ICIS 2019 Munich Beyond Convergence: Rethinking Pluralism in IS Research

Completed Research Paper

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Abstract

A recurrent debate in the IS field has been whether or not IS research should be pluralistic. That is, whether many different forms of research should be allowed, or perhaps even encouraged. This paper presents a review of the literature on pluralism in IS research and analyses the different dimensions and types of pluralism that they adopt. A number of positions towards pluralism in the IS literature are identified and critically assessed. A common theme in this literature is an assumption that different approaches to IS research can be reconciled or even integrated. This is seen as necessary for the credibility of the discipline and to avoid a ruinous decline into relativism. Recent work in the history and philosophy of science, however, has questioned the view that research is, or should be, convergent in this way and offers a more expansive and potentially generative view of pluralism that will be explored in this paper. An argument for "Active Realism" is presented and its implications for IS research discussed.

Keywords: IS Research, Pluralism, Research approach, Active Realism

Introduction

A recurrent, if intermittent, debate in the IS field has been whether or not IS research should be pluralistic. That is, whether many different forms of research should be allowed, or perhaps even encouraged. The alternative being monism, which proposes that there is, or could be, one right way to do IS research. The initial monism of the field may, over time, have given way to a de facto pluralism (to the dismay of some IS scholars), but the implications of this diversity have not always been given sufficient attention. Rather, different streams of research have typically proceeded according to their own internal principles, largely without consideration of how they relate to each other. For proponents of strong relativism who would "let a thousand flowers bloom", this situation is unproblematic, indeed arguably inevitable. For most commentators on pluralism in the IS field, however, it is seen as a threat to the standing of IS research and, as a consequence, there have been a number of efforts to find ways to manage this diversity. An important strand of this response for many commentators has been to seek to demonstrate that different research approaches can be reconciled or even integrated. Recent work in the history and philosophy of science, however, has questioned the view that research is, or should be, convergent in this way and offers a more expansive and potentially generative view of pluralism that will be explored in this paper.

To set the scene for this discussion, this paper therefore first presents a review of the history of debates on pluralism in the IS field and analyses the different dimensions and types of pluralism that they adopt. A number of positions towards pluralism in the IS literature are identified and critically assessed. An argument for "Active Realism" (Chang, 2012) is then presented and its implications for IS research discussed.

A brief history of pluralism in the IS field

The following review of pluralism in the IS field is based on an analysis of all papers in the AIS "basket of eight" journals, accessed through ABI/Inform (Proquest) and EBSCO (Business Source Ultimate), that had the word pluralism anywhere in the text. Papers referring to political or cultural pluralism were excluded from the analysis, as were papers that only mentioned the term in passing or where the term was only found in the reference list, without any substantive discussion of pluralism in relation to research. At the same time, the search was expanded to include additional papers in journals and conference proceedings that were identified in the "basket of eight papers" as influential in debates on pluralism. This yielded a total of 105 papers from 22 journals, and 2 conference series over the period from 1985 to 2018. The number of papers per year varied from 0 in 1986 to 12 in 2004, but with no clear trend over time.

In an early, and influential, paper on pluralism in IS research Landry and Banville (1992) argued that the emergence of the IS field, initially as a branch of applied computer science, was associated with the dominance of a monistic view of research, focused exclusively on the application of tools and strategies from the natural sciences. This was reinforced by editorial statements in leading journals, such as *MIS Quarterly*, asserting that "progress in information systems as a valid academic and professional discipline rests heavily on building a foundation of knowledge through painstaking scientific research" (Emery, 1989: xi). Emery characterised such work as presenting "well-defined hypotheses", "unbiased and reproducible procedures for collecting evidence"," and the collection of considerable quantitative data" from experiments and surveys that are subject to statistical analysis. While this view continued to be supported by IS researchers, generally adopting a positivist epistemology, who Landry and Banville (1992) termed "mainstream navigators", it came under increasing challenge from others, that they termed "knights of change". A significant contribution to these calls for pluralism in IS research is widely considered to be an IFIP Working Group Colloquium in Manchester, UK in September 1984 (Mumford et al, 1985). This included a number of papers arguing that the human and social dimensions of IS required the adoption of new tools and strategies from the humanities and social research.

Consistent with Banville and Landry's earlier identification of the IS field as a "fragmented adhocracy" (Banville and Landry, 1989), with weak barriers to entry, and low levels of coordination and interdependence, these alternative approaches to IS research were able to establish themselves, at first in separate journals and conferences, but fairly soon in mainstream literature too. Thus, just four years after the earlier editorial, *MIS Quarterly*, while acknowledging its traditional emphasis on positivist research methods and continuing commitment to hypothesis testing and quantitative data analysis, also welcomed papers adopting interpretive and integrated approaches (DeSanctis, 1993)

Already in 1992, however, Landry and Banville had identified resistance to pluralism from researchers that they termed "unity advocates", who saw diversity as a threat to the vitality and credibility of the still nascent discipline. Farhoomand (1987: 55), for example, argued that "what has mainly hampered scientific progress in the [IS] field is the lack of substantive ideology". This argument was supported by Benbasat and Weber (1996: 397) who stated that "we run the risk therefore that diversity will become the miasma that spells the demise of our discipline" and called for diversity to be "controlled" and "managed". Farhoomand and Drury (2001) went further in calling for a moratorium on theoretical diversity and the establishment of a focused and cumulative tradition.

This view was challenged at the time by Robey (1996) who made a case for the promise of pluralism. Diversity, he proposed: expands the foundation on which knowledge claims in the field are based; attracts good people to the IS field; fosters creativity; and advances the valued principle of academic freedom. "Like it or not", he argued (Robey, 1996: 400), "IS research will continue to diversify". Support for this position came too from other researchers, particularly it was suggested, from Europe (Fitzgerald, et al, 1985), where the editors of the *European Journal of Information Systems* declared that it "has been at the forefront of pluralism" (O'Keefe and Paul, 2000: 1). Hirschheim and Klein (2003: 246), went further in suggesting that diversity was "widely accepted as one of the defining characteristics of the [IS] field."

Developments in the IS field since the mid 90s would largely seem to have borne out the prediction of Robey (1996) regarding continuing diversity, although this has not always been universally welcomed. Somers (2010), for example, writes that "the pluralism and associated debate within IS is an indulgence that, at some point, is going to become too expensive". Nevertheless, mainstream attitudes towards pluralism would appear to have softened. A 2013 editorial in *MIS Quarterly*, for example, asserted that "having this

multi-pluralism of paradigms, methods, and methodologies is necessary and healthy" (Goes, 2013: iii), while a recent editorial in *Information Systems Research* promoted the blending of theories and methods within and across research paradigms (Rai, 2018).

These discussions have predominantly been concerned with pluralism at the field level, that is with diversity within IS research as a whole, between different studies that themselves adopt a single approach. A smaller number of papers go further, however, in advocating pluralism within studies. That is promoting the use of more than one approach within the same study, potentially by a single researcher. Accordingly, the primary focus of this paper will be the field level. Consideration will also be given, however, to pluralism within studies where the literature discusses this (typically with respect to methodology, although, as will be shown, this is just one type of pluralism found in the field).

Promoting pluralism

Within the general pattern of shifting attitudes towards pluralism in the field, there have been a number of papers that have sought to make the case for within study pluralism more directly. Early examples of this type include Kaplan and Duchon (1988), Lee (1991) and Gable (1993). Drawing on their experience of gathering qualitative interview and observational data and quantitative survey data in a study of the introduction of an IS in nine clinical laboratories within a University Medical Centre, Kaplan and Duchon (1988) argued that mixing methods can identify potential analytical errors and omissions and lead to new insights and modes of analysis. More formally, Lee (1991) sought to refute the alleged incommensurability of positivist and interpretive approaches. Arguing that they are mutually supportive, he presented a framework for integrating the two. Similar to Kaplan and Duchon (1988), Gable (1993) identified the benefits of combining case studies and survey research. These were seen to include: providing detailed insights that can assist in the interpretation of quantitative findings; enabling triangulation; and as a test of contextual relevance.

In terms of citation counts, one of the most influential papers promoting pluralism in IS research is probably that by Mingers (2001), who argues that multimethod research, combining methods across paradigms whether within a single study or across different studies, will deliver richer and more reliable research results. Two main arguments are put forward for this position. The first, in line with the stratified and differentiated ontology of Critical Realism (Bhaskar, 1994), sees different paradigms as focusing on different aspects of reality, so that their combination is necessary to "deal effectively with the full richness of the real world" (Mingers, 2001: 243). The second argument proposes that the utility of different methods varies in particular phases of the research process and that combined methods can play to these different strengths. In passing, Mingers also refers to other advantages such as triangulation, creativity and expansion (Tashakkori and Teddlie, 1998). Similar support for mixed methods was also offered by Agerfalk (2013) in an editorial on pluralism in the E*uropean Journal of Information Systems*.

Having made this case, Mingers subsequently sought to analyse and account for the low level of multimethodological research in the IS field (Mingers, 2003). Even including papers that just combined different data-gathering methods (predominantly surveys, interviews and passive observation and secondary data), however, the proportion of multi-method papers was only about 20% with most of these being combinations either of qualitative methods, or of quantitative methods. Studies combining both quantitative and qualitative methods were significantly less common. This pattern was found even more strongly by Venkatesh et al (2013) who reported only about 3% of IS papers they analysed as employing mixed methods (defined as the sequential, or concurrent, combination of quantitative and qualitative methods within a single study).

Over time, therefore, there have been repeated calls for pluralism and for the adoption of mixed methods and paradigms in the IS field, endorsed and illustrated with exemplar studies in leading journals. Yet, somehow this would not appear to have been translated into any significant change in research practice. Mingers (2001, 2003) attributes the low uptake of mixed methods research to a number of philosophical, cultural, cognitive and practical barriers, including paradigm incommensurability and publication and research evaluation regimes, but argues that none of these are insurmountable and that "the attractiveness of multimethod research, in terms of the richness and increased validity of the results, will work in its favour in the long run" (Mingers, 2003: 249). Despite the emergence of a few specialist journals of mixed methods

research, however, this potential would seem yet to be realized (at least in terms of papers published in IS journals). The analysis in this paper seeks to contribute to an understanding of possible reasons for this.

The plurality of pluralism

Table 1 summarises the terms employed by the authors of the 105 papers to describe the types of pluralism in the IS field that they are concerned with. As this clearly shows, pluralism is conceived in a variety of ways in the IS literature. Thus, in some papers, pluralism is discussed predominantly in terms of data (quantitative or qualitative). Others refer to methodological, theoretical, paradigmatic (or sometimes more specifically, epistemological or ontological) pluralism, or focus on pluralism of research themes or topics. From Table 1 it can also be seen that individual papers frequently refer to more than one type of pluralism (so the total number of papers in Table 1 is greater than 105).

This inconsistency hampers debate about pluralism because it potentially conflates very different types, treating them all as equivalent and assuming that claims made in relation to one can be applied unproblematically to all. Whether a study uses numbers or words to describe the phenomena being investigated, for example, carries no particular significance if there is a shared understanding of what those data are seen as representing. Thus, a research participant's rating of the ease of navigation of a website as 7 on a 1-7 Likert scale, might reasonably be considered to be equivalent to their reporting that the site was "very easy to use" in an interview. On the other hand, either words or numbers could be considered either as reporting an objective truth about a phenomenon, or as reflecting a person's contingent and subjective judgement. Combining data gathered with one assumption with data gathered with the other may be considered as giving rise to incompatibility, if not incommensurability. These concerns are expressed more forcibly where pluralism is seen to involve paradigms or directly relates to philosophical assumptions.

Other types of pluralism, of theories or of research topics, however, might be viewed as signs of healthy diversity, especially given organisations' continuing exposure to technological innovation. It is unclear that one or a small number of theories should be expected to be sufficient to address such a dynamic context or that the field should restrict itself to a particular set of topics for all time.

As can be seen from Table 1, methodological pluralism is the term most frequently used to describe IS research pluralism in the reviewed papers. This does not necessarily mean, however, that papers using this term understand methodological pluralism in the same way. For some, it refers to the use of quantitative and qualitative data in the same study (Wei, 2012) for others e.g. Mingers (2003) to the use of particular data-gathering techniques (e.g. surveys, interviews, experiments), while yet others would associate methods with particular paradigms (e.g.Goles and Hirschheim, 2000), giving methodological pluralism a necessarily philosophical dimension.

This confusion is not unique to the IS field. Thus, Buchanan and Bryman (2009: xxviii) note in relation to research methods textbooks: "many commentators use the terms methodology, design, strategy and methods synonymously, inclusively … and often without precise definition". One response to this situation, that Buchanan and Bryman espouse, would be to adopt what may be regarded as a minimum definition of methods, restricting it to "a tool or technique or approach for collecting data" Buchanan and Bryman (2009: xxvii). While this would have the virtue of simplicity, however, it would be inconsistent with much of the IS literature on pluralism and avoids some of the key controversies on pluralism in the field.

In practice, therefore, the types referred to in Table 1 are far from mutually exclusive, nor are they necessarily collectively exhaustive, although this, in itself may be considered evidence of the field's pluralism and of the absence of mechanisms to promote, or enforce, standard definitions. To the extent, however, that these constitute the range of dimensions used by IS scholars to describe the pluralism in the field, they may nevertheless be seen as indicative of the types of diversity manifested in IS research.

Type of pluralism	Number of papers
Data	11
Epistemology	10
Method	76
Ontology	4
Paradigm	31
Theory	12
Topics	7

Table 1: Types of pluralism discussed in reviewed papers

If Table 1 describes the dimensions of IS pluralism, how IS studies differ from one another, this is only part of the story. A further issue in relation to pluralism concerns how studies that differ from each other on particular dimensions relate to each other. This has been addressed in various ways in the IS literature.

As the discussion of the history of pluralism above indicates, one response to diversity has been to try to suppress it and to argue for methodological monism, either on the grounds that there is only one valid way to conduct research and that other approaches are therefore illegitimate, as argued by Farhoomand and Drury (2001) or on the pragmatic grounds that, as Benbasat and Weber (1996) argued, it will be in the best interests of the field to focus on a single approach, even if there may be good arguments for other approaches. These positions may be termed monistic naturalism (for its commitment to the methods of the natural sciences) and normative monism (for its pursuit of a single approved approach to research for the field).

The alternative to monism, however, is not just a general pluralism. Rather several different pluralist positions on the relationship between different research approaches may be distinguished. One way in which these positions vary, is between those that propose that differences between positions can be reconciled and others that see them as only coexisting, without necessarily any common understanding. In terms of the first, convergentist, positions, we may further distinguish between convergence through commensurability, and convergence through a shared reality.

The argument for commensurability proposes that there is a common material reality against which different understandings can be tested. Particular positions may be incompatible, but, in time, false understandings will be eliminated, and a shared, true understanding will be able to emerge. Triangulation, as discussed by Gallivan (1997), whereby findings from one research method are used to validate the findings from another, may be taken as one expression of this position.

A less direct form of reconciliation is discussed by Mingers (2001) who argues that different paradigms (with their associated methods) may address phenomena differently, but that reality is such as to accommodate these alternative perspectives. Truth is seen to transcend its many different formulations. In terms of the parable of the blind men and the elephant which is sometimes used to explain this position, there is a real elephant, even if different researchers' appreciation of it varies significantly depending on whether they have encountered the ear, the tail or the trunk.

Two alternative approaches that question reconciliation, but argue that different approaches can coexist, may similarly be identified. The first of these argues that understanding of the world is shaped by individual experience and this will always vary from person to person. There is therefore no necessary commonality between understandings, as each researcher will see the world in their own way. Each researcher, from this perspective, encounters their own version of an elephant that may be nothing like anybody else's. Such a view implies a form of strong relativism that is often associated with Feyerabend (1975). While this position is rarely adopted in the IS literature, indeed several of the reviewed papers are at pains to dissociate themselves from it, it has recently received some support from Treiblmaier (2018).

The second approach associated with coexistence also problematises the idea of a unitary reality, even of the differentiated Critical Realist type that Mingers (2001) and Zachariadis et al (2013) argue is able to

reconcile pluralist perspectives. Unlike the relativist, however, different methods are seen as sharing common principles of reason that enable some degree of mutual intelligibility. Researchers can employ a common language to describe their experience of their elephant, therefore, even if they are not necessarily describing something they have in common. A version of this position may be seen in the call by Landry and Banville (1992) for a "disciplined methodogical pluralism" that would require proponents of new research propositions to apply a systematic evaluatory framework to their claims. This, Landry and Banville (1992: 94) argue, would "have the general advantage of substantially improving the communication process within the field of MIS" and "force a quicker elimination of untenable research proposals".

Following Watson (1990) these positions may be termed, respectively, pluralism of hypotheses, methodological pluralism, perspectival pluralism and archic pluralism. Prior discussions of pluralism have arrived at similar categories. Thus, Klein et al (1991) refer to proponents of monistic naturalism as supremacists and describe proponents of something similar to pluralism of hypotheses as advocates of contingency. They reserve the term pluralists, however, for perspectival pluralists, which would seem to deny the pluralism of other approaches, although they acknowledge that, in practice, other positions which they describe as eclecticism and radical contingency are quite similar to what they describe as pluralism. An alternative categorisation is offered by Fitzgerald and Howcroft who distinguish between supremacism (which covers monism of both varieties), isolationism (akin to perspectival pluralism), integrationism (which, like pluralism of hypotheses, seeks to combine alternative approaches into a single coherent mode of analysis, although they include Landry & Banville under this heading) and pluralism (which would seem to combine Klein et al's eclecticism and Watson's methodological pluralism). Given the inconsistencies within and between these various typologies, Watson's terminology will therefore be adopted for this paper, as it offers the most clear-cut distinctions that can be applied to views of pluralism in the IS literature. Watson's categories are extended, however, to include the two variants of monism that have been advanced in debates on pluralism in the IS field, as shown in Table 2.

	Reality	**Epistemology**	**Methods**	**Example from the IS literature**
Monistic naturalism	Unitary	Unitary	One right way	Farhoomand (1987)
Normative monism	Unitary	Unitary	One best way	Benbasat and Weber (1996)
Pluralism of hypotheses	Unitary	Plural and compatible	Address a common reality	Gable (1994)
Methodological pluralism	Unitary	Plural, but partial	Offer partial perspectives on shared reality	Mingers (2001)
Perspectival pluralism	Plural	Plural and incompatible	Anything goes	Treiblmaier (2018)
Archic pluralism	Plural	Plural, but mutually intelligible	Disciplined pluralism	Landry and Banville (1992)

Table 2: Alternative positions on pluralism

In terms of the debates in the IS literature, each of these positions may be seen to offer a different response to the existence of pluralism in the field. Each of them, however, also raises potentially significant challenges in addressing the existence of pluralism. Thus, the appeal of monistic naturalism lies in its alignment of IS research with the high status of the natural sciences, its promotion of a consistent set of methodological principles, its pursuit of a cumulative and progressive programme of research and its provision of clear and strongly-backed validity criteria for evaluation. Were it to be adopted as a solution to pluralism in the IS field, however, it would require the exclusion and/or suppression of long-standing traditions of IS research that conceive of information systems as fundamentally social, rather than just technological, systems (Hirschheim 1985), that, it is argued, are not adequately addressed by the "standard

scientific model." Nor, as debates in the sociology and philosophy of science illustrate, is this standard model necessarily as monolithic as its proponents suggest.

The case for normative monism is generally made by reference to the threat that diversity poses to the recognition of IS as a distinct academic discipline and the effects this will have for the "funding levels, publication productivity, and political influence" (Benbasat and Weber, 1996: 393) of the field. Drawing on the argument made by Pfeffer (1993) on the weakness of organizational science as a research field compared to economics, it is argued that without adherence to an agreed corpus of topics, theories and methods, the IS field is at risk of hostile takeover by more cohesive and rigorous disciplines. While acknowledging that diversity brings some benefits, the call is made for it be curtailed for the greater good of the field.

Despite claims by advocates of pluralism that publication practices in the IS field have tended to suppress diversity (e.g. Chen & Hirschheim, 2004), however, these appeals for greater unity in the field would not appear to have been particularly successful in their attempt to "convince or cajole … colleagues about the direction the field should pursue" (Benbasat and Weber, 1996: 398). Although, in part, this may reflect the emergence of journals receptive to alternative perspectives and possible differences in attitudes to pluralism in the European and North American IS communities, it would also appear that the unitarist rhetoric (forcefully analysed in Van Maanen's (1995) responses to Pfeffer) has been insufficiently persuasive. Nor would there seem to be institutional mechanisms within the field that could enforce any move towards monism.

If monism is considered to be unachievable then perhaps the best that can be hoped for is some form of managed pluralism. As has been discussed, there are several variants of this that reflect different views of whether, and if so how, alternative research approaches may be reconciled. Arguments for reconciliation highlight several reasons for pursuing such a course. Venkatesh et al (2013), for example, identify seven purposes for the adoption of mixed methods that they refer to as complementarity (blending methods to gain complementary views of the same phenomena or relationships), completeness (ensuring a complete picture of the phenomenon), developmental (one method gives rise to questions that are addressed by another), expansion (explaining or expanding on the understanding from another method), corroboration/confirmation (assessing the credibility of inferences from another method), compensation (compensating for weaknesses of another method) and diversity (seeking divergent views of a phenomenon). This list contains a mix of different claims that may help to distinguish between alternative positions on pluralism.

Thus, complementarity, completeness, corroboration/confirmation and compensation may all be argued to share a view that different methods are commensurable. If a combination of methods is to fulfil any of these purposes the methods must share some common understanding of reality. Without this they will talk past each other and not achieve agreement. As has been noted, this is the logic of triangulation and of pluralism of hypotheses. Following Fielding (1986) and Blaikie (1991), however, it may be argued that this view relies on assumptions that are not necessarily universally shared.

That this is the case, even with proponents of convergence, may be illustrated by the differences highlighted by Zachariadis et al (2013) in their view of the purposes of mixed methods identified by Venkatesh et al (2013). They point out, for example, that Critical Realist multimethod research would question whether statistical generalisations at the empirical level can "make meaningful connections with and validate the qualitative results … whose purpose is to identify active mechanisms" (Zachariadis et al, 2013: 864). In relaxing the assumption that methods share a common understanding, therefore, this methodological pluralism allows for greater eclecticism. It still retains an assumption, however, that the divergence of methods reflects their different views on a common, albeit complex and multidimensional reality, rather than because of any inconsistency between these views. Methods may not be directly complementary, compensatory or corroborative, but there is nevertheless the possibility of some degree of meaningful connection.

Going one step further in relaxing these assumptions, archic pluralism locates the potential for connection solely in the realm of common processes of reason. Methods may not agree on how IS phenomena are to be understood, but they can communicate their differences and promote development, expansion and diversity through their interaction, albeit within the terms of their own understanding. Some loose form of complementarity and compensation, for example in relation to depth vs breadth of analysis, may also be possible. Expansion and diversity are also emphasized, although, for Robey (1996) this also brings with it

responsibilities: to be disciplined in the pursuit of individual methods; and to work towards collaboration across approaches in a spirit of tolerance and genuine appreciation of difference. The unanswered question hanging over such interactions, however, is how far the IS field constitutes a space of genuine dialogue (Bohm, 2003) in which assumptions are suspended and space opened up for creative reconceptualisation on both sides or whether appeals to pluralism are simply rhetorical (which, of course, also applies to exchanges in other forms of pluralism).

Removing any requirement even for mutual intelligibility or communication we arrive at the most radical, perspectival, version of pluralism. Diversity is maximized, but no other correspondence between methods can be assumed. Such a stance it is suggested will foster progress and lead to new insights (Treiblmaeir, 2018), although, for many in the IS field, at the cost of anarchy, a rejection of scientific method and a betrayal of the discipline's pursuit of academic credibility. Indeed, this is sometimes the basis for rejection of any form of pluralism as any relaxation of monism is seen as inexorably leading to complete relativism.

The contributions and challenges of each of the positions on pluralism in the IS field are summarized in Table 3.

	Key contribution to pluralism debates	**Potential challenges in addressing de facto pluralism**
Monistic naturalism	Clearly demarcates scope and character of what counts as research	Assumes that there is only one type of valid research and that this is suitable to understand all phenomena
Normative monism	Seeks to promote the legitimacy and coherence of IS research	No mechanism to exclude other approaches
Pluralism of hypotheses	Provides grounds to choose between approaches	Assumes that these grounds are shared
Methodological pluralism	Allows that different approaches may lead to different understandings	Assumes that the reality is such as to reconcile these understandings
Perspectival pluralism	Allows maximum diversity of approaches	No common ground between different approaches
Archic pluralism	Allows that different approaches may rely on incompatible assumptions	Mutual intelligibility may not be possible and may be insufficient to resolve differences

Table 3: Contributions and challenges of alternative positions on pluralism

Active Realism, an alternative view of pluralism

The fears expressed in relation to pluralism, especially of a non-convergent variety, are often based on an appeal to "science" (normally assumed to be natural sciences, but also sometimes extended to psychology and, in some cases, the social sciences). Key features of science that it is feared that IS research will lose if pluralism is let loose include: realism; the pursuit of truth; progression on the basis of cumulative growth of knowledge; evidence of successful application and the achievement of disciplinary maturity. Recent work in the history and philosophy of science by Chang (2012), however, has raised questions about whether science does, or should, exhibit these features.

Chang's argument is developed in a book, provocatively entitled, *Is Water H_2O?: Evidence, Pluralism and Realism* the main focus of which is a detailed account of how H_2O came to be accepted as the chemical formula for water. This seeks to show that, rather than being immediately and incontrovertibly established at a precise moment, the shift in the understanding of water from it being seen as a primary element to a view of it as a chemical compound of a specific form was gradual and contested. Alternative theories, notably "phlogiston theory", championed by the eminent scientist Joseph Priestley, offered empirically well-supported challenges to Lavoisier's oxygen theory, the evidence and arguments for which were seen as

far from incontrovertible at the time. The lack of conclusive evidence to rule out phlogiston theory, Chang (2012: xvii) puts down to "genuine methodological incommensurability".

There is not the space in this paper to rehearse the details of Chang's case, especially as some of these are contested by Kusch (2015). For the purposes of this paper, however, there are two aspects of Chang's argument that would seem relevant to the debate on pluralism in the IS field. The first is the evidence that it provides, suggesting that progress, even in the natural sciences may be less clear cut and linear than it tends to be portrayed in the IS literature and secondly, and more importantly, is the doctrine of "Active Scientific Realism" that Chang develops from it.

Questioning the standard model of scientific progress

Representations of scientific progress in the IS literature have long been contested, often on the basis of disputed readings of Kuhn's concept of scientific paradigms. Whether or not particular interpretations of Kuhn have been true to the original (Hassan & Mingers, 2018), four types of implications are generally drawn from the concept. First is that the advancement of knowledge is punctuated, with extended periods of normal science being sporadically overturned by new paradigms that fairly rapidly establish themselves as the new orthodoxy. Second, that within periods of normal science knowledge advances on the basis of shared understandings. Third that the succession of paradigms is initiated by the emergence of anomalies within the established paradigm, and fourth, that the successor paradigm is able to resolve these anomalies and incorporate previous understandings.

It is not clear, however, that this is a good description of how knowledge has grown in the IS field, which rather resembles the conditions described by Davis (2010) in relation to organization theory. Progress in organization theories, he argues, has been vitiated by limited debate between different schools of thought and the absence of decisive common tests that would allow choice between them. What cumulation of knowledge there may be, therefore occurs within silos rather than leading to field-level advance. Of particular relevance to IS perhaps Davis also argues that the premium placed on innovation in organizations creates conditions that challenge the pursuit of stable generalizations.

If there is a poor fit between the evidence of progress in the IS field and the process associated with the standard scientific model, then perhaps it is rather in its adherence to the principles on which this model is based (and that were identified above as the bulwark against lawless pluralism) that the progress of IS research should be judged. Chang (2012) argues, however, that these do not constitute a viable source of guidance. Thus, the primary focus of this standard model is seen to be the pursuit of truth. That is, new theories and evidence are seen as enabling us to get closer to the truth about the way the world works, and old theories will be discarded because they are shown to be false. Chang argues, however, that the truth yielded by scientific research is contingent, rather than absolute. It amounts to a claim of correctness within a particular system of practice. Similarly, scientific investigation cannot hope to provide absolute certainty. Indeed, were that ever to be achieved it would mark the end of inquiry.

Two further aspects of what is seen to be the standard scientific model that are invoked in debates on pluralism in the IS field are the arguments from success and from maturity. The first of these holds that evidence of the truth of science can be judged from its success. Yet success may have several meanings (such as empirical adequacy, explanatory power, or unifying power) and, in practice, it is always relative, never absolute. Inferring truth on the basis of such unreliable evidence, Chang argues, would therefore seem suspect.

Furthermore, as Chang points out, in the course of history there will have been many theories which are now considered false that were considered successful in their day. Nor, on the same grounds, can we assume that the empirical success of current theories is necessarily indicative of their truth. This is the so-called "pessimistic induction". Chang (2012: 226), however, argues that this should actually be grounds for optimism. "Instead of feeling depressed by the fact that success does not give us warrant for assuming that we are in possession of the truth, we should be thinking: how wonderful it is that we can be so successful without even knowing the truth!".

The argument from maturity tends to be adopted as a defence against the pessimistic induction, by claiming that the failure of earlier theories can be attributed to the immaturity of the fields that gave rise to them. This would seem particularly relevant to discussions of IS pluralism, given the field's perennial anxiety about its maturity (Landry and Banville, 1992; Baskerville and Myers, 2002; Grover, 2012). Yet, there is no

reason to believe, Chang proposes, that the period of time that a field has been in existence has any necessary relationship with the truth of its claims. A new field might come upon truths early in its career, but another might struggle indefinitely. Time itself would not seem enough to ensure that the outcomes associated with maturity will be achieved. Whatever maturity the IS field has, or has not, achieved gives no guidance on the truth status of the findings of IS research.

If pluralism means the abandonment of claims that research can achieve truth or certainty or that the field can claim success or maturity, then concerns that it represents an abdication of reasonable standards of research practice may be understandable. With no firm grounds or direction for research, what is to prevent the inexorable slide into relativism? Does this not imply giving up on realism, on the belief that research aims to provide the truth about what the world *is* really like?

Active Realism

On the contrary, for Chang, realism is possible, indeed potentially strengthened, by pluralism Taking as his starting point a definition of reality as "whatever is not subject to our own will" (Chang, 2012: xix) he argues that knowledge is then "an ability to act without being frustrated by resistance from reality" (Chang, 2012: 203). Research, Chang argues, should therefore strive to maximise our contact with reality so that we can learn from it.

Rather than seeking to eliminate research approaches on the grounds that they fail to deliver truth (which, Chang argues, is in any case unachievable), or to preserve only those that have previously been considered successful (because, following the pessimistic induction, their successors may be expected eventually to fail too – a position he calls "conservationist pluralism") we should encourage all approaches that are committed to engaging with reality. This engagement does not assume commensurability between approaches, but rather that each pursues correctness within their particular system of practice. For monists and convergent pluralists this may seem no different from relativism, but Chang argues that they are quite distinct. Thus, relativism renounces judgement and commitment, whereas pluralism actively pursues productive engagement between approaches. Pluralism is no less demanding of judgement, therefore, than monism or convergent pluralism, it just does not insist on one right answer. As Chang puts it, the slogan would be "many things go", rather than "anything goes".

Chang's pluralism is also active, in the sense that it encourages diversity rather than just accepting it. Rather than "the armchair pluralism of declaring "let a hundred flowers bloom"", Chang (2012: xx) argues, we should cultivate the 99 flowers that would normally be neglected. Such a position he recognises may provoke a number of concerns: that it would allow all sorts of crazy ideas to flourish; that it would lead to chaos and loss of focus; and that it would be too costly. Chang's response is that pluralism does not mean that all ideas have be encouraged, but that it may be beneficial to promote more than one. Really crazy ideas will be eliminated by reality, but those that survive should be taken seriously, even if we disagree with them. Insistence on the incontestable truth of one position risks the exclusion of new thinking and potentially productive debate.

While the diversity of a pluralist system may indeed be a distraction for some researchers, there is no requirement for individuals to pursue multiple approaches, as it is pluralism at the field level that is to be encouraged. Individual researchers should just not seek to prevent others from pursuing approaches that differ from their own. Similarly, the promotion of diversity inevitably carries some costs, but, Chang argues, these need not be prohibitive and have to be weighed against the opportunity costs of the foregone benefits of excluded alternatives. Nor is it necessary for all possible approaches to be pursued or for every approach to be equally funded. There can be rewards from keeping more than one option open.

More broadly, an active pluralism is seen as bringing two types of benefits to a research field. One is the benefits of toleration, such as hedging the bet, division of domain, and satisfaction of different aims. The other, arguably more important, is the benefits of interaction. Such engagement between research approaches may be of three forms: integration, co-optation and competition. Integration of approaches, Chang suggests, may involve their ad hoc combination, although it is not clear how effective this will necessarily be in all circumstances.

Co-optation, in which ideas and techniques from one approach are appropriated by another can occur, Chang proposes, even without meaningful communication between approaches and despite incommensurability. Thinking that has become narrowed by conventions of one approach may be unlocked

by the creative repurposing of elements of knowledge from another. Similarly, competition should seek to stimulate, rather than eliminate, alternative approaches.

Chang therefore describes his position as "active normative epistemic pluralism". It is active in being committed to the promotion of plurality, normative in proposing that this will benefit research practice, and epistemic, as opposed to metaphysical, in seeking to improve the way that knowledge is acquired, rather than to make claims about the nature of reality.

What might Active Realism contribute to IS research?

At first glance, Chang's argument, based on evidence from developments in chemistry that occurred more than 150 years ago, would not seem an obvious source of insight for contemporary IS research, the continually evolving subject matter of which could, at the very least, be said to have a significant social dimension. The difference in timing and in the nature of the focal phenomena, however, arguably supports the case for pluralism. If the case can be sustained with respect to research on the objective physical properties of matter, then it should also be applicable to research on the more dynamic, indeterminate and social phenomena that are studied in IS research. The history of chemistry may therefore be considered as a hard, or extreme, case for the argument for pluralism. It also provides a corrective to assumptions in the IS literature that the natural sciences support arguments for monism.

A more significant difference between Chang's case and IS research is perhaps his focus on theory, rather than method. As has been observed, it is methodological pluralism that has been much more widely debated in the IS field. This difference, however, may reflect the relative (although far from absolute) methodological monism of chemistry at that time, where all parties employed experimental methods to obtain their findings and the dispute was about the theories that could best explain them. This did not preclude the use of different experimental apparatus and disagreements about what should be considered evidence and how this should be interpreted, but there was broad agreement on what the phenomena of interest were and how they should be investigated. In the IS field, in contrast, both what the phenomena of interest are and the appropriate methods to investigate them are contested.

Nevertheless, the concern of research in both cases is to achieve knowledge about the phenomena of interest that does not simply reflect the researcher's own understanding, that is, that, from Chang's perspective, can survive an encounter with reality. This is the case whether "whatever is not subject to one's own will" is a material process in the natural sciences or another researcher's interpretation in a hermeneutic analysis. It is epistemic pluralism, in the way that knowledge is acquired, that Active Realism seeks to promote, rather than specifically theoretical or methodological pluralism.

This promotion of pluralism is not just about proliferation for proliferation's sake, but to improve knowledge acquisition through engagement between research approaches. Following Chang, we may consider various forms that this engagement might take. Turning first to toleration, the argument of hedging bets may be potentially less relevant in the IS field where research approaches are rarely in direct competition in seeking to explain a common, stable phenomenon. Even where there is a shared program of research, for example around the Technology Acceptance Model it is not clear that this takes a form whereby alternative methods (or theories) yield contrasting explanations of phenomena (Benbasat and Barki, 2007). More generally IS research would seem to resemble Organisation Theory, where, Davis (2010) argues, research approaches are distinguished more by the questions they ask rather than the answers they propose. As a result, there is no common basis for comparing approaches with each other.

There is some degree of division of domain in the IS field. Compare, for example, the many papers measuring effects of recommendations in online marketplaces with economic analyses of the efficiency of these markets. Groups of researchers approach a common topic from different angles. This would not seem to be the product of any particular commitment to pluralism, but rather of the IS field's openness to multiple reference disciplines. There is little sense, moreover, that any such division of domain reflects any mutual agreement on the most effective way to advance knowledge in the field.

There is a similar situation in relation to satisfaction of different aims. As Gregor (2006) argues, IS theories may be seen as pursuing four different goals: analysis, explanation, prediction and description. While some of Gregor's types of theory address more than one of these, much IS research typically seeks to satisfy only one, without any necessary concern for the others. Again, however, this would seem to reflect the

fragmented character of the field rather than any coordinated effort to achieve complementary understanding.

Toleration would therefore seem to be fairly well established in the IS field, although more because there is rarely much in common between the practices and concerns of different research approaches, than because there is any strong support for pluralism. So long as different strands of research are able to continue along their distinct paths, there is little cause for them to engage with each other.

This does not mean that there is no tradition of interaction in the IS field. As has been noted, however, despite regular advocacy of the integration of research approaches in the IS literature and the publication of a number of papers presenting what they propose as exemplars of such integration, the adoption of multi-method research in the field remains quite limited. Whether or not this is due to genuine incommensurability, or to cultural, cognitive, practical or institutional constraints is still the subject of debate. That the integration that does occur is predominantly of qualitative and quantitative data, where incommensurability is arguably less of an issue than with paradigm or epistemological integration (or, indeed, may be no issue at all), however, might suggest that, whatever the other constraints on mixing research approaches, incommensurability cannot be entirely ruled out.

More generally, effective integration of approaches requires a degree of shared understanding of the phenomena of interest and the ways in which they may be understood. As has been argued, such convergence of perspective and practice is rare in the IS field. Perhaps, in time, new ways of transcending or reconciling the current fragmentation that will enable integration will emerge, but for the time being it seems unlikely to become commonplace.

If full integration is likely to continue to be problematic therefore, perhaps there could be more scope for co-optation. In the IS field, however, co-optation, in the form of theory-borrowing, has largely occurred from reference disciplines rather than from other IS researchers (Grover and Lyytinen, 2015) and has often been seen as evidence of the immaturity and inferiority of IS research relative to more established subjects (Baskerville & Myers, 2002). Pluralistic intra-field co-optation may therefore avoid such concerns. It may also enable a less deferential approach to borrowing, where it may no longer be felt to be so necessary to advertise the fidelity of the appropriation. Rather, it might become possible to enable a proper acknowledgement and justification of the adaptations that the researcher has made to the original concepts to align them with the distinctive character of the new context in which they are deployed. As a consequence, more constructive debate may be possible on how concepts such as structuration (cf DeSanctis, and Poole, 1994) or affordance (Zammuto, et al, 2007) have been treated in the IS literature, without any longer needing to insist that this has always been entirely consistent with their original formulation.

Co-optation within the IS field may also be possible at a more disaggregated level, by which elements of one research approach are redeployed in another, with or without the awareness or approval of the source. These co-opted elements may include concepts, typologies and measures. In some domains this may be a well-established practice, for example where validated instruments to measure particular constructs, such as concern for information privacy (Smith et al, 1996), have been developed and are reused or adapted in other studies. The co-optation of such elements is likely to be easier where approaches share core assumptions, but the borrowing of elements can occur despite incommensurability. Consider, for example, the very different perspectives on knowledge management or knowledge sharing that might be associated with the various images of knowledge (embodied, embedded, embrained, encultured and encoded) discussed by Blackler (1995). Yet all might seek to address similar phenomena.

Co-optation is primarily discussed here in terms of theoretical borrowing, but methodological co-optation is also possible. The extent to which methods can be deconstructed and recomposed with elements from other approaches, however, seems likely to be more limited than for theories, where individual concepts may perhaps be more easily lifted out from the network of assumptions and practices within which they were developed. This is not to say that this is actually the case, but the dependence of a concept on certain assumptions may be less evident than, say, the dependence of statistical methods of data analysis on the gathering of quantitative data. The scope for potential methodological co-optation may therefore be somewhat constrained, but it may still be beneficial to encourage researchers to consider the possibility of new combinations of elements of research methods (such as types of data, or data gathering or analysis methods), not least to avoid the unreflective treatment of methods as indivisible and incontestable conglomerations. Even if these new combinations are not ultimately considered to be viable, the debates

they provoke may challenge established methods to be clearer about (and provide a better rationale for) their assumptions.

The challenge to competition between research approaches in the IS field lies not just in the general absence of common principles against which any contest could be decided, but also in the absence of incentives or mechanisms to enforce any decision. Perhaps, as Chen and Hirschheim (2004) argue, publication practices have some influence here, but they would seem incapable of suppressing any approach completely. Even were the institutional structures of the IS field more rigorous, as some might wish for, the argument for pluralism would view the competition between approaches as leading not to exclusion, but to co-existence and constructive disagreement. Thus, rather than seeking to delegitimise alternative approaches, as Mutch (2013) was seen to have done, for example, in describing sociomateriality as a "wrong turning", it would seem more productive to encourage debate on those aspects of alternatives that are viewed as problematic (without insisting on the correctness of one's own position). At the same time, it would be for proponents of alternative approaches to respond to these challenges and not to retreat into defensiveness. The expectation from such engagement would not necessarily be the resolution of differences, but a willingness to seek to address the concerns raised (insofar as this is possible from the alternative perspective). The response by Scott and Orlikowski (2013) appeals to such a pluralistic view, but, in that paper at least, does not take the next step of showing how this might be worked out. For example, to discuss directly why the criticism that sociomateriality shows "a lack of specificity about the material and a neglect of broader social structures" (Mutch, 2013: 31) is misplaced.

What this exchange on sociomateriality also illustrates is perhaps an arguably more important implication of pluralism which relates to the attitude to one's own and others' knowledge. Chang (2012:238) identifies pluralism as seeking to promote "tolerance, humility and circumspection, combined with a tough questioning attitude" and argues that this should be considered a sign of maturity, both of individuals and of research communities. The essential humility of Active Realism, he proposes, comes from a recognition of the fallibility of the capabilities of any human knower and of the methods that they use. "We are limited beings" Chang (2012: 255) argues "trying to understand and engage with an external reality that seems vastly complex, apparently inexhaustible, and ultimately unpredictable". Acknowledging this should not be cause for resignation at the impossibility of certain knowledge, but for the active pursuit of knowledge in the awareness of its fallibility.

Such an attitude may also contribute positively to current debates about the lack of original theorising in IS research and the limitations of the field's dominant epistemic scripts (Grover and Lyytinen, 2015). By freeing researchers from an expectation that research within the field should be cumulative and convergent it may be possible to allow, indeed support, the co-existence of programmes of research that may be based on very different assumptions. The concern then is not the elimination of "wrong moves", but the stimulus to new thinking from the juxtaposition of difference.

The positive contribution of such diversity to creativity has been widely identified (Kozbelt et al, 2010). They therefore argue for a pluralism in which "a multitude of theoretical perspectives, with different assumptions and methods, and operating at different levels of analysis, all (ideally) contribute to a more robust - if at times, contestable – understanding" (Kozbelt et al, 2010: 20).

As they also note, however, diversity needs to be "in moderation", if it is too great, engagement between perspectives will be lost. As important as diversity itself, therefore, are the conditions under which it is sought to be promoted. The principles of collaboration proposed by Robey (1996) of respect, responsibility, trust, honesty, commitment, empowerment, support, admiration, honor and celebration may provide a (perhaps, as Robey (1996:407) acknowledges, "shamelessly idealistic") starting point for thinking about the qualities that this may demand of the IS community

Rather than striving to make the IS field monolithic, narrowing its focus and the range of approved approaches, therefore, researchers need to be able to position their work within the broader theoretical and empirical landscape of the field, and to recognize, and if possible respond to, the challenges that alternative approaches offer to their assumptions and perspectives. While an attitude of humility towards one's own views and respect towards others' will be necessary if such engagement is to be positive, it cannot be presumed that this will lead to the identification of commonalities, let alone to any necessary convergence.

Conclusions

Over time, pluralism in the IS field has been variously decried, tolerated and promoted. Underlying much of this debate, however, has been an assumption that different research approaches within the field are, or should be, capable of being reconciled. Without this convergence it is claimed, IS research: would be incapable of achieving the cumulative body of distinctive knowledge that is taken to be the hallmark of scientific progress; would fail to be recognised as a legitimate discipline; and, it is feared, would inevitably decline into relativism. This paper has drawn attention to the plurality within IS debates on pluralism that makes the issuing of definitive statements of its effects problematic. Different sorts of claims about the implications of pluralism may be appropriate in relation to data, for example, than in relation to epistemological pluralism. A more nuanced treatment of pluralism in the IS field would therefore seem desirable. As this paper has also sought to show, however, convergence is not a necessary condition for effective pluralism, either in science or, it is argued, in the IS field. Following recent work in the history and philosophy of science, a case is made for Active Realism that promotes non-convergent pluralism. Engagement is possible between research approaches, notwithstanding their potential incommensurability and various forms that this could take are discussed. Adopting such a stance, it is argued, would have the benefit of increasing awareness of diversity in the field and of the challenges this may pose to the assumptions and limitations of a researcher's chosen research approach. An acceptance of non-convergent pluralism may also encourage greater tolerance of others' approaches and humility with regard to our own knowledge. If we are no longer to eliminate approaches in search of the right answer, but are supportive of all approaches that seek to engage with reality, then this may offer a way to overcome the rigidity of conventions that are seen as stifling innovation in IS research.

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