which asserts that "the ultimate objects of scientific investigation exist for the most part quite independent of, or at least prior to, their investigation" (p. 15). This common external realist position is however extended under critical realism in that it also presents a philosophical argument for the nature, constitution and structure of the underlying objects of enquiry. Such realism is heavily concerned with ontology or metaphysics, that is, the nature of *being* and *existence*. Bhaskar (1978) develops his realist philosophy of science founded on the question "under what conditions is science possible?". This philosophical questioning concludes a, so-called, depth realism that proposes that "the world is composed not only of events and our experience or impression of them, but also of (irreducible) structures and mechanisms, powers and tendencies, etc. that, although not directly observable, nevertheless underlie actual events that we experience and govern or produce them" (Lawson, 1997, p. 8). This proposal for a depth realism is similarly extended to the social arena in Bhaskar's (1979) text entitled "The Possibility of Naturalism" where he addresses the question "under what conditions is social science possible?".

Information system projects are essentially human enterprises, and cannot be understood solely in terms of technical relations among components and from a purely 'scientific' approach. Mingers and Stowell (1997) specifically note that IS research must concern itself with the general evolution of human communication. Information systems project management, for example, is a relatively recent research domain within the field of IS. As a result, the theory within this domain is rather limited in its scope (Callahan and Moretton, 2001). Thus, in order to extend the scope of theory within the domain of IS project management (e.g., understanding the antecedents and consequences of errors in software development, managing complex systems in increasingly virtual environments and being able to better anticipate and satisfy stakeholder needs, and understand why projects fail), we proffer that IS researchers should adopt approaches that ameliorate their understanding of both the *ontological* and *epistemological* aspects of IS. A useful means of encouraging this focus is to adopt a philosophical position (such as critical realism) that incorporates both ontological and epistemological issues.

CRITICAL REALIST AND POSTMODERNIST CHALLENGES TO EMPIRICISM

Postmodern thinking eschews reductionism and the fixing of meaning in favour of a style, which privileges action, movement, process and emergence (Chia, 1995). In fact, post-modernists consider that there is no one theory or no one right theory and argue that all perspectives are equally acceptable. A central consequence of such post-modernist argument is varying degrees of relativism as is demonstrated by Kuhn (1970) when he suggests that "though the world does not change with a change of paradigm, the scientist afterward works in a different world" (p. 121). For the critical realist, Kuhn's quotation is an example of what is termed the *epistemic fallacy*. The critical realist sees Kuhn's statement as incorrect in that it confuses two different worlds – an intransitive world that is natural and (relatively) unchanging and a transitive world that is social and historical. The critical realist would suggest the re-phrasing of Kuhn's statement in an unremarkable and non-paradoxical manner: "Though the (natural (or object)) world does not change with a change of paradigm, the scientist afterward works in a different (social (or cognitive)) world" (Bhaskar 1991, p. 10). Such a re-phrasing acknowledges the presence of a deep or real element to the world along with an empirical, perception based world - it avoids the so-called epistemic fallacy through its recognition of the difference between statements about the knowledge domain and statements about the ontological domain. Bhaskar (1991) argues that this is a fundamental error of much of

postmodernist work which assumes that statements about being (ontological statements) can be analyzed in terms of statements about knowledge of that being (epistemological statements).

Realism is often taken as implying a privileged access to truth in that it is presented as proposing an objective reality that can be found if we dig deep enough. However given that perhaps the defining feature of realism is its acknowledgement of a world independent of our knowledge of it, this presumption must be inaccurate, since, as Sayer (2000) has argued, the division of the world into an intransitive ontological domain and a transitive knowledge focused domain must accept the fallibility of knowledge as an enduring feature of the world as we know it. Despite representations to the contrary (for example Wilson, 1999) the contemporary realist acknowledges that the world can only be known under particular descriptions and within available discourses but this, however, is not taken to imply that we cannot judge between different descriptions or explanations. Critical realism recognizes that knowledge gained through realist examination will typically be provisional, fallibist, incomplete and extendable.

The post-modernist's argument presents realism as believing an objective reality can somehow be understood and accounted for, which thereby enables us to control it (Patel, 2001). For the realist, postmodernism is seen as epistemology suggesting that the world is constituted by our shared language and that we can only 'know' the world through the particular forms of discourse that our language(s) can create. Clegg (1990) identified seven organisational dimensions that distinguish modernity and post-modernity (Table 1). Clegg's (1990) development of these dimensions derives from recognition that by the 1980s, organizations were responding to the decline of Fordism and moving toward internationalization, de-industrialization and changing centre-periphery relations. Clegg (1990) also suggested that the contemporary Japanese organization has become a 'beacon' of post-modernity, in contrast to the typification of highly differentiated bureaucratic organizations (characterized on the left hand side of Table 1).

Similarly, Alvesson and Deetz (1996) identified seven themes within postmodernism but placed emphasis on epistemology. These themes were, the centrality of discourse; fragmented identities; the critique of the philosophy of presence; the loss of foundations and master narratives; the knowledge/power connection; hyper-reality; and research as resistance and indeterminacy. Alvesson and Deetz (1996) stated "the point of social science is not to get it right but to challenge guiding assumptions, fixed meanings and relations, and to re-open the formative capacity of human beings in relation to others and the world" (p.211). In line with our argument such post-modernist discussion tends to concentrate more on epistemological issues (how we come to know) and neglects ontological issues related to the ultimate constituents of the world.

TABLE 1. ORGANISATIONAL DIMENSIONS OF MODERNITY/POSTMODERNITY (CLEGG, 1990)

	Organizational Dimension	Modernity	Postmodernity
1	Mission goals, strategies and main functions	Specialization	Diffusion
2	Functional alignments	Bureaucracy Hierarchy	Democracy Market
3	Co-ordination and control	Dis-empowerment Laissez-faire	Empowerment Industry policy
4	Accountability and role relationships	Extra-organizational Inflexible	Intra-organizational skill formation, Flexible
5	Planning and communication	Short-term techniques	Long-term techniques
6	Relation and performance reward	Individualized	Collective
7	Leadership	Mistrust	Trust

Postmodern approaches have begun to enter mainstream IS research and have important consequences for the conduct, presentation and assessment of theory (Ciborra, 1997; Patel, 2001). Hassard (1993) drew on the work of Lyotard to suggest that the method of epistemological post-modernity is serious play rather than empiricism. Hassard (1993) stated that "in doing science, we only enter into a number of games with our colleagues. We are in fact involved in a form of 'serious play', which sees us intervene in a variety of language-games, make moves in a number of debates or discussions, and seek to oppose the moves and positions of other players while advancing our positions" (p. 10). In line with the increased notions of play and interplay, Alvesson and Deetz (1996) argue that postmodern research "aims at resistance and indeterminacy where irony and play are preferred to rationality, predictability and order" (p. 205). Kilduff and Mehra (1997: p. 458) similarly suggest that postmodern research can be provocative research, and that researchers "can mix and match various styles in order to contrast with tradition" (p. 458). They point to the importance of irony, arguing for a post-modernity that is similarly informed by, and yet ambivalent toward classic statements and techniques of the field in question. For the critical realist such a pluralist approach is acceptable providing that the researcher appreciates they are operating within the transitive epistemological dimension.

In contrast to positivism, post-modernism no longer argues for the separation of the researcher and subject. Indeed post-modernity is directed against a picture theory of language in which physical properties of the world are considered fixed, while language can be adjusted to meet the needs of description (Hassard, 1993). Rather than attempting "to capture the impression of a pregiveness in the object of analysis" (Chia, 1995: p. 589), post-modernity attempts resuscitation (Clegg and Hardy, 1996). Furthermore, if the living subject is no longer an object, its representation, capture and transmission can become more difficult (Stablein, 1996). Guba and Lincoln (1994) distinguish positivist, post-positivist and post-modernist inquiry, grouping post-modernity and post-structuralism within the domain of critical theory. The nature of reality, or ontology, assumed by positivism is seen to be what is now considered to be *naïve realism*, where reality is assumed to exist driven by immutable natural laws and mechanisms (Alvesson and Deetz, 1996).

In post-modernity Kilduff and Mehra (1997) stated that "style matters", as researchers eschew passive objectivity for an active authorial voice, and carefully craft an aesthetically pleasing narrative. According to Alvesson and Deetz (1996) however, style is not all that matters as indicated by postmodernism's strong critique of empiricism and its emphasis on data as constructions - open up to a multitude of interpretations. They suggest that this does not mean that reflective empirical work is not worth doing. Similarly, Chia (1995) stated that postmodernism thinking is not anti-empirical, but rather, it is ultra-empirical; dealing as it does with the concrete logic of order and organization of phenomena. Such an approach therefore needs by default to embrace many, if not all of the principal research paradigms referred to earlier.

POINTS OF CONNECTION?

Kilduff and Mehra (1997) argue that there are two styles of postmodernism: the skeptical and the affirmative. "From the skeptical perspective all interpretations of phenomena are equally valid, and the world is so complicated that concepts such as prediction and causality are irrelevant. Everything is related to everything else so the search for causes or origins must be discontinued." (p. 455). In contrast the affirmative postmodernist "retains the possibility of making discriminations among competing interpretations." The affirmative postmodernist "would underscore novelty and reflexivity as it looks at the richness of difference and concentrates on the unusual, the singular and the original" (Rosenau (1992) cited in Kilduff and Mehra (1997), p. 456).

Stones (1996) from a realist perspective, argues against the defeatism of the skeptical post-modernist. He celebrates the post-modernist emphasis on plurality and diversity and recognizes the enormous difficulty in providing accurate accounts of the social world. He feels that "yes, the world is that complex; yes, it is often very hard to get at; yes, sociologists and other social scientists often claim an authority they have no right to; and, no, the defeatist postmodernists are not right to imply that the only alternative to a complete and total knowledge of a very complex world is a retreat into fiction". The critical realist is optimistic concerning knowledge claims in that they suggest that

sensible claims can be made, even though historically dependent and socially situated. Knowledge is cumulative and can progressively add to a body of knowledge.

Contemporary realism can be seen to be "ontologically bold and epistemologically cautious" in that the realist appreciation of the richness and complexity of social life has not been matched by an increased sophistication in the necessary means to acquire knowledge of that complexity. Realist methodology has much to learn from post-modernist thought in that there needs to be a continual commitment to caution, skepticism and reflexivity. Avgerou (2001) similarly argues for the crucial importance of IS practitioners considering the social context in which IS development takes place and also the broader organizational processes under which it operates. He suggests that such contextualized examination has been limited in the past and most of the knowledge developed and taught within the IS field promotes normative professional practice which has been founded upon a limited understanding of what exactly occurs in the business domain. As a result, there is a need to develop appropriate analytical knowledge to equip IS professionals with capabilities to pursue contextualist analyses.

In addressing this concern Avgerou (2001) has suggested three principles to be followed in order to address the contextual processes involved in IS implementation. First, technological innovation should be considered in relation to socio-organizational change. Second, analysis should consider the national and international context together with the local organizational and third it should also consider both the technical/rational decisions and actions involved in the innovation process along with the important cultural, social and cognitive forces of such a process. Such requirements require recognition of what Mingers (2001) has termed the social, personal and material world. Post-modernist and realist methodologies that recognize each of these different dimensions of reality are necessary for IS research. Thus we suggest that post-modernist approaches should not be dismissed out-of-hand by realist researchers and similarly nor should contemporary realist approaches be ignored by the post-modernist. Each have valuable insights to offer on the complex social reality in which IS research must operate.

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