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# ON METHODS, METHODOLOGIES AND HOW THEY MATTER

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## Abstract

*The field of Information Systems, it is argued, suffers from identity crisis and faces difficulties in achieving a disciplinary status (Galliers, 2006; Hassan, 2011). The IS research continues to be seen as lacking relevance and impact that negatively affects IS prospects for becoming a discipline. Key charges include the narrow research focus and a rigid application of research methods that constrain investigative possibilities, impede the relevance of IS research and also stifle creativity and the production of relevant knowledge. Given a historical privileging of the positivist research approach and associated methods (survey and experiments in particular) IS research has been slow in adopting other approaches and expanding research methods. While this is gradually happening and IS researchers are seen venturing into non-positivist territories, adopting a broader range of methods (such as ethnographies or action research), the emphasis on research methods and their 'rigorous' application remains. After critiquing the narrow focus on methods and drawing attention to limitations of all methods, the paper proposes a broader focus on research methodology that is concerned with the ontological, epistemological, and normative assumptions behind research methods and their inherent limitations. The paper argues for a (re)turn to methodology conceived as a theory of inquiry that is contextually sensitive and evolving within a research project. The return to methodology would involve a continuous interplay between assumptions about the phenomena studied and the practical questions of designing research strategies and selecting and adopting research methods underpinned by the assumptions. The broadening of focus and the questioning of both metatheoretical assumptions and methods might open up researchers' perspectives and stimulate the discovery of new and innovative ways of conducting research and thereby facilitate progress in the IS field.*

*Key Words: IS research methods, Research paradigms, Research methodology, IS field, Epistemological development*

# 1 Introduction

The Information Systems (IS) research community has shown a growing interest in considering its theoretical foundations and its epistemic developments (Orlikowski and Baroudi, 1991; Mingers, 2003b; Chen and Hirschheim, 2004). In particular, questions regarding the IS status as an academic discipline and its identity crisis have spawned methodological debates and proposals for diversity and methodological pluralism (see e.g. Galliers, 1991, 2006; Klein et al., 1991; Hirschheim and Klein, 1992; Mingers, 2003a; Niehaves, 2005; Walsham, 1995a,b). This paper joins these debates, motivated by the needs of the IS field for continual self-reflection and critical examination of the methodology question.

The field of Information Systems, it is argued, suffers from identity crisis and faces difficulties in achieving a disciplinary status (Galliers, 2006; Hirschheim and Klein, 2003; Hassan, 2011). The IS research continues to be seen as lacking relevance and impact that negatively affects IS prospects for becoming a discipline. Key charges include the narrow research focus and rigid applications of research methods that constrain investigative possibilities and impede the relevance of IS research (Klein and Lyytinen, 1985; Kaplan et al., 2004) and also stifle creativity and the production of relevant knowledge (Klein and Hirschheim, 2008; Cecez-Kecmanovic, 2000, 2010). These are key reasons that prevent the IS field from establishing its own identity and becoming a practically and academically relevant, viable and vibrant discipline (Klein and Hirschheim, 2008; Hassan, 2011).

There are at least four reasons why we should critically examine and reflect on our research methods and processes of knowledge construction. First, IS research has been preoccupied with issues of correct and rigorous methods, often implying the supremacy of some methods over others: e.g. survey and experiment methods are favoured due to claims to objectivity, rigour, generality and validity of findings and knowledge claims (Mingers, 2003a,b). The justification for the selection of such ‘proper’ methods in IS journals is typically considered not necessary or if provided tends to be brief and cursory. Second, the increasing focus on rigour and correct application of research methods and techniques, that should normally be seen as a positive sign of a discipline’s maturity, is turning into ‘methodological foundationalism’ – implying that a method’s correctness can be certified a priori and consequently that validity of research outcomes are justified by the rigorous adoption of method(s) (Bernstein, 1983; Giere, 1985; Ulrich, 2006).

Third, the IS field privileges a positivist, scientific approach and thus considers some research methods unquestionably appropriate and valuable.<sup>1</sup> Survey for instance remains the most popular research method in IS research (Chen and Hirschheim, 2004). Given the increasing complexity and diversity of IS research topics and problems in contemporary organizations and society one is compelled to question the strengths of researchers’ argument for survey’s almost universal suitability. It is not unreasonable to ask whether IS researchers tend to choose research problems to suit methods deemed scientific and rigorous.<sup>2</sup> Or to what extent selection of research methods and judgement about their suitability to achieve a particular research objective depend on the researchers’ predilections arising from their training, dominant research culture and fashion that control research funding, publications, promotions and tenure (Guba and Lincoln, 2005; Mende, 2005). While these questions

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<sup>1</sup> For instance, Orlikowski & Baroudi (1991) study of 155 empirical articles in three US based journals and ICIS found that the positivist research paradigm is overwhelmingly dominant (96.8%). Not surprisingly survey research (49.1%) and laboratory experiments (27.1%) were the most frequently adopted methods. A study covering a decade later by Chen and Hirschheim (2004), found that 81% of empirical research published in 8 selected top ranked outlets (3 US journals, ICIS and 4 European journals from 1991-2001) were positivist, with survey being the most widely used method (41%). Despite different coverage of outlets the trend towards decreasing dominance of the positivist paradigm is evident.

<sup>2</sup> In sociology, for instance, Easthope (1974) voiced similar concerns that “the tool – the scientific method – began to determine sociological aims” (p. 139) (cited from Mende, 2005).

are interesting they are not explored further in this paper. The point I'd like to make here is that we should be concerned with IS research that shows signs of being method driven.

Fourth, the privileging of certain methods and a narrow focus on their correct application seems to have absolved IS researchers of an obligation to critically examine research methods, their assumptions and limitations. In the tradition of the positivist IS research it is generally not requested that research papers consider and discuss assumptions behind a particular method and justify its appropriateness in a given context and for a particular purpose.

These reasons suggest that as researchers in the IS field we should indeed be concerned with the state of the art in our 'methods' quarter. Few IS researchers would object that we should examine research problems of genuine consequences and that our research should be driven by research problems and questions.

The aim of this paper is to address these concerns and propose a (re)turn to methodology that would on the one hand allow a critical reflection on the above method(ological) issues and on the other stimulate methodological improvements in IS research. Given the persisting issues with methods in IS research, from the point of view of the IS field I am suggesting a turn to methodology. However, discussing this topic within the confines of our still quite young field would be unproductive as key knowledge sources for this discussion come from the philosophy of social sciences and advanced methodological debates in other sciences (Kuhn, 1970; Burrell and Morgan, 1979; Popper, 1979; Giere, 1985; Ritzer, 1992; Guba and Lincoln, 1994, 2005; Crotty, 1998; Robinson, 2000; Barad, 2007). Hence I frame my proposal as a *(re)turn to methodology*.

This proposal is based on an important distinction between the two central terms: 'methodology' and 'method'. Methods denote specific processes and procedures for conducting empirical research and collecting and processing data (such as survey or ethnography). Methodology, understood here in a philosophical sense, involves metatheoretical concerns (philosophical assumptions), and an overall strategy of conducting research such as research design, selection and adoption of research methods and techniques and arguments for knowledge construction and justification (Cecez-Kecmanovic, 2001; Morrow and Brown, 1994). I argue that the IS research tradition suffers from an overemphasis on methods while largely disregarding broader methodological issues.

By returning to the questions of methodology in IS research, I argue, we would become more critical towards the use and adoption of research methods in practice. Furthermore, the return to methodology would focus our attention on metatheory, especially ontology, epistemology, logic and ethics (Morrow and Brown, 1994; Ritzer, 1992; Mingers and Walsham, 2008). We would be much more concerned with the ontological, epistemological, axiological and normative assumptions behind research methods and their inherent limitations and would not be satisfied with a few paragraphs on 'limitations of research' that pay lip service to these issues.

I present my argument for the (re)turn to methodology in three steps. First (in the next section) I focus on metatheoretical questions and briefly discuss ontological, epistemological, logical and ethical assumptions as a founding layer of a methodological landscape. Second, I discuss problems with the narrow focus on research methods in IS research and argue for a critical attitude towards method selection in the light of implicit limitations of all methods (in section three). I then propose a shift from the narrow focus on research methods to broader considerations of research methodology (reflecting the understanding of methodological landscape) and discuss why it matters in section three. The paper concludes with recommendations for and implications of the return to methodology.

## **2 Metatheoretical questions**

Metatheory explores assumptions that underlay different theories or explanations and thus has substantive theories as its subject matter. A metatheory is not aiming to explain any specific natural, social or technological phenomena as such but is concerned with attempts to make sense of different theories that claim to explain these phenomena. In other words it is concerned with theories and

theorizing in a particular disciplinary domain. Metatheorizing can be seen as a specific reflexive form of rational inquiry or argumentation that examines assumptions behind extant theories in order to achieve a more profound understanding of these theories or different theoretical perspectives (see e.g. Morrow and Brown, 1994). Metatheorizing can extend to include a study of a discipline's various research methods and a meta-study of published empirical works on a given issue (Ritzer, 1992).

A metatheoretical discussion in this paper aims to draw attention to philosophical assumptions underlying various approaches or paradigms in IS research and the way they (assumptions) remain implied – while often not recognized – in the adoption and application of research methods and techniques. Such a metatheoretical examination is necessary to understand the relations between an approach or paradigm and (affiliated) research methods/techniques and researchers' choices in establishing these relations. This understanding will help us appreciate and reflect on often implicit limitations and implications of these choices. In other words, a metatheoretical examination is needed to better understand the selection of and argumentation for what I term research methodology.

To explore the proposed metatheoretical questions I suggest a somewhat simplified presentation of a research methodology landscape as depicted in Figure 1. The research methodology landscape distinguishes among three layers. The top layer consists of **metatheoretical assumptions** that determine different research approaches or paradigms (positivist, interpretivist, critical and others). **Research methods** (survey, experiments, field study and many more) listed in the middle layer are more or less affiliated with research approaches. While these relationships are non-deterministic some affinities between an approach and research methods do exist (Crotty, 1998) due to shared assumptions (to be discussed later). **Techniques and tools** of data collection and analysis (questionnaire, interview, coding techniques and others) are presented at the bottom layer suggesting that a method can be applied by choosing one or more of available techniques and tools. For instance researchers adopting an interpretivist approach and a case study may use questionnaire, focus groups, interviews and participant observation as data collection techniques. (Note that Grounded theory can be applied as both a method and a technique).

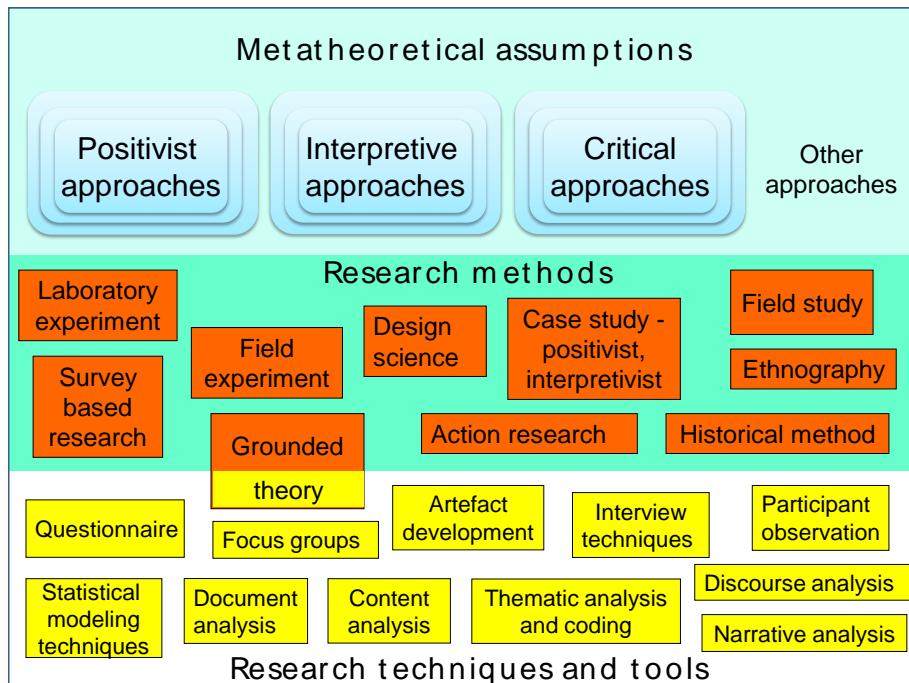


Figure 1. The IS research methodological landscape (Cecez-Kecmanovic, 2010)

Research approaches in the IS field and other social sciences differ in a way they see the world and make sense of it. They are based on four domains of metatheoretical assumptions in relation to:

- the nature and existence of reality, that is, ontology;
- the nature of knowledge and the ways of knowing, that is, epistemology;
- the logic of scientific explanation; and
- ethics, claims about values and normative reasoning concerned with what ought to be.

These four sets of assumptions are of central importance for defining research approaches and understanding research methodologies.

The term research approach or paradigm (used interchangeably) denotes a broad framework or common perspective of a group of theorists, which guides research and determines acceptable modes of inquiry, forms of theorizing and knowledge claims (Burrell and Morgan, 1979, Neuman, 2006). The paradigm “is the broadest unit of consensus within a science and serves to differentiate one scientific community (or subcommunity) from another” (Ritzer, 1975, p. 7). After Burrell and Morgan’s (1979) influential typology of research paradigms in social sciences (that differentiated between: functionalism, interpretivism, radical humanism and radical structuralism) there were several interesting and worthy attempts at paradigm classification (e.g. Deetz, 1994; Guba and Lincoln, 1994; 2005; Neuman, 2006) (see for instance a useful discussion in Goles and Hirschheim, 2000).

Given the purpose of this paper I limit the discussion to three approaches – positivist, interpretivist, and critical, identified in Figure 1 – which have been widely accepted, at least as distinct approaches, in the IS literature (Orlikowski and Baroudi, 1991; Klein and Myers, 1999; Chen and Hirschheim, 2004; Myers and Klein 2011). This comes with a caution that these approaches are not monolithic and that each covers a number of more or less different strands (hence an intentional plural form – approaches). There are also other emerging approaches that require attention in IS including post-modernist and feminist (Neuman, 2006) and sociomaterial approaches (Barad, 2007; Orlikowski 2009). Some approaches may share certain assumptions and concerns (e.g. some feminist research espouses similar ethical and normative concerns as critical research). Therefore, the layer of metatheoretical assumptions in Figure 1 is much more complicated and messy. We can see research approaches as ideal types or simplified models of complex and messy research practices. The boundaries among them are not always clear cut and assumptions behind individual approaches are not necessarily mutually exclusive. For instance, critical social research is emerging in different (sometimes disputed) directions, including post-structuralist, post-modernist, critical feminist, and critical realist strands, thus overlapping with other approaches.

Positivist approaches largely share the assumptions that reality exists ‘out there’, irrespective of an observer, waiting to be discovered. Social reality is assumed to have some inherent regularity which can be discovered through observations or actors’ responses to questions. Similar to natural sciences social sciences aim to discover the laws that govern such regularities. Regularities of social reality are also assumed largely stable, so small discoveries are additive and produce cumulative knowledge of the whole. Positivist approaches use a scientific method “for combining deductive logic with precise empirical observations of individual behaviour in order to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity” (Neuman, 2006, p. 82). Explanations in positivist IS research are *nomothetic*, that is, based on the *covering law model* or hypothetico-deductive model which has a logical structure that simulates causal explanation in natural sciences. Explanations are considered true if they do not have internal logical contradictions and are consistent with observable facts. As positivist research aims to achieve objectivity and generalizability, its quality is assessed by internal and external validity and reliability.

Positivist approaches follow an ideal of value-free science. Scientific research is seen as a disinterested enterprise, free from any moral-political or personal values. This implies that scientific research deals with and accepts only ‘objective’ empirical observations or facts that are value-free, independent of the observers’ biases and prejudices. It is assumed that objective empirical facts can be gathered by appropriate measurement instruments and data collection techniques. Any differences in empirical facts about the same phenomenon are attributed to either deficiencies of instruments/techniques themselves or their improper application.

While the scientific inquiries are value-free, scientific knowledge is considered relevant and valuable in real life situations when it helps people explain phenomena, such as factors affecting an ERP success, improve control of these factors and make accurate predictions of the future ERP success.

Interestingly the most vigorous and fundamental critique of the classic postulates of positivism as characterized above have come from within the natural sciences, especially physics, and the philosophy of science in the last century (see e.g. Barad, 2007). Without going into these debates it suffices to mention that as a result positivism has changed with several post-positivist strands emerging (Crotty, 1998; Guba and Lincoln, 2005). Popper (1934), among others, objects to the alleged certitude of scientific truth and proposes that knowledge claims can never be fully justified. They can only be refuted with certainty. That something is found to be true can only be accepted provisionally until it is proven to be false. Popperian researchers see scientific research as a process of continuous conjectures and falsifications.

Objectivist ontological assumptions, realism and value-neutrality of positivist social sciences have not only been questioned as such. A more consequential, and I would say a more constructive, critique has been levelled at a privileged position ascribed to their metatheoretical position and the application of scientific criteria of positivism (deemed universal) to all knowledge (Kuhn, 1970). Such criticisms have paved the way for the development of non-positivist approaches. The first edition of *The SAGE Handbook of Qualitative Research* by Denzin and Lincoln (1994) is a testimony to a turn of “the social sciences toward more interpretive, postmodern and criticalist practices and theorizing. ... This nonpositivist orientation has created a context (surround) in which virtually no study can go unchallenged by proponents of contending paradigms. ... Inquiry methodology can no longer be treated as a set of universally applicable rules or abstractions” (Guba and Lincoln, 2005, p. 191).

Seeing the social world as essentially different from the natural world, interpretive approaches assume that the social world is not given and that it arises from human actions and becomes meaningful ‘by virtue of the very act that brings [it] into existence’ (Crotty, 1998, p. 56). Social reality exists as human beings experience it and give meaning to it (a subjectivist ontology). Interpretivist researchers aim to achieve an interpretive understanding (*Verstehen*) of social reality and the ways human beings as members of social groups engage in, interpret and mutually construct their particular realities. They therefore pay attention to and engage with actors in their everyday lives and work contexts, their ‘lifeworlds’ and meaning systems. While included in research accounts, values and norms are not judged from any ethical or normative point of view. How interpretations and explanations are developed depends on a particular strand of interpretivism, that ranges from language based approaches, to phenomenology and ethnomethodology, to hermeneutics and social constructivism. The quality criteria used to assess interpretive studies include authenticity, plausibility and criticality (Golden-Biddle and Locke, 1993).

Critical approaches to social sciences reject both positivists’ and interpretivists’ assumptions and attempt to overcome the objectivist/subjectivist and realist/relativist dichotomies. Critical research not only aims to explain and understand social and technical phenomena as positivist and interpretivist research does (although in different ways). Critical research also, and more importantly, aims to challenge and change established social institutions and conditions (typically enabled and supported by IS) and reveal and transform oppressive forms of control, which prevent the realization of humane, just and free organizations and society (Cecez-Kecmanovic, Klein and Brooke, 2008). Knowledge is produced with transformative and emancipatory intent by developing a situated understanding of positions and experiences of people and situations studied and by linking such understandings with broader conditions, power relations and social structures (Cecez-Kecmanovic, 2010). Unlike the positivist and interpretivist approaches, the critical research approach is driven by explicit ethical and value positions. In addition to quality criteria such as authenticity, plausibility and criticality, critical research is valued as a catalyst for change.

This very brief and necessarily limited account of the three research approaches or paradigms should remind us of the metatheoretical foundations of all research and help us explore the methodological

question. Research methodology, as argued above is much more than a selection or combination of research methods. It is concerned with an overall strategy of conceptualising and conducting an inquiry, engaging with the phenomena studied, and constructing and justifying knowledge claims. Every research endeavour requires the development of a methodology and its justification for exploring a particular research problem and achieving specific research aims. The development of a methodology can be seen as an argumentative process that creates a pathway through the landscape in Figure 1: from the assumptions and a paradigm to selection and adoption of methods and techniques. The creation of a pathway therefore involves making important decisions and providing justification at every step. It is the quality of the argumentation for a pathway that determines the soundness of the research process and makes the research outcomes and knowledge claims plausible and convincing.

For example a pathway from objectivism and a positivist paradigm to a survey method and statistical analysis, has often been chosen by IS researchers. While there is recognition that methods are based on metatheoretical assumptions positivist researchers rarely engage in debating or questioning their assumptions and often consider methods as given. However, the adoption of other pathways, like those informed by subjectivism and hermeneutic philosophy, that choose a field study and participant observation and interviews, typically requires lengthy argumentation and justification, in order to defend not only the pathway but also the departure from the well worn path.

### **3 Problems with the narrow focus on methods**

Method(ology) sections in IS empirical papers have been growing in importance with reviewers typically concerned with the rigorous use of methods. Research outcomes and knowledge claims are often seen as justified if the method and techniques (procedures) are correctly applied and executed. Papers that report a survey or experiment based research rarely discuss ontological and epistemological assumptions, let alone substantive ethical or normative aspects of IS practice and research (Mingers and Walsham, 2008). It seems that it is not just a matter of a writing style or journal tradition but a much deeper issue. It appears, as Orlikowski and Baroudi (1991) indicate, that IS researchers often consider their (positivist) metatheoretical assumptions as given, do not question them or reflectively engage (Falconer and Mackay, 1999). This is typical of a 'normal science' that complies with a dominant paradigm, following a consensus regarding the beliefs about the real world and an overarching conceptual framework and appropriate methods to study it (Kuhn, 1970). Klein and Lyytinen (1985) call it 'scientific orthodoxy'. The implication, Kuhn warns, is that normal science "often suppresses fundamental novelties because they are necessarily subversive of its basic commitments" (1970, p. 5). It unnecessarily restricts IS researchers in their selections of both research problems and the methods deemed appropriate.

The dominance and tacit preference of positivist quantitative methods has led to narrow views of rigour, robustness and justification of research results. The prevailing assumption is that if a respectable method is correctly and rigorously applied (including procedures, protocols, instruments and data processing), the results are objective, truthful and justified. Their meanings, relevance and implications for those likely to be affected by them are excluded from considerations. The meaning of research results and proposals is equated with their method of verification (Bechtel, 1988). Such views have been imposed onto non-positivist methods in the form of requests to meticulously document procedures, protocols and instruments for data collection, coding and verification. While many interpretivist researchers see it necessary to argue and justify their methodological choices and present their empirical journey (including methods and techniques) as part of their story, this is often considered insufficient from the positivist viewpoint that is seeking the proof for knowledge claims in the logic of verification.

Other criticisms have been levelled at the methods themselves. Quantitative, variable based methods associated with the positivist approach enable a particular view of IS in organizations and society that is abstract and distant from everyday human experiences (Klein and Lyytinen, 1985; Crotty, 1998).



Variables and models hypothesizing relationships between variables aim to represent the real world by abstracting and generalizing across time and sites. Knowledge of IS phenomena thus gained is limited to regularities and causal relationships distilled and removed from the experiential level of the phenomena studied. Furthermore, causal relationships are typically in the form of a correlational type of causation, thus limiting the nature of explanation.

Non-positivist, qualitative IS researchers have argued for different metatheoretical assumptions based on which a broader set of methods could be adopted and different quality criteria applied (Walsham, 1995a,b; Klein and Myers, 1999; Mingers, 2004; Cecez-Kecmanovic, 2005; Mingers and Walsham, 2008; Myers and Klein, 2011). To understand continually changing configurations of technological, human and social phenomena, IS studies, it is argued, need to allow researchers to experience them first hand and in the concrete contexts of organizational and social practices. Non-positivist researchers therefore prefer case and field studies, ethnographies, action research, historical methods, etc. (see Figure 1).

Qualitative methods associated with interpretivist or critical research enable the emersion of researchers in real life situations and the observation of IS phenomena in situ. Field studies, ethnographies and action research in particular imply researchers' engagement and interaction with actors in their work environments and practices. Knowledge thus created is claimed to be authentic as it draws from lived experiences of both researchers and subjects studied. However, these methods have limitations as well. Most of IS phenomena are not amenable to observation so they need to be examined through reflective accounts of people involved (e.g. via an interview). This means that researchers are acquiring people's reconstructions of the phenomena studied. More constructivist minded researchers see the process as a co-construction of the phenomena studied. Furthermore, some experiences are not accessible and can be studied only indirectly (this might be the case when situations are highly sensitive and confidential, or those involving self-deception). The limitations of qualitative non-positivist methods are typically much more serious and consequential than admitted in empirical papers.

Popper (1959), Feyerabend (1993), Kuhn (1970) and Gadamer (1989), among many others, have emphasised the limitations of methods and the dangers of narrow focus on and rigid application of methods. The narrow focus on research methods and the technicalities of their application hide and prevent us from appreciating that all methods are based on certain assumptions that limit their applicability and privilege some views of reality over others. Each method enables a certain way of seeing and understanding a phenomenon, while disabling others. As Barad (2007) convincingly demonstrated, methods are apparatuses that are sensitive to a particular nature of phenomena and do not see or measure others. Knowledge acquired via the use of any method can be seen as a particular exposition of phenomena determined by a set of assumptions about the reality of phenomena observed. Anything else that falls beyond a method lens or outside the boundary delimiting a particular nature of phenomena (undergirded by metatheoretical assumptions) is either ignored or not seen.

The narrow focus on and the rigid application of research methods as well as uncritical attitude towards inherent limitation of all methods have constrained investigative possibilities in IS research and impeded the advancement of understanding fast changing IS phenomena.

## **4 A (re)turn to methodology and why it matters**

One way to address the above issues is to envisage and cultivate a return to methodology. I propose that instead of remaining narrowly focused on methods and their technical execution we should be paying due and much needed attention to research methodology. By such a broadening of focus and the questioning of both our metatheoretical assumptions and methods we might open ourselves for new and innovative ways of conducting research and thereby facilitate progress in the IS field. Interestingly by being less obsessed with methods and more genuinely concerned with problems of

relevance and the broader methodological issues, we might improve our methods and advance knowledge creation in IS research.

The return to methodology might begin with a renewed understanding of methodology as a *theory of inquiry* that is contextually sensitive and evolving within a research project. A precondition for such a view of methodology is the opening of underlying assumptions – ontological, epistemological, logical and axiological – to critical examination and consideration of their limitations and implications. Bringing the metatheoretical assumptions to the fore and by making them visible (or naked if you prefer) is the first step in demystifying the philosophical moorings of methods and engendering a critical attitude. We may find out to our own surprise that refined or different assumptions are more appropriate or more illuminating for the problem at hand. The return to methodology would then involve a continuous interplay between assumptions about the phenomena studied (the upper layers in Figure 1) and the practical questions of designing and changing research strategies, selecting and adopting research methods and techniques (the middle and lower layer in Figure 1), underpinned by the assumptions. It needs to be stressed that the evolving nature of methodology would most likely make the journey of finding a pathway in the methodology landscape less certain. Going down and up the landscape in Figure 1 and questioning and arguing for the linkages among the layers would be ‘natural’ rather than unusual. Expanding the development of methodology (as a theory of enquiry) horizontally, contrasting different metatheoretical positions and the ways they enable and restrict our problem exploration may lead us to develop new, more innovative and promising modes of inquiry.

As a consequence researchers would become more reflectively critical of methods and techniques. In the proposed, broader view of methodology the concerns for methods/techniques are not central to the research project. Instead researchers’ focus on the creative process of research strategy and theory formation in the targeted domain becomes central assuming that methods and techniques as important practical elements of the strategy. Such de-emphasis on methods will relieve researchers of the unproductive fixation on methods and their orthodox (and often mechanical) use. Selection, adaptation and innovative use of methods will be part of a broader process of a critical examination of assumptions, refinement of research design and theory building. A flexible and unorthodox use of methods, as Feyerabend (1993) observed, facilitates progress but requires reflexivity and a critical attitude towards methods and methodologies.

The changing focus from methods to methodology has implications for expectations of methodological certitude (characteristic of methodological foundationalism, Ulrich, 2006). The revelations of assumptions behind methods and their limitations would help researchers (and reviewers) see the empirical findings more critically and appreciate fragility and the tentative nature of the knowledge claims. The focus on methods as the key (or the only) justificatory mechanisms for knowledge claims will be replaced by rigorous examination of research methodology, including broader theoretical assumptions and overall research design, the selection, adoption and use of methods, and interpretation of results. While I propose that such a broader methodological justification and argumentation process should become central in our research reporting I am also aware that it may not bring to a close attempts at achieving methodological certitude.

Another important implication is that the notion of sharply divided paradigms is losing currency as researchers are questioning their strict, almost axiomatic definitions and considering them in a more open and counterintuitive way. The often exploited claim of paradigm incommensurability seems not to have been properly understood (Feyerabend, 1993). The fact that assumptions defining different paradigms are exposed, debated, juxtaposed and questioned in a broader dialogue within a historical context indicates that researchers are finding some common ground for mutual understanding and comparisons. Moreover, the creative tension between different paradigms or approaches may stimulate the debate, generate new ideas and contribute to developments of new ways for exploring particular research problems. Guba and Lincoln (2005) even suggest that the boundaries among paradigms are softening and thus opening a possibility for ‘interbreeding’ and mixing of assumptions. Such openness and reflexivity are creating a fertile ground for unleashing creative potential of researchers seeking new ways of seeing and researching the world of IS.

## 5 Conclusions and implications

In this paper I attempt to deconstruct the layers of methodological conceptualizations in IS research and problematize some traditional and taken for granted views of research methods and hidden canons of normal science. Starting from metatheoretical assumptions – ontological, epistemological, logical and ethical – at a founding layer of a methodological landscape, I provide a critique of the narrow focus on research methods and techniques (the lower layers) and its implications for IS research across different approaches. I argue that the IS research suffers from an overemphasis on methods while largely disregarding their inherent limitations and broader methodological issues. To address these concerns I propose a (re)turn to methodology that comprises examination of metatheoretical assumptions and the focus on an overall strategy of conducting research, including research design, selection and adoption of research methods and techniques and arguments for knowledge construction and justification.

The return to methodology requires more than open-mindedness regarding the inclusion of qualitative methods or combining quantitative and qualitative methods (that is often suggested as a cure for methodological rigidity in IS research and its narrow focus on methods). It requires a more radical change of attitude towards research as social practice that is self-reflective and critical in relation to its methodologies, its achievements and its implications. The return to methodology would require continued reflection on metatheoretical assumptions and their linkages with methods, including exploration of unorthodox and innovative research approaches and a critical attitude towards all methods and techniques. Such a radical change in attitude should also include the revision of existing methods and the development of innovative new methods.

The return to methodology reopens the intellectual, metatheoretical and practical dialogue that IS research community needs to have. Given the diversity of IS research and increasing methodological challenges, achieving consensus on the matters raised would be neither realistic nor desirable. But we have so much to gain by engaging in rational argumentation and a dialogue to build understanding and appreciation of different paradigms, methods and techniques, and their limitations. The return to methodology proposed in this paper promises to open new perspectives for conducting IS research and invite researchers' imagination to explore innovative and contextually sensitive strategies, to adopt new and unorthodox methods or innovate ways of applying well established methods.

The paper also argues that the debate about paradigm incommensurability and the claims that one paradigm and its associated methods are superior over the others are not productive. One thing is to question the dominance of the positivist approach and argue for legitimacy and usefulness of other approaches. But such questioning and argumentation do not need to deny the usefulness of positivism. Positivism on the hand has no basis to insist on the universal applicability of its assumptions and its quality criteria across paradigms and is not helping its own position by dismissing all other approaches and declaring them non-scientific. Such debates mask rather than reveal real issues in conducting IS research and do not help us (especially our junior colleagues) in advancing research methodologies and developing the IS field.

A much more fruitful debate should focus on limitations of all perspectives and all methods and the ways of dealing with them and overcoming them in practical research contexts. It should focus on methodological innovation within or across paradigms that would enable contextually sensitive and emergent designs and method adaptation. That the focus on methodology as proposed in the paper would overcome rigidity and foster informed imagination is based on the belief that:

*Progress in science is won by the application of an informed imagination to a problem of genuine consequences; not by the habitual application of some formulaic mode of inquiry to a set of quasi-problems, chosen chiefly because of their compatibility with the adopted method (Robinson, 2000, p. 41)*

Recognition and appreciation of diversity of metatheoretical foundations and methodological orientations in IS research may be seen as fostering disunity and fragmentation (Landry and Banville, 1992). Instead I would contend that this should not necessarily be the case and that methodological diversity may actually be productive and strengthen the identity of the IS field. The return to methodology as argued in this paper would indeed raise awareness about foundations of methodological differences and implications for the nature of knowledge and the research enterprise. Focus on methodology will however, at the same time, loosen the rigid conventions in making methodological choices and stimulate unorthodox and innovative research methods.

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